THE STATE-BUSINESS RELATIONS AND THE FOREIGN INVESTMENT DECISIONS OF RUSSIAN FIRMS

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THESIS TITLE: **The state-business relations and the foreign investment decisions of Russian firms**

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THESIS SUMMARY

The present thesis strives to explore and comprehend the propensity of the firms from a major EM country, namely Russia, to expand their operations and boundaries beyond the domestic market and transit to multinationality. The prime aim and motivation of the endeavoured investigation lies in embedding the FDI behaviour of the Russian firms in a novel context of the evolution of state-business relations and the dynamics of organisational genesis, observed in the Russian state over the turbulent years of the neo-liberal and catching-up reforms. To attain a better level of comprehension of the heterogeneous FDI behaviour of the EM firms than conventionally offered in the IB theories, the present study takes a different path and elaborates a framework that adequately conceptualises the novelties of the empirical context by drawing upon network economics and political science. The suggested conceptual framework relates the drastic shifts in relational powers amid the major forces in the Russian economy and co-evolving political and economic networks to the FDI behaviour of the Russian firms, and also disentangles the FDI outcomes across the novel organisational forms reconstructed or newly-emerging during the three distinct periods of the state-business relations, commonly overlooked amid IB studies.

Besides rigorously testing the importance of conventional firm's attributes for the initial transition of the Russian firms to multinationality and the subsequent expansion of their networks of foreign subsidiaries, the developed time-continuous FDI transition models disentangle the relational mechanisms of domination and influence within the hybrid intra-state and extra-state networks founded by the Russian firms.

Keywords: *FDI propensities, Russian firms, hybrid networks, state-business relations, organisational genesis.*

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All mistakes and ambiguities in this thesis are solely mine, and I willingly accept responsibility.

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CHAPTER 1. INTRODUCTION

While a great deal of the influential theoretical work and empirical research have been devoted to explaining the determinants of foreign direct investment (FDI) and entry mode decisions of the firms from the OECD countries, still relatively scarce research has been undertaken and even less revealed about the foreign investment strategies and incentives prompting the firms from the emerging market (EM) countries to expand their operations and boundaries beyond the domestic markets.

To redress this imbalance in the established IB research, the present thesis aspires to explore the specific factors and conditions that enable the EM firms, which lack experience in the foreign markets, technological and managerial capabilities, and operating under changing institutional frameworks and opaque political regimes, to engage into international venturing. The accelerating outward FDI from the Russian Federation offers a novel historical context – far-reaching for an enquiry into the internationalisation strategies of the EM firms for several reasons.

The Russian economy had undergone the market-oriented reforms during the 1990s – unprecedented in scale and scope over the economic history. The political and economic transformations led to the emergence of new markets and industries, giving a rise to the diverse *"hybrid"* organisational forms or *"strategic groups"* (as defined by Peng et al., 2004), which are rarely encountered in the developed economies. The tight and recursive interaction with the radically transforming institutions necessitated the Russian firms to adopt *network-based strategies* of growth and expansion into the domestic and foreign markets, atypical for the Western organisations of a *contractual* type, and adapt to the changing nature of relations after the drastic shifts in the state regime in the early 1990s and 2000s. Those peculiar historical developments in the organisational founding and evolving interactions with the state are discussed further in *Section 1.1* of the current introductory chapter, with an aim to illustrate the empirical preconditions, which ought to be reflected in the conceptual framework. The improved understanding of how the growth of the firm's boundaries into the foreign markets have been facilitated or constrained by the relations with major economic and political forces – that the diverse business organisations and groups choose to cooperate within the formed hybrid networks, – will not only contribute to the extant theoretical frameworks of FDI behaviour of the EM firms, but will also offer immense practical implications for refining the firms' strategies and the governmental policies in the EM

and developed economies towards greater relational synergies and cooperative gains within the established models of the state-business relations.

To achieve this, the present research takes a different path and strives to enhance understanding of how those inter-organisational linkages among the major forces in the economy change the prerequisites for an initial foreign investment decision[1] by reducing uncertainty and strengthening adaptability in the turbulent political and economic markets, re-allocating resources among the state and business actors, sharing complementary skills and technologies, and inducing learning through shared mental models. The outlined research ideas depart from the traditional approach in the IB field, which largely ignored the development of political systems and state capacity in the EM countries, and advocate for incorporating the *network* and *political science* perspectives into a model of foreign investment decisions of Russian firms. As emphasised further in the discussion (*Section 1.1*), the division of political and economic motives of the firms within hybrid structures is in a great extent dysfunctional. The investment behaviour of the EM firms can be meaningfully described and comprehended only within a larger system of *co-evolving* economic and political interactions.

To achieve this level of comprehension, the further discussion in *Section 1.1* interweaves the history of emerging organisational types and interactions among the major forces in the EM states with the FDI patterns observed in the EM economies, and serves to illustrate the importance of a wider intellectual approach bridging the political and organisational reality with FDI outcomes, – which constitutes the chief aim of the present thesis. *Section 1.2* provides a further orientation towards the key objectives of the present research, and formulates the questions for which the present research intends to find the meaningful answers. The suggested research questions are incorporated into the research design; and the overall research structure of the present thesis is refined in *Section 1.3*.

1.1 The emergence of hybrid organisations in EM countries and their potential for internationalisation

The expansion and increased investment activity in the foreign markets is

[1] The conventional FDI prerequisites, as will be explained in the following theoretical discussion (*Chapter 2*), include firm's resource endowments, managerial and organisational capabilities, and incentives.

a discernible trend among the firms from the emerging market economies[2], and Russia particularly. In the late 1990s, after the period of liberalisation reforms, the enhancement of international competitiveness and internationalisation of the re-structured or privatised state-controlled enterprises, – often termed as "national champions" in the IB literature, – had become a pronounced policy objective for the BRIC governments. In China, and more recently in India, the "Go global" policy explicitly fostered the domestic firms to invest and acquire businesses abroad, directly affecting the firm's investment incentives and the ability to make strategic choices for a prompt growth in foreign markets.

Despite the similarity in the policy objectives, considering the EM firms as a homogeneous cluster of firms might be greatly misleading. The EM states differ immensely in the institutional configuration, the resource and financial capacity of the state, and its capability to efficiently and reciprocally allocate or acquire strategic resources and set developmental priorities across industries. The institutional diversity led to the emergence of distinct organisational landscapes[3], which were inevitably reflected in the national networks of equity ties and institutionalised relations between the state and emerging private business sectors[4], and hence the resultant investment strategies pursued by the EM firms.

The distinct reformation pathways, pursued by the EM states, produced the differing patterns of network formation across transitional economies, and inevitably contributed to the differing ways of the interaction of evolving domestic networks with the foreign direct investment position of the economies and individual firms. Those interactions can follow different scenarios, shaping the allocation of big capital and investment among the private domestic, hybrid or foreign-led networks: for instance with the emerging domestic networks crowding out foreign capital or, contrariwise, the subsequent eradication of domestic networks by foreign capital or radical separation

[2] Hereinafter, the term of emerging market economies is used in narrow sense to refer to the BRIC countries. The IMF categorises emerging market economies by the following criteria: (1) per capita income level, (2) export diversification, and (3) degree of integration into the global financial system (World Economic Outlook, 2016).

[3] Though the emerging types of organisational forms did not always match the intended design (Stark, 1996; Kogut and Spicer, 2002; Stark and Bruszt 1998; Stark and Vedres, 2012).

[4] For instance, the main strategic objective of the Chinese government has been the industrialisation of the backward economy, while Russia had to face an opposite target of restructuring and commercialising the heavily-industrialised sectors, which required different bureaucratic capacities and relational models with the business community, resulting in the diverse capabilities and resource endowments of the state and the business groups, and varying extent of economic partnership among the major interests.

of the foreign and domestic networks in a dual-segregated economy[5]. In case of Russia where private and public relations are inextricably intertwined, as will be shown in the following paragraphs, after the initial period of the formation of post-socialist domestic networks which locked out foreign interests, during the recent period the large capital have been distributing among the intra-state and extra-state networks, creating more complex networking patterns in the economy.

One observed peculiarity of the network formation is noteworthy, for it appears across all scenarios: the strong link between the macro-structural settings of the formation of organisational networks and the micro-outcomes, of which investment decisions take an important part. This link is history-dependent and reflects the intertwined and restructuring boundaries between the political, economic, and organisational fields, – rarely observed in the established and more stable environments of western economies.

The verity of the diverse institutional and relational models across the EM countries suggests the first target for the present research: to adequately reflect the organisational diversity in the EM economies and its outcomes for FDI behaviour of the EM firms. The attribute or "FSA" approach, widely exercised in the IB literature, tends to overlook the history of relations among the state and business elites and the dynamic nature of organisational genesis in the EM economies, merely equalising the EM firms of the diverse forms into one broad category. A narrow attribute approach has been also taken for granted in extant empirical explorations, missing an important source of heterogeneity in investment behaviour across the EM states, – which is incorporated as a primary focus and contribution of the present research.

The recent policy shift to the promotion of outward FDI has been accompanied with the demise of the political and social institutions and the large-scale ownership reforms in the EM countries, leading to a rapid emergence of distinctive organisational forms and property types – pursuing diverse growth strategies and investment choices, – not falling on the continuum of "*hierarchy*" or "*market*" organising modes typical for the organisations of Western type. Contrary to the conventional presentation adopted in the IB research from the transaction cost economics, the organisational structures in the EM economies rather reside along the "*power continuum*" among the major forces in the country – domestic and foreign, reflecting the embeddedness, interactions, and

[5] As illustrated, for instance, by Stark and Vedres (2012) in the social sequence analysis of ownership networks, political ties, and FDI in the case study of Hungary.

amalgamation of the economic and political interests, emerging and waning after the critical junctures along the transition paths.

In result of the initial waves of privatisation in the 1980s and the 1990s, aimed to re-design the scope of state participation and control over economic life, the subtle balance in the bargaining and market power between the state and emerging private business groups has been drifting from the total state control towards the capture of the state by the self-establishing domestic private interests and foreign capital, seeking for access into the potential markets. The emerging private and foreign forces had been accumulating the political and economic power through distributional conflicts and takeovers – often with semi-legal means, shifting the balance in strategic national resources, previously controlled by the state. The balance of power differed immensely among the transition economies: the business sector in East European states was implementing the foreign-led growth strategies (Stark and Vedres, 2012), while the Russian political arena had been gradually overtaken by domestic private interests.

As further evidence of the diversity amid the EM economies, the EM states had encountered drastically different issues with the rising powers of private domestic and foreign investors. While the Asian states were flooded with short-term foreign capital and formed dependency, the weakness of the Russian state, after demising its institutional capacity, endured violations of the law concerning the transfers of assets and property rights to new owners, leading to incapability of the state to induce transparency and prevent asset-stripping, which contributed greatly to delegitimising the Russian state and the emerged private corporations.

The influence of the state in the former planned economies and its participation in production has become noticeably weaker across most of the industries, giving away market space to the newly-founded *privately-owned* (POEs) and *foreign-invested enterprises* (FIEs), which have been driving the economic recovery and defining the FDI position of the EM states. As an illustration, the firms with foreign ownership produce a significant share of the total industrial output in the EM economies, – e.g., 18.7% in China (Ralston et al., 2006), – and demonstrate productivity levels, innovation capabilities, managerial and marketing competencies superior to the domestic state-owned and private enterprises. The share of the foreign sector in the Russian economy has noticeably increased over the last decade and varies across the industries[6], with

[6] For instance, varying from 27.8% in manufacturing, 28.2% in retail business, 47.5% in communication, 63.9% in wood processing – to 75.2% in metallurgy (Source: online Rosstat database, 2013).

productivity levels from 1.82 (in manufacturing) to 23.3 times (in retail trade and food market segments) higher compared to the pure domestically-owned enterprises (Balatskiy, 2009).

The distinctive trend of intense teaming with foreign investors and government bureaucracies enhanced the importance of the *vertical* and *horizontal networking strategies* for augmenting the capabilities of the EM firms and institutional pressures for achieving growth in the domestic and foreign markets. The emergence of two prevalent forms of inter-firm equity ties – i.e., vertical and horizontal network structures – has been well-documented in the research on transition economies (Stark, 1996; Voszka, 1997; Powell et al., 2005; Padgett and Powell, 2012; Stark and Vedres, 2012). The two patterns of network formation imply distinct relational models: the vertical networks creating centralised structures with strong core-periphery relations, while the horizontal networks adopt a more cohesive and decentralised model. Whether those relational models result in distinct patterns of resource exchange, learning, and investment incentives, which allow achieving growth in the foreign markets despite low efficiency levels, – will constitute another crucial question for the present research.

The sharp stratification of the societies and the emerging business community into the *privileged groups*, infighting for power over the critical assets and infrastructure, and the *latent groups*, struggling for survival in the periphery positions of the business sector, is in a great extent defined by the weak inclusiveness into distributional relations and decision-making. Despite the increasing evidence on the diminishing effectiveness and strength of the EM states, surrendering power to the privileged business groups in a result of the dubious privatisation efforts, the state embeddedness and interventions into the business relations in the EM economies have still remained at a significantly higher level, compared to the detached and sporadic state-business collaboration in the advanced countries. Furthermore in Russia and China, the state ownership has been expanding over the last decade in response to the post-transition catching-up institutional reforms. For instance in Russia, after the largest privatisation in the world history that was launched in the 1990s, the state sector had been shrinking over the years 1997–2004, contributing around 30% of GDP. However, the year 2003 served as a turning point for the major Russian policies and the state-building agenda. As a result, after 2005 the "quiet" or "creeping" re-nationalisation prevailed in the interests of the state seeking the sovereignty in controlling the critical infrastructure and strategic assets, which modified the nature of the state-business relations in Russia towards the state "strategic nationalism" (Chernykh, 2011). The contribution of

the *state-owned enterprises* (SOEs) to GDP have been increasing gradually: up to 35% in 2005, 38% in 2006, over 40% in 2008, and currently the SOEs contribute around 50% to GDP (Äslund, 2009; EBRR, 2010; Russian Ministry of Economic Development, 2012).

The cross-flows of ownership shares between the private and state sectors, and mutual shareholdings, have traditionally been dynamic in the EM economies with mixed ownership structures, though inducing the differing developmental outcomes. The embeddedness into business sector could empower the *developmental state* to compensate for resource, knowledge, and technological asymmetries amidst the business groups and foster the intra- and inter-industrial collaboration, hastening the catch-up of the latent business groups and peripheral industries. Whilst the *statist government* could reconstitute and retain the control over the strategic sectors and strengthen its bargaining power vis-à-vis the powerful private interests and foreign pressures. Particularly in Russia, after setting the political objective towards building a strong state in 2003, Putin's government reversed the market-building incentives of the previous "commercially-minded" regime for the statist policies oriented towards the reconstitution of the strong state. The liberalisation reforms were reversed and took a path to the full or partial nationalisation of the previously privatised firms and enhanced support for the already dominant state-owned enterprises in the banking and natural resource sectors, in order to oppose the state capture by the business elite during the initial transition period in 1990s and the influence of extra-state forces (e.g., foreign capital) over the domestic market and policy-making.

The share of the state-controlled enterprises, for instance, in the oil and gas industry has been increasing from 10% (as for 1999) to current 40–45%; to 49% – in the banking sector; and 73% – in the transportation industries[7]. Over several years, the state created holdings with pyramidal ownership structures across industries and, after 2007, established the state corporations to manage the government equity shares in a large number of firms. The new policy agenda can hardly be classified as developmental or a pure turn to statism, as suggested, for instance, by Hanson (2007a, 2007b), for the Russian state simultaneously incorporated and merged the economic and political rationales. The new government has been exercising direct interventions into the business sector via ownership acquisitions to tighten the control over valuable assets in the highly-sensitive strategic industries and limit the influence of foreign ownership. At the same time, it provided indirect incentives through subsidies, preferential

[7] Source: online Rosstat database (2013).

regulatory treatments and state-backed guarantees to further the developmental goals and prevent the decline of the senile industries. This dual nature of the state influence, reflecting the co-evolving economic and political networks, needs to be incorporated into the model of FDI behaviour of the Russian firms – which constitutes the second target of the present research.

The few far-reaching consequences of the policy change should be noted, as those have a prominent impact on the firm's incentives and capabilities to grow in the foreign markets. The Russian state has improved its financial capacity by retaining the monopolistic prices over energy products and accumulating the windfall profits in the reserve funds, and reconstructed its political strength via monopolising the main channels of influence over the public opinion on the state goals in the mass media sector. The state-building efforts drastically changed the balance in power relations between the state and the privileged business groups via inducing the direct control and establishing informal links with a tight group of business elite accredited to represent the state interests. Although raising the issues with the *state effectiveness* which up to now remained unresolved, the outlined developments have immensely enhanced the scope and strength of the Russian state – after the dramatic decline in both dimensions of the state-building in the 1990s, as, for instance, was depicted by Fukuyama (2004, p. 18). Besides, the shift to statism strengthened the state capacity to influence the behaviour of firms and their internationalisation efforts, though the precise effect of the state-business relations on the firms' international strategies and growth in the foreign markets remains unclear and controversial, and important to incorporate in the research objectives and the conceptual model of the FDI decisions of the Russian firms.

The extent of the state embeddedness into economic affairs and the peculiar model of the state-business relations vary among the EM countries pursuing the differing transition trajectories, and are determined by the national history, pace of the institutional reforms and political decentralisation, corporate deregulation and reforms, resource and intellectual capacity of the state and business groups. For instance, most of the SOEs in Russia and China had evolved from the traditional government-granted monopolies in the natural resource and manufacturing sectors established during the period of state-controlled planned economy, which explains the high SOEs incidence in those countries. In other BRIC states, contrariwise, the SOEs were established to boost industrialisation, when the private capital was scarce and reluctant to invest. The restructured or newly-founded SOEs are nowadays economically viable enterprises, and remain important actors in the raw-material extraction, energy,

telecommunication, transportation industries, and banking sector, which are associated with monopolistic rents and economies of scales.

Although the growth strategies of the SOEs had traditionally been oriented towards expansion within the domestic market, over the last decade the state-owned corporations have been accumulating market experience and capabilities, which allowed them to overcome the decision-making inertia and uncertainty, and expand their trading and investment activities into the world markets. The governments of the EM countries with the largest SOE sectors pursued internationalisation of their SOEs as an explicit policy, encouraging SOEs to lead the expansion of domestic firms (e.g., in China), or reducing bureaucratic impediments to facilitate the growth into foreign markets (e.g., in India), or providing financial resources (e.g., in Brazil). Although in Russia the international expansion of domestic firms has not been an explicitly ascertained aim of the state policy, the Russian government expressed political goals of international expansion and, in the adopted law on the state holdings and corporations[8], declared the aim of creating large state-owned vertically integrated structures and boosting their international competitiveness, which can indicate an effort to facilitate their growth abroad (Kowalski et al., 2013). This trend defined the emergence and prevalence of centralised vertical network structures with the state participation, featured with large rent-extraction capacities (Huber and Wörgötter, 1998).

The state prioritised the development of "national champions" and supported already dominant SOEs, which had not encountered insolvency risks, and expressed the political aims behind their international expansion. The pronounced shift in the state policy was followed by a wave of acquisitions performed by the Russian SOEs in the domestic and foreign markets[9]. It has further bolstered the state influence in the economy and increased international presence of the state-owned enterprises, which benefit from anti-competitive privileges granted by the centralised government, not enjoyed by private rivals in the domestic and international markets. The government-granted advantages may potentially generate cross-border effects, facilitating foreign

[8] The Federal Law on the State Corporations, dated 2007.

[9] The Russian state-owned firms are not predominantly oriented on the domestic market, and – compared to the SOEs from the OECD countries – more actively engage in international trade and acquisitions of foreign assets and technologies. Direct investment, R&D expenditures, and import of technologies undertaken by the Russian SOEs have been steadily increasing over the last decade, especially after adoption of the laws on state corporations in 2007, when the six state corporations were established. Foreign trade intensity of the Russian SOEs, – export shares in the total sales account for 6.5%, on average, – is not significantly different from private firms. The Russian firms with state ownership are as internationalised as private firms, and even more actively traded on the stock exchange market outside of Russia: 30% of the SOEs are listed, compared to only 9% of private firms (Source: online Rosstat database).

market access, affecting export competition and aiding the SOEs to extend their production networks abroad. Turning to numbers, Chinese SOEs became primary actors in outward FDI and account for 80–90% of FDI outflows (Cheng et al., 2007; Sauvant, 2010; Hurst, 2011); in comparison, 26% of country's total foreign assets are held by Russian SOEs[10].

The direct evidence on the strengthening involvement of the state into business relations and international orientation of the EM SOEs, along with the influence of foreign capital on the organisational genesis and restructuring in the EM economies, indicate the need for an in-depth comparison of the growth strategies adopted by the emerged diverse organisational types or "strategic groups" (Peng et al., 2004), contrasting the classic private firms with the hybrid firms maintaining the equity relations with the state (SOEs) and foreign firms (FIEs), and evaluating the possible cross-border effects of differing capabilities and resources leveraged within established formal and informal strategic networks. However to date, the IB field indicates a dearth of studies investigating the impact of the evolving models of the state-business relations in the EM countries, and resulting intra-state and extra-state networking strategies on international venturing and FDI propensity of the EM firms. Neither the international presence of the EM SOEs, nor the state networking strategies with the diverse business groups and its influence on the outward investment and venturing of the firms belonging to other property types has been adequately addressed in the IB or strategic group literature (Peng, 1996; Ralston, 2006; Kowalski et al., 2013).

All highlighted gaps in understanding the co-evolving political and economic context of the EM economies, and Russia particularly, shaping the investment decisions of the firms with classic and hybrid structures, constitute the major contribution of the present research. Having outlined the empirical basis for the research, the proceeding sections formulate the research objectives and construct the overall outline of the thesis.

1.2 The FDI propensities of Russian firms: setting the research objectives

Not long after the financial default in 1998 that marked the low point of the Russian transition process, the lower-middle income Russia has become a net exporter of capital, and the Russian firms, both state and privately owned, begun to develop into multinationals. Just in 10 years, Russia leapfrogged to the leading position

[10] Source: online Rosstat database (2013).

in outward FDI, and by 2009 had become one of the 15 most important investors, and the first among the emerging market countries. Since 2000, the outward foreign investment undertaken by the Russian firms has increased by 20 times, and reached USD 255 billion, or 19.8% of GDP (UNCTAD, 2008; Rosstat database, 2000–2012; Sprenger, 2008, 2010).

Besides the aggressive investment by the state-controlled "national champions", the newly-founded private firms, from the emerging heritage-free markets[11], have been also actively acquiring, developing, and leveraging resources and capabilities to expand into the foreign markets. Therefore, it is of academic interest and policy importance to ascertain how those firms, lacking discretion to acquire and allocate resources and international experience, facing a decrease in labour productivity[12] and R&D expenditures in the economy, could make a large outward investment in a relatively short period of time and proved themselves competitive abroad, establishing production networks and acquiring assets far beyond the boundaries of geographical and political influence in the CIS countries. This notable rise in outward investment projects originates not only from the privately-owned and state-controlled enterprises, but also from the firms affiliated with foreign companies. However, despite the extent of both state and foreign participation have been growing after the change in the state policies towards statism in 2003, the effect of the heterogeneity in networking strategies and emerging organisational structures on the internationalisation and FDI propensities of Russian firms has not been thoroughly investigated in the IB or organisational research.

To address the existing empirical and theoretical gap, and to meaningfully explain the capacities of the Russian firms to invest abroad, the present research will disentangle the FDI process into a set of strategically different decisions: (*i*) the initial one-off decision to move into the foreign market and transit to multinationality, and (*ii*) the subsequent decisions to expand the network of foreign subsidiaries and increase the number of foreign affiliates; and will estimate the propensity of a typical Russian firm across various industries and regions to become a multinational and subsequently increase a number of foreign subsidiaries.

The underlying research assumption for modelling the two strategic FDI decisions – i.e., the initial decision of the firm to become a multinational and the decision to expand

[11] The non-natural resource industries, such as telecommunication and retailing.

[12] The labour productivity has been gradually decreasing across all industries, from 107.0 in 2003 to 103.8 in 2011 (Source: online Rosstat database, 2000–2012).

its networks of foreign subsidiaries – is that those are likely to be determined by the distinct sets of factors and firm's attributes. The initial decision leading to transition to firm's multinationality is considered to be path-dependent, and conceptually assumed to be affected by the patterns of relations formed by the firm with major powers in the mixed economy – the state and foreign capital, – which interact or directly define the accumulation of the firm-specific advantages and redesign the investment incentives of the firms. The subsequent decisions to expand the network of foreign subsidiaries might in a greater extent contingent on the abilities of the emerging Russian MNEs to learn in foreign markets and swiftly adopt the mental models towards a new environment; therefore, the effects of the conventional attributes, significant for the initial transition to multinationality, are expected to change.

Unlike most of the existing studies of the determinants of FDI decisions, the present study aims to incorporate in the sample both the foreign direct investors and firms not investing abroad, which enables to identify and test more precisely the attributes which are common to all Russian firms across the industries and regions: differing in the resource endowments, historically predefined position in the economic structure, and the shifting power balance between the state and the business groups, – and not merely the characteristics of those firms investing abroad. This methodological approach allows investigating why certain Russian firms decide to invest abroad, while others do not.

The prime focus of the research interest will be, therefore, on what determines the differences between investing and non-investing[13] Russian firms, and what firm-specific factors do enhance the firm's propensity to transit to multinationality over time, – herewith, verifying the validity of the conventional IB arguments on importance of firm-specific assets (FSAs). More importantly, the FDI propensities of the Russian firms will be scrutinised against a drastic change in the model of relations with the Russian state, reconstituting its coercive strength and financial capacity, and also foreign capital. Accounting for the networking strategies in the FDI transition model will allow establishing whether the intra-state and extra-state networking are conducive to or hamper the firms' growth into the foreign markets.

In order to compare the FDI incidence among the heterogeneous organisational forms emerging in the novel and changing institutional environment, all Russian firms

[13] Here and thereafter, the term "investment" is used as a synonym for foreign direct investment (FDI), if not specified otherwise.

will be decomposed into the classic governance structures and hybrid modes observed among the newly-founded private firms on the basis of employed intra-state and extra-state networking strategies: the reconstructed enterprises with state participation in equity and the firms under the foreign influence or collaboration. Of particular interest would be to reveal what relational mechanisms and arrangements, fostered by the state and foreign capital, do enhance the firms' capacity to engage into international venturing, and how the hybrid arrangements and networking strategies change the importance of the conventional FSAs required to become a multinational – such as firm's innovation capabilities, assets, and efficiency, – via altering incentive structures, shared mental models, and learning strategies within the network, and also institutional experience obtained under the swift political regimes.

Lastly, the present research will investigate whether those firm-level effects observed at the initial transition to multinationality retain their importance for the subsequence expansion of the networks of foreign subsidiaries by the Russian firms, and whether the Russian firms are capable to learn and capitalise upon a "cycle of advantages" built in the foreign markets all through their expansion.

The outlined objectives lead to formulation of four research questions, which shape the logic and design of the undertaken research and constitute the four core themes of the endeavoured exploration:

1: Whether the conventional firm-specific assets or advantages are as important in defining the initial decision of the Russian firms to move into the foreign markets or their propensities to transit to multinationality are resultant of emerged relational mechanisms within hybrid networks amid the state, domestic and foreign owners?

2: Whether the emerged hybrid networks are conducive to accumulation of the resources and capabilities which are transferred into the foreign markets via FDI or prompt the firms for a rapid move into the foreign market via directly altering incentive structures; and how those two network mechanisms differ across the distinct types of hybrid structures, observed amid the Russian firms?

3: Whether the initial decision of the Russian firms to move into a foreign market and establish a foreign subsidiary is shaped by the historical logic of organisational genesis and encountered critical junctures along the transition path; and how the newly-created organisational types differ in investment behaviour compared to the long-established firms?

4: Whether the importance of networking strategies and proprietary firm's resources and capabilities change for the subsequent decisions to expand its network of foreign subsidiaries; and whether the Russian firms are capable to capitalise on new knowledge and technologies acquired in the foreign markets after their initial transition to multinationality for a more rapid and effective subsequent expansion?

1.3 The overview and outline of the thesis

The search for answers to the derived research questions requires addressing several gaps in the extant IB theoretical frameworks and empirical field, as well as the evident deficiencies in methodological treatment of the FDI behaviour of firms in the IB studies. To strive for and achieve the theoretical, empirical, and methodological aspects of novelty in the endeavoured research, the whole thesis is divided in nine strata of contributions – each is meant to provide the basis and link for the following, and, therefore, is ought to be accomplished in full before proceeding with the subsequent chapter. With this, the thesis is developed in the consequent order: from re-examining the extant theories and building the conceptual framework for an empirical inquest into the FDI behaviour of Russian firms – to deciding on most adequate methods and specification of the FDI models, estimating the derived models, and, finally, contributing to the extant IB theories with obtained findings (*Figure 1*).

The first stratum – the current introductory *Chapter 1* – provides the motivational link between the observed historical evidence on the FDI patterns in the EM economies and internal dynamic interrelations between the state and emerging business organisations, which serve as an illustration of the empirical novelty of the undertaken research and lead to the formulation of the four research questions.

The contribution of the second stratum (*Chapter 2*) concerns evaluating the relevance of the extant IB theories and developing more precise ideas to clarify the observed FDI and organisational patterns by extending the intellectual scope of the present research towards the literature on political and networking realities. To explore and formally test the extent to which the existing theoretical models can be generalised towards the outward FDI behaviour of the Russian firms, the conventional FDI explanations and recent contributions from the institution-based view of international strategies and the firm's behaviour literature on shaping strategic expansion choices are reviewed throughout *Chapter 2*, and *Sections 2.1–2.2* particularly.

Sections 2.3 and *2.4* seek to enhance the theoretical underpinnings for the empirical exploration of the investment behaviour of the EM firms, and Russian firms in particular, and to address the gaps in the IB theorising, by drawing upon network economics and political science. The constructed matrices of network types and models of the state-business relations bridge the network and political perspectives with the FDI decisions of the EM firms (*Tables 1* and *2* respectfully).

The third stratum (*Chapter 3*) is constructed on the preceding theoretical discussion and contributes to the IB field with developing an augmented conceptual framework, which allows for constructing novel hypotheses on the propensity of transition to multinationality amid the Russian firms, and subsequent expansion of their networks of foreign subsidiaries. The developed conceptual framework provides grounds for an in-depth exploration of the interactive effects, asserting that the FDI entry into a foreign market is not an automatic outcome of the proprietary firm's resources and capabilities (or FSAs), but is rather resultant of the complementary capacities and incentive systems within the blurred boundaries of intra-state and extra-state networks.

The fourth stratum, accomplished in *Chapter 4*, presents a different type of the academic contribution by refining the methodological basis for testing the developed conceptual framework, and aims to introduce the methodological advancements in the IB research. The rigorous investigation of the effects, formulated in six sets of hypotheses (**H1**–**H6**), entails designing three distinct types of time-continuous models in *Sections 4.1*–*4.3* of *Chapter 4*: (1) to capture the firm's movement or transition between two FDI states: from the initial state of a domestically-oriented non-FDI firm to a foreign direct investor or MNE, (2) to unbiasedly decompose and compare the two networking effects: the relational benefits conferred through resource accumulation, shared learning or joint technological advancements within hybrid networks versus the incentive mechanisms directly influencing the FDI decisions of the Russian firms, and (3) to estimate the capability of the Russian firms to capitalise on acquired advantages in the foreign markets and expand their networks of foreign subsidiaries after their initial transition to multinationality.

The fifth stratum (*Chapter 5*) further contributes to methodological novelty of the research by collecting and merging the data into a longitudinal dataset, and applying programming techniques to create novel time-variant measures and matrices capturing the transition in FDI states of the Russian firms. The data-building efforts make possible to test the three FDI transition models developed in *Chapter 4*, which mathematically

formulate the predictions of the conceptual framework, on the multi-industry and multi-region sample of the Russian firms.

The sixth stratum (*Chapter 6*) aims to extract the first empirical evidence from the developed dataset and builds the ground for empirical contribution of the present research by computing and analysing the Markov transition matrices. The comprehensive dataset, developed by merging two data sources, also allows for a robust comparison of the characteristics of the firms, which initiated expansion in the foreign markets via FDI, with the domestically-oriented firms implementing their investment strategies within the national boundaries.

The seventh stratum (*Chapters 7.1, 8.1, 9.1, 10.1, and 11.1*) serves as a major block of the empirical contribution by rigorously testing the developed time-continuous models. The computed Markov transition matrices and the specified time-continuous probability models are estimated on the disaggregated panel dataset to robustly test the conceptualised propositions and causal effects. The four research questions are addressed in the separate empirical *Chapters 7-11*, and retain the logical order of the inquest into the FDI behaviour of the Russian firms designed in the introductory *Chapter 1.2*. The transition probabilities, which are conditioned on the firm's attributes and relational mechanisms within hybrid networks as they evolve over the research period, are compared across the categorised *strategic groups* and *hybrid* organisational types emerged amidst the Russian firms.

The eighth stratum (*Chapters 7.2, 8.2, 9.2, 10.2, and 11.2*) is accomplished after obtaining every one of the four sets of modelling results from the previous stratum and contributes by assembling the empirical evidence on the four research questions into the suggestions for theory-building. The findings are related to the periods of policy changes after the two critical junctures reversing agendas of the state-building, allowing for the contributions to the IB literature and government policy to be elaborated. The discussion of findings is presented after estimation and verification of the relevant sets of models in the separate empirical chapters follows and interprets the findings for each of the four research questions in *Sections 7.2–11.2*.

The final, ninth, stratum of the thesis (*Chapter 12*) reinforces the contributions of the undertaken research, and also develops the implications for state policies in the EM countries and the research agenda in the IB field.

Figure 1:
The thesis outline: the investigation of the research questions across the corresponding chapters.

Research questions:	Relevant theoretical reflection (*Chapter* ***2***)	Development of the hypotheses (*Chapter* ***3***)	Development of the methodological base and models (*Chapter* ***4***)	Collection of the data and construction of the dataset (*Chapter* ***5***)	Descriptive trends and tests of differences among firm groups (*Chapter* ***6***)	Design of the modelling strategy and presentation of estimation results (*Chapters* ***7-11***)	Discussion of the findings (*Chapter* ***7-11***)	Conclusion on contribution and policy implications (*Chapter* ***12***)
1: The initial transition the Russian firms multinationality: the comparative effect the conventional firm-speci attributes versus the emerg relational mechanisms with hybrid networks.	Sections 2.1–2.4	Section 3.2: **H1a-b** Section 3.4: **H5a-b**	Section 4.1	Sections 5.1–5.7	Sections 6.1–6.2	Section 7.1	Section 7.2	Sections 12.1–12.3
2: The comparative effect the networking mechanisı onto the FDI transiti probability of the Russi firms: the resource- a capability-building versus t incentive effect.		Section 3.3: **H2a-b** Section 3.3: **H3a-b** Section 3.3: **H4a-b**	Section 4.2			Sections 8.1, 9.1	Sections 8.2, 9	
3: The effect organisational genesis acrc the three distinct periods state-building on the F propensity of the Russi firms: the newly-creat organisational types vers long-established firms.		Section 3.5: **H6a-b**	Section 4.1			Section 10.1	Section 10.2	
4: The subsequent decisio of the Russian firms expand their networks foreign subsidiari capitalising on the acquir knowledge, technologies, a assets after the init transition to multinationali		Section 3.2: **H1c**	Section 4.3			Section 11.1	Section 11.2	

Source: created by the author.

CHAPTER 2. THE THEORETICAL MODELS OF MNE FORMATION IN APPLICATION TO EM FIRMS

The central objective of the present chapter is to address a fundamental question: whether the emergence of multinational firms from the EM countries, and Russia in particular, can be adequately explained with the extant models of MNE formation, and in this wise to construct the theoretical premise for an in-depth exploration of investment behaviour of the Russian firms.

In the recent years, the research interest has begun to focus on this issue, with a number of the alternative theoretical approaches – the LLL model (Mathews, 2006, 2009) and the springboard model (Luo and Tung, 2007) – suggested to explain the new aggregated and firm-level evidence on FDI from the EM countries. Nonetheless, there is still no consensus about the precise nature of capabilities and organisational dynamics, and how those influence the growth strategies pursued by the EM firms in the foreign markets. Compared to the exploratory efforts and theoretical understanding of the strategies of MNEs from the advanced economies, a considerable knowledge gap still exists in understanding the decisions to extend the firm's boundaries across the national borders by the EM multinationals.

Although many of the contemporary concepts applied in the IB literature, and the FDI research in particular, can be traced back to the works of classic and neo-classic economists (Smith, 1776; Ricardo, 1817; Mill, 1909; Marshall, 1923; Coase, 1937; Bain, 1956; Penrose, 1959; Gerschenkron, 1962, among many others), the *resource-* and *capability-based* frameworks will constitute the starting point for the present literature survey, as those explicitly introduced the multinational firm *per se* – i.e., the institution for international venturing – as the main focus of research (*Sections 2.1* and *2.2*). In contrast to extensively conceptualised effects of the firm-level attributes in the IB studies, the proprietorship of unique resources (along with a capability to transfer and leverage those into the foreign markets) might not be the only prerequisite meticulously explaining the pursuit of international venturing by the EM firms with diverse "*hybrid*" organisational modes, which had been emerging under the evolving institutional settings and drastic shifts in the state-business relations.

To provide a more rigorous and comprehensive treatment of the research questions and explain the empirical evidence on the investment diversity of the EM firms outlined in the introduction chapter, the resource-based view has to be contrasted and

complemented with the theoretical applications rooted in the *institutional*, *network* and *political science* theories which have emerged over the past decades. The applicability and limitations of each strands of the literature towards the FDI decisions of the EM firms are evaluated accordingly in *Sections 2.3.* and *2.4* of the present chapter.

Nonetheless, the contribution of this chapter is not solely to examine the validity of the conventional and recently appeared alternative concepts against the FDI evidence from the Russian firms, but primarily to develop an integrative and, hence, more holistic approach as a theoretical foundation for the conceptual framework and hypotheses, elaborated in the subsequent *Chapter 3.* In pursuing this, the mentioned strands of the theories are interpreted across the main lines of research enquiry into multinationality of the Russian firms, outlined in *Chapter 1.2*: (*i*) how the firms undertaking foreign investment projects are different in their resources and capabilities from those investing solely within the domestic market; (*ii*) what are the intra-firm prerequisites and external preconditions for the firm's transition to multinationality; (*iii*) how those may differ in their effect across the classic and hybrid organisational modes, emerged at the distinct periods of political and economic transition in Russia, and (*iv*) what is the role of the recent change in the state policies, occurred around 2003 and 2006 years, and the hybrid networks, created by the business community with the state and foreign capital, in enhancing or hampering the internationalisation efforts of the Russian firms.

2.1 The emergence of an MNE: the interplay of the firm's proprietary assets and knowledge with the relational models

Most of the literature on why a firm would choose to become multinational has been based on a few conventional – though undoubtedly path-breaking at their times – views of a multinational enterprise (MNE), all predicting a certain relationship between the propensity of a firm to invest abroad and the characteristics of the firm itself, termed as the firm-specific assets (FSAs) in the contemporary IB literature. Taking advantage of the greatly improved statistical data in the 1960–70s, the first in-depth attempts were undertaken to explain the new growth patterns of FDI and the emergence of production financed by such investment, surpassing the intellectual constraints of the economic doctrines on international trade flows and the neo-factor theories dominant at that time.

The interest to the MNE formation, at those academic times, had crystallised into two main approaches, which focused attention on the firm-specific advantages as a prerequisite for FDI and explanation for the major form of non-trade involvement, – that is, set-up of the MNE and its international activity in the form of direct investment. Both approaches explained the emergence of the MNE through creation of internal markets to substitute for the regular arm-length exchange, as a response to the negative externalities in imperfectly functioning external markets. The understanding of an old idea of the internalisation of imperfect political and economic markets obtains a new light for the EM firms operating in the turbulent transition environments, and is worth revisiting.

The first strand of academic thought centred on the *structural market imperfections* and considered an exclusive possession of the *tangible assets* as the main characteristic of MNEs that provided them with production advantages over other indigenous firms (Bain, 1956; Barlow, 1953; Penrose, 1956; Byé, 1958). The second and a more path-breaking strand recognised the inevitable constraints of the *cognitive market imperfections* on the firm's behaviour and investment decisions, and defined the determinants of FDI in the line of Coase's (1937) work on the boundaries of firm, emphasising the importance of internalised *knowledge* and *intangible assets* (McManus, 1972; Brown, 1976; Buckley and Casson, 1976). The dualistic nature of the developed explanations – resourcism[14] *versus* cognitive effects – had been thoroughly conceptualised in the distinct and competing streams of the IB and organisation literature, however scarcely tested on the actual firms as a holistic framework of investment decision-making.

The former view was conceptualised into a powerful *theory of industrial organisation*, following the Kindleberger's (1969) and Hymer's (1960, 1976) idea that imperfections in the production factor and consumer product markets enhance the asset power of individual firms and endow those with a net advantage, encouraging international venturing. The multinational firm deploys its capability and managerial competence to exploit the possessed asset-based advantages in the foreign markets, while still retaining property rights over the control and use of the transferred tangible assets. Although the subsequent research confirmed the strong association between the Bain-type firm-specific advantages – such as the *plant economies of scale* and *market control* within an industry, *proprietary technology* or know-how, *capital intensity*, the advantage in

[14] Hereinafter, *resourcism* is considered as a reliance of the firm's management or the state on tangible assets for the firm's growth in the domestic or foreign markets.

a production process leading to *product differentiation* and *financial strength* – and the likelihood for valuable assets to be transferred abroad (Johnson, 1970; Caves, 1971; Horst, 1972; Wolf, 1977; Swedenborg, 1979; Lall, 1980, Owen, 1982; Grubaugh, 1987), the narrow asset-based approach hardly can provide an explanatory ground for the conceptual framework of the EM firms. The major research interest and most curious findings may arise from contrasting the contributions of the asset and cognitive powers to the innovative investment behaviour of the firms with hybrid structures.

Partially redressing the narrowness of the asset-based approach, the emergence of the *internalisation* and *transaction cost economics* had diverted the focus of the IB research from the dominant Hymer's Bain-type advantages towards the principles of firm's behaviour first expounded by Coase (1937). Drawing upon the information and uncertainty economics (Alchian, 1950; Alchian and Demsetz, 1972; Arrow, 1969, 1975), the internalisation theory scholars advanced the notion of the imperfections in the *markets for information* and *knowledge* to explain the emergence of the MNE (Caves, 1971, 1974a, 1974b; Buckley and Casson, 1976, 1981). The knowledge market failures imply the technological and marketing knowledge to be shared unequally among the firms, endowing more capable in learning and creative firms with a net advantage in the foreign markets. Hence, the multinational enterprise is also distinguished from other domestic firms in a given industry by its superior ability to generate, accumulate, and effectively utilise information in the domestic market and enhance its value of by expanding abroad. This ability to learn innovatively appends another and perhaps more crucial component into the explanatory framework of investment decisions of the EM firms.

The transaction costs analysis viewed the growth of firms in terms of an advantage of replacing the external market mechanism of cross-border transactions with an internal hierarchy; and, therefore, conceptualised the set-up of an MNE as primarily a response to the incurred transaction costs (Williamson, 1975, 1981a, 1981b; Teece, 1981, 1982, 1985; Hennart, 1982). The internal market of the MNE provides an especially efficient mechanism for conducting the transactions, enabling the multinational firm to lessen the organising costs and capture the transactional benefits from distributing the firm's tangible and intangible assets across a diversity of locations. Establishing a network of assets in the geographically dispersed markets under common governance requires the firm to develop a specific capability to create the organisational structures and coordinate the transfer of knowledge and physical assets through the MNE's internal hierarchy (Dunning, 1988).

The two far-reaching applications towards the firms from the emerging markets can be adopted from the internalisation and transaction costs economics, as those approaches not merely detail the effects of the firm's characteristics, but as well conceptualise the firm's behaviour around the externalities and inter-linkages in the economy induced by market failures, indirectly indicating on the possible impact of interactions with the state and intra- and inter-organisational networking. Nonetheless, a drawback must be admitted: none of the outlined approaches explicitly explain how the external influences and critical junctures are internalised within the firm's networks, which take peculiar forms in the EM states, and how the internalisation of those is related to investment decisions of the EM firms.

The first implication concerns the portfolio of advantages potentially enhancing FDI propensities of the EM firms. Along with the importance of the internally generated tangible assets emphasised by the industrial organisation school of thought, the growth of the firm beyond the national borders is also driven with the advantages conferred by knowledge obtained from the *past research and development (R&D)*, consumer goodwill, *marketing know-how* and *advertising intensity*, as well as the *managerial capabilities* and *competences* in adjusting the strategy and coordinating the both types of assets across the geographical borders with the least transaction costs. This implies that the accumulated or acquired *intangible assets* lead to increase in the probability that the firm becomes a foreign direct investor, provided the management of the firm possesses the *organising capabilities* (Hirsch, 1976; Dunning, 1977; Rugman, 1981; Helpman, 1984; Markusen, 1984; Caves, 1996).

Besides the emphasis on the intangible assets and capabilities of the firm, the internalisation economics explicitly recognised that the government regulations and power control induce the failures in the strategic factor, product, financial, and information types of markets, enhancing or reducing the firm's incentives to internalise international exchange. The incentive to minimise the impact of government interventions through transferring and leveraging the assets in the new and more favourable settings may imply a complete change in the investment strategy pursued by the firm. This strategic change, in its turn, is defined by the firm's ability to influence the conditions under which it can appropriate advantages highly specific to the firm, and shaped by the bargaining power the firm may exercise in negotiations with the state and other powerful market agents, which may grant the firm with favoured access to the external sources of finance, or access to the patents and technologies not yet assimilated by the market, and compensate the costs associated with international

venturing. The firm's ability to establish inter-organisational relations and informal ties, as well as the managerial capability for sourcing and coordinating the valuable assets through networking channels, may extend the portfolio of specific advantages and the opportunity set, otherwise less prolific, and ascertain the firm's orientation for domestic investment or international venturing.

This line of thinking inclines to conclude that the portfolio of the firm's advantages is not a mere combination of the tangible assets and knowledge or capabilities, treated as individualistic attributes and FDI prerequisites. Instead, the firm's strategic decision to expand into a foreign market is governed with the *interplay* of the asset and knowledge advantages with the factors specific to the firm's *industry* (e.g., its power structure and level of technological efficiency and collaboration), and factors specific to the *region* or *nation* (e.g., regional or the state resources and investment capacity; the political regime, developmental policies, and relational mechanisms towards the business community). The interplay of factors, embedded within the industrial and the state context, shape the firm's *portfolio of advantages*, which in the EM economies greatly depend on the relational mechanisms and the firm's capability to bargain over the resources available within the industry and the state.

The resultant configuration of inter-organisational linkages within the industries and the relations with the state exerts influence on the firm's ability to acquire or build up the asset and knowledge specific advantages, outlined by the industrial economics and internalisation perspectives, and as well modify the transaction costs incurred by the firm in the domestic and foreign environments. As the following sections are to detail, a meaningful conceptual framework for investment decisions of the EM firms should not merely reflect the effects of the specific advantages of all kinds, but find a sensible way to incorporate those in the context of the state-business relations. This proves a challenge, for none of the extant IB frameworks has been developed beyond a conventional attribute-based approach. To redress this inadequacy of the theoretical basis of the IB frameworks, the subsequent theoretical discussion goes beyond the constraints of the attributive approach and considers the network strategies of the EM firms and their embeddedness into the state-business relations, as a foundation for a more holistic conceptual framework developed further in *Chapter 3*. After identifying the crucial elements in the portfolio of advantages of internationalising firms and contrasting the resource- and capability-based approaches in *Section 2.2*, the relevant strands of the network and political science literature are merged and linked to the FDI strategies of the EM firms in *Sections 2.3* and *2.4*.

2.2 The portfolio of the firm's resources and capabilities in international venturing: the complementarity under institutional pressures

The knowledge-based and asset-based arguments, introduced in the previous section, have been more coherently integrated and nuanced with the capability-based approach within the *resource-based framework* (or RBV), implying that the very possession of either of the firm-specific assets, even in a great magnitude, may not be an independent reason for the spread of firm's activities across geographical boundaries. The industrial or intangible resources developed internally or acquired by the firm must be unique, or – as termed by Barney (1991) – valuable, rare, and imperfectly imitable vis-à-vis the domestic or foreign rivals, and enforced with the firm's organisational capabilities to transfer and exploit its tangible and intangible assets in the foreign locations or use those as a source for further accumulation of complementary resources, knowledge, or developing capabilities (Bartlett and Ghoshal, 1988; Madhok, 1997; Tsang, 2000; Luo, 2002). The firm lacking the competencies or skills specific for operating in the geographically and culturally distant locations will be less likely to effectively deploy its resources, when entering a foreign market.

Among a vast range of the identified, measured, and tested proprietary resources and capabilities[15], the two types of the internal firm's capabilities have been distinguished as crucial for founding the new international ventures: the *technological* and *management capabilities* (Buckley and Casson, 1976; Lall and Siddharthan, 1982; Hennart, 1982; Clegg, 1987; Lau and Ngo, 2004; Yiu et al., 2007; Tseng et al., 2007). The implications of both capability types for the EM firms retain their importance, but markedly change in the essence of their influence on investment strategies, being imprescriptible from the structural assets of the firm – as considered in the following paragraphs.

2.2.1 The direct technological advancement versus soft innovations in structural assets under the hybrid structures of EM firms

The conventional argument, – asserting that the firms endowed with a superior capability for internal technological development might be more effective in integrating

[15] Including the firm's international and country-specific experience (Claver and Quer, 2005), amount of capital (measured as the firm's size), proprietary technology and tacit know-how (Ekeledo and Sivakumar, 2004), R&D intensity, production capabilities, firm's reputation, and other intangible assets, such as advertising and management competencies (Mutinelli and Piscitello, 1998; Tan et al., 2001), and even organisational culture.

the knowledge and internalising R&D within complex structures of MNEs and leveraging the similar set of technological assets more efficiently in the foreign markets, – may change its emphasis for the EM firms, which rely on the network-based strategies of growth. When considering the hybrid firms from the EM states, located on a lower industrialisation and technological scale with an inherently feeble capacity for in-house innovation, a capability to appropriate and transform technologies acquired or imitated from more advanced partners might be more crucial for enhancing the portfolio of FDI advantages and changing the firm's growth strategy towards the expansion in the foreign markets. The development of the capability to imitate and assimilate a new technological asset by the EM firms triggers a change in the set of the firm's competences[16] responsible for technological and organisational learning.

As a result, the extent of gained technological mastery amidst the EM firms and distribution of the competences is uncertain and necessarily varies depending on the firm's structure, because the firms with distinct networking patterns – within a given industry and, moreover, across various sectors – adopt a differing sequence of *technological learning* (Lall, 1992). It prompts to conclude that the *technological maturity* of the firm, achieved along the individual capability building and learning paths, encompass both the ability to deepen technological experience and selectively draw on others to complement its own capabilities within the hybrid structures. Whether the technological capacity can be more effectively complemented and sourced within the hybrid networks created by EM firms, compared to the classic governance structures, and transferred in the foreign ventures – is the question for an extensive and rigorous investigation in the present research.

To tackle this question, the firm's technological capabilities ought to be considered in conjunction with the complementary competencies within the networks: production, investment, and linkage abilities of the firm. The advancement in the firms' technological capabilities essentially entails extending and refining the range of interdependent managerial skills and competences, which determine not only how efficiently the existing technologies are operated and improved via in-house research and innovation, but also how effectively internal facilities will be utilised to absorb and adapt external innovations and accumulate person-embodied skills not bundled with the well-codifiable items of acquired technology – categorised as *production capabilities*.

[16] More generally referred as the *distinctive*, *niche*, and *background competencies*, depending on whether the technological change was induced by the internal research effort, external sourcing, or R&D generated in alliance (Narula, 2001); this classification, however, does not reflect *linkage capabilities* crucial for the EM firms with hybrid structures – as discussed below.

Besides, it enhances the competences needed to identify and obtain competitive technological inputs, and decide on the appropriate scale of the expansion projects (*investment capabilities*); and above all, the competences in establishing the intra-firm and extra-market linkages needed to transmit the technologies, knowledge, and skills across the firm's units and involved technology institutions, termed as *linkage capabilities* by Lall (1985, 1992). The linkage capabilities within the created hybrid networks constitute an essential strategic tool for the EM firms, because the interdependence of in-house development facilities and external technical sources may extend the innovation process beyond the firm's boundaries and relate into a *network of domestic private* or *public* and *foreign technological linkages*. The complementary combination of several technological sources within a network may, in turn, define the firm's capacity to develop the internal skills, commission a new expansion and become multinational.

The strong complementarity between the firm's internal capabilities and the intensity of drawing upon the external technological sources attains a particular importance for the latecomer economies, as the lack of in-house technological strength or insufficient *absorptive capacity* (as termed by Cohen and Levinthal, 1989), frequently featuring the EM firms, severely handicaps the firm's ability to assimilate the skills and technologies from outside, or substitute for the inaccessible external sourcing, and to consequently choose which mix of advantages would support the efficient growth in the foreign markets.

2.2.2 The learning strategies of EM firms in a cross-border growth strategy

In addition to forming the technological capabilities, the linkage effects within the established domestic and foreign technological networks have a bearing on the firm's capacity to generate and upgrade the available pool of human capital – or *human resource management capability* (Penrose, 1956, 1959), facilitating more subtle structures for capturing value from innovations as opposed to the traditional channels of communicating the embodied information via centralised hierarchy or contract – often costly and slow in verbalising and transmitting the tacit knowledge. A great deal of the firm's technological knowledge does not belong to the ready-to-use "public elements" of codified information (Cantwell, 1992) coupled with the technological assets and packages or leaked in public domain, but rather resides in the expertise and behavioural

patterns of individual practitioners, organisational structures[17] and routines, and, thereby, non-tradable or thinly traded among firms (Teece, 2008; Ernst et al., 2003).

Nonetheless, the literature on technological development and human resources is narrowly focused on the technology-driven internationalisation and expansion facilitated with the proprietary innovations, and remains for the most part silent about the origins of creative and cognitive capabilities of the firms inducing the "soft innovatory revolutions" as an alternative source for growth in the domestic and foreign markets. The history of the organisational genesis and devise of the hybrid organisational forms in the EM economies, outlined in *Chapter 1.1*, calls for the incorporation of alternative views on the cognitive side of the firm's behaviour into the model of cross-border growth and draws attention towards two particular kinds of soft organisational innovations: fluid learning and recombinant capability, both explained in the following paragraphs.

Following the research tradition on the evolutionary analysis of the firm, established by Nelson and Winter (1982) and Chesnais (1988), and the organisational learning (Simon, 1957; Teece, 1977; Heiner, 1983; Ellison and Fudenberg, 1993; Boerner et al., 2001), the firms accumulate new tacit knowledge, and herewith the potential for cross-border growth, through a history of *multiple learning activities* – both formal and informal. The turbulent environments of the EM states are particularly rich and predisposing for innovatory learning and implementing the growth strategies based on *soft innovations*. Along with the standard coordinating and problem-solving tasks within an individual firm, learning of the EM firm is in a great extent facilitated through collaborative interactions within the hybrid structures and networks with the major forces in the economy, forming the distinctive package of routinized behaviour highly specific to the firm's structure – termed as an individual member's or firm's "*repertoire*" (Nelson and Winter, 1982, p. 98) or non-decomposable *core competences* (Teece et al., 1997; Colombo, 2003).

Carrying forward the arguments to the emerging market economies, the learning trajectories and formation of distinctive capabilities by industrial latecomers are most closely associated with the industrial transformations and the organisational dynamics in their states, and tend to be, to a greater extent, of a *path-dependent* and *collective nature*. The drastic shifts in the institutional environment along the reformation paths confront

[17] Termed as a "*structural asset*" in the strategic management literature (Argyres, 1995; Teece, 1996, 1997), referring to a distinctive governance mode of the firm and co-evolvement of its formal and informal organisational structure, as well as its external linkages with managerial competences and capability-building.

the EM firms with significant novelties, improving cognitive characteristics of the *survivors* from preceding political regimes and endowing the newly-created firms with innovative learning strategies. The learning activities of receiving and interpreting incidental signals from the evolving industrial or intra-state environment invokes a *dynamic learning mode*, as opposed to replicating by the firm its fully routinized organisational memories in a stable environment. The hastened cognitive abilities impel the EM firms to build their international growth strategies on soft innovations or shared learning within hybrid structures, – as a major point of divergence from the internationalisation strategies deployed by the firms from the advanced economies, which largely draw upon the direct technological innovation and inventing (Amsden, 1989).

The greater degree of learning flexibility developed by the reconstructed or newly-created firms – and endured through the firms' exposure to the economic disruptions – enriches the firm's repertoire with the *fluid intelligence* and competences shared within firm's hybrid networks, induces a faster recognition of impairments in its own capabilities, improving the quality of investment decision-making under uncertainty and ambiguity peculiar to venturing in the foreign markets. The firms, which have obtained a capability for solving quite complex problems through *incidental* and *experimentation learning* in the turbulent environments of the EM economies, would be more potent in appropriating the business and institutional experience, which at one time was novel to them, for further transformational activity inside the firm and the strategic change towards venturing in foreign markets. The *fluid learning* skills of newly-created firms in the EM states might be prominent relative to the old-established enterprises that responded routinely and acquired a majority of knowledge elements in codified form from the collective organisational culture or *repetitive learning*.

The firms, conserving the routinized core competencies, may behave skilfully by virtue of replicating the codified knowledge, however, be incapable of recombining the heterogeneous assets from the external and internal sources[18] and designing new

[18] The ability to purposefully create the new or swiftly reconfigure the existing internal and external competences, when addressing the changing environment, is termed "*asset orchestration*" of co-specialised and complementary assets by the *dynamic capabilities school* (Teece et al., 1997; Teece, 2000; Helfat et al., 2007; Augier and Teece, 2007), and among others involve inventing and implementing new business models and making investment decisions, not conveyed by the traditional explanation of coordination and adaptation functions of the firm (Barnard, 1968; Williamson, 1995). The dynamic managerial capabilities (Adner and Helfat, 2003) channel the organisational change and induce firm's growth in the local industries experiencing rapid transformation, as well in the foreign markets.

capabilities to deal with novelties incurred in the foreign markets[19]. Therefore, not merely the relative stock of tacit knowledge, but as well the extent of the "*lock-in effect*" versus "*fluidity*" in the dynamic capabilities and competences lays the ground for the firm's capacity to launch new ventures and diversify beyond its current geographical boundaries.

The newly-created and reconstructed EM firms might be less shackled with the "crystallised" structural assets and burdened with the rigidness in decision-making and incentives systems, peculiar to the firms with an established market position, which makes them more efficient in overturning the "*existing orders*" (Utterback, 1994; Teece, 2000) – within the firm, industry, and the state – and recombining the assets, competences and knowledge from various internal and external sources within hybrid structures. This ability for creating "soft innovations" forms a distinct asset in the portfolio of advantages of the newcomers into the foreign markets. However, the significance of learning approaches for international venturing across the newly-founded and reconstructed enterprises is yet to be established in the present research.

2.2.3 The institutional pressures on the strategic choice of EM firms: an asset or burden?

The intrinsic nature of the distinctive resources and capabilities employed by the EM firms in the strategic change towards the foreign markets, as discussed in the preceding sections, is in a greater extent defined by the interactions with the dynamic institutional environment in which the firm is embedded, – not solely with the co-evolving markets (Helfat et al., 2007), as might be true for the western type of firms. The capability accumulation and, hence, the growth direction of the EM firms, is not autonomous of the relations with the state and other institutional constituents in the economy.

The institutional pressures exerted on the firms in the emerging market economies alter the strategic choices of the firm and its incentives for asset acquisition and capability-building, at the same time bounding the resources which the firms accumulate,

[19] This relates to the notions of the *knowledge-using firm* versus *knowledge-creating firm* introduced by the recent models of organisational learning (Boerner et al., 2001), and the learning processes pursued by the firm towards *competence-exploiting* as opposed to *competence-exploring* strategies (Colombo, 2003).

to fit the idiosyncratic institutional characteristics (Meyer and Tan, 2010). The particular strategic mode, exercised by the firm in its response to the environmental conditions and demands[20] emanated from a variety of the state and private interest groups, confers the firm with the *institutional assets* and *experience*[21], featuring their distinctiveness and transferability for foreign venturing. The institutional assets are accumulated by the firms in their efforts to neutralise, influence or shape the *transition failures* during the periods of rapid institutional change or *structural failures*[22] in the established and relatively stable institutions. The configuration of the institutional assets of the individual firm is immensely contingent on the choice of specific tactics, directed by the firms towards the compromise, manipulation or departure from the external sources of pressure, forming the *interconnected webs of relations* of the firms' managers with the critical institutional constituents.

The nature and intensity of established relations reflect the firm's motive and capacity to establish *control* over the resource environment or business partners, to strategically *influence* the accepted practices and criteria via lobbying the regulatory agencies, to exact the concessions in newly established policies via *bargaining* tactic, or *co-opt* the outside interests to obtain legitimation and approval, – all detailed by the *resource dependence view*, emphasising the impartible nature of the power and resource exchange (Emerson, 1962; Blau, 1964; Pfeffer and Salancik, 1978; Bacharach and Lawler, 1981) and the *institutional theory* (Oliver, 1991). The two strands of literature

[20] The firms may respond to institutional pressures in a variety of modes extending along a strategic choice continuum from passivity to active resistance and aggressive attack. Those can be categorised in five response strategies that the firm may pursue in dealing with institutional environment: (*i*) *acquiesce* and complete conformation in following the rules and obeying invisible norms, (*ii*) *compromise* – with balancing, pacifying, and bargaining tactics to partially accommodate institutional pressures while pursuing self-interest, (*iii*) *avoidance*, in attempt to preclude the necessity to conform through either concealing, buffering or avoiding tactics to detach the firm's activities from external contact or exit the domain of pressures, (*iv*) *defiance*, through more active tactics of dismissing, challenging or attacking the institutional values and constituents that oppress them (Oliver, 1991).

[21] The general notion of an *institutional asset* was introduced in the dynamic capabilities literature among other asset classes (Teece et al., 1997), however, considered unspecific to the firms from the same institutional and political settings. However in the present research, given the heterogeneous strategic responses of the firms to their national institutional environment, the institutional resources are assumed to have heterogeneous configurations and effects depending on the established relations of the firm with critical institutional constituents and force groups, calling for a more elaborated model of the organisation-institutional relations.

[22] Following the types of the institutional and state failure distinguished in the new institutional economics. The transitional type refers to the failure to change institutions, inflicting high political transaction costs (North, 1990) for groups proposing the change (Khan, 1995). The structural failure can be explained with the emerged incentives for the agents to divert the effort from productive use of resources and involve in rent-seeking activities (Krueger, 1974; Posner, 1974; Buchanan, 1980; Buchanan et al., 1980). Though, as will be highlighted in the proceeding discussion of the political literature, the relational and investment outcomes of the rent-seeking behaviour might differ greatly depending on the nature of incentives – for instance, whether the rent-extractive motivation was induced with the weakness or absence of the state capacity or with a strong response of the coercive state against the capture of power and asset by the domestic or foreign interests.

can be related to the EM firms, for the evolving institutional links among an individual firm and external force groups are internalised in the *hybrid organisational structures*[23], when the firm attempts to co-opt the institutional pressures by virtue of sharing ownership with the dominant power groups (the state, domestic or foreign business entities), or extending the firm's boundaries and negotiated environment via informal networking with the state bureaucrats and business elite, or building the coalitions.

However, one argument has been overlooked amid the institution-based models of firm's strategies: the investment decisions are made not merely by firm's managers or owners, but by a *coalition of interests groups* – as termed by March (1962); and the potential control over available resources and decision-making by the formed coalitions might be enhanced or restricted depending on the existing model of the state-business relation. The firm's active intent to establish power and dominance over the resources and institutional processes is counterbalanced with the capacity built by the state and other privileged business groups, including the foreign forces and capital, during the transition periods.

The resultant power balance in the economy is shaped by the inherent quality and interests pursued by domestic and foreign forces in the relational model, which, in turn, defines the structural position of the firm in the network of relations, bestowing the heterogeneous institutional assets upon the firm, strengthening and extending its resource and capability base within the hybrid organisational structures. This view of the firm as a coalition of interests may have prominent implications for the theory of the EM firm and its international strategies, as it adds complexity and changes the effects of the firm-specific attributes across all their types: tangible assets, technology and knowledge, and institutional assets as well.

Another general assertion, prominent in the institution-led research on the emerging market firms, ought to be redressed: for the IB studies commonly consider that the value of the resources developed and absorbed through the interactions with a certain institutional environment (termed as *institutionally embedded resources*) cannot be geographically transferred and captured outside of the original settings, impeding internationalisation of the firm[24] (Meyer, 2006; Meyer and Tan, 2010). This assumption

[23] The firm's governance structure, as a subunit of the governance system of the society, is inevitable influenced by the macro-systems (Scott, 1995, p. 104).

[24] The outlined argument is accordant to the *external control* literature (Romanelli and Tushman, 1986), asserting that the firm's strategic response is constrained with the institutional environments, and the early concepts of the *institutional* theorists (Meyer and Rowan, 1977; DiMaggio and Powell, 1983) on the isomorphism and direct conformity to institutional pressures and demands. In the present research,

ought to be challenged in the present research by considering the conferred institutional assets as not bound to the location of their origin, but residing within the firm's hybrid structures as fluid competencies and skills of individual practitioners, the firm's collective intellectual capital, and capabilities for a swift change in strategies, extending the firm's boundaries and leveraging the relational assets beyond national borders.

The redeployment of the institutional assets across the geographical boundaries, among other strategic resources of the firm, might be rather contingent on their inherent characteristics endued by the critical constituent groups within the formed "firm-coalitions" – among the state, domestic and foreign market agents, whose input into the relational assets and the firm's capability building depends on the composition and quality of their capacity, moderated by extent of their probity or self-interest. The firm's portfolio of advantages may either be enriched with the resources obtained by the state and valued in the foreign markets, or capabilities, information, and knowledge learned through political and economic negotiations, market exchange, and allying with the foreign governments and business structures.

The developed proposition of the firm as not a mere aggregate of the proprietary assets, but a politically involved institution and coalition of interests, actively allying and absorbing the resources from external sources, creatively learning and building innovative capabilities for questing into new markets, is carried forward to the sequent section to complement the discussion with the peculiarities of the firm's relations within formal and informal networks and the resources garnered by extending the firm's boundaries. The following section formulates to what extent the institutional and industrial interactions within hybrid networks promote or constrain the use of the firm's resources for growth beyond the national borders.

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both theoretical stances are opposed with the view of the firm as an *active agent*, autonomously shaping and modifying the formal and informal institutional elements, or selecting and shifting assets to new institutional environment, emphasised by the dynamic capability school (Teece et al., 1997) and the strategic choice approach (Child, 1972; Hitt and Tyler, 1991; Oliver, 1991; Goodstein, 1994; Witt and Lewin, 2007). The economic history witnessed the prolific examples of the "spur-like development" and institutional innovation in the latecomer countries, when the "*special institutional factors*" took the pronounced role to mobilise the entrepreneurial activity and capital, conferring the firms, deficient in technology and experience, with entrepreneurial guidance and net advantages to successfully follow and catch-up with the leaders (Gerschenkron, 1962, p. 354). Gerschenkron's view emphasises the coercive pressure of institutional innovation frequently exerted from the state bureaucracy which had been incorporated in the early "top-down" institutional models, though the history of institutionalisation in the emerging market countries offers a more interactive ground of institutional effects, resulting in the heterogeneous organisational modes and responses of the firms to institutional change. This point will be re-enforced in *Section 2.4*, when discussing the evolution of business relations with the state.

2.3 The boundaries of EM firms in the network of relations: the complementary advantages for FDI decisions

To further elaborate the view of the firm in the emerging markets as not merely a market entity, – conceptualised as a "depositary of assets" or "knowledge processor" by the resource-based view (RBV), and driven with self-interest in its response to institutional pressures, – the EM firms should rather be perceived as *a "political actor"*, embedded in the societal hierarchy and the network of relations[25], and, therefore, actively shaping the institutions in order to redistribute the power[26] within the economy and build an advantage over contesting indigenous and foreign firms. However, the very acknowledgement of the firm's embeddedness into economic and political interactions, which lays the groundwork for the institution-based research of the EM firms' strategies as discussed in the previous section, is not revealing of the internal firm's structures, which arise, evolve, and transform the conventional firm-level attributes and change their effects on the FDI propensity and strategies of the EM firms with hybrid and classic governance structures.

To understand the internal mechanisms of the formation of a portfolio of firm-specific advantages, outlined in the previous sections, and the influence mechanisms directly altering the FDI incentives, the view of the firm as an embedded political actor ought to be complemented with modelling the firm as a "*political system*" itself or a "*boundary maintaining activity system*" (Aldrich, 1979; Aldrich and Mardsen, 1988; Knoke, 2014). A more complete understanding of the FDI decisions may unfold by relating the two sides of firm activities and evolution – the embeddedness in external settings and the internal mechanisms developing in response to external opportunities and constraints – and including both in the FDI model of the EM firms. A framework combining the complementary approaches and considering the firm and its environment as "systems" (frequently termed as "networks"), which development is endeavoured in the present research, will help to reveal how the FDI behaviour of the EM firms is influenced by the interweaving of economic and political powers internalised within hybrid structures, and how those are realised in the control over the cross-border transfers of resources and knowledge. This extent of comprehension can be achieved by

[25] This approach describes the firm as a "centre of network of relationships" (Holmström and Roberts, 1998, p. 18).

[26] The concept of *power* is used as a capacity of the firm or actor (not necessarily coercive) to produce an intended effect via interactions, establishing relations and creating new realities (Russel, 1938; Arendt, 1958; Wrong, 1979; Knoke, 1990, 1994): being this a strategic decision on the allocation of resources or an investment project in foreign markets.

removing the constraints of the conventional IB approach modelling the direct effects of the firm-level attributes (i.e., discrete micro-indicators in their essence) and macro-indicators of institutional development, and making a step towards linking the macro-networks and relational models among the major powers emerging in the EM states with the micro-networks developed by the firms in response to critical changes in the development of the state capacity and the economy. For the effect of the institutional environment and change onto the FDI strategies is impossible to sensibly model without understanding how those are internalised within the firm's networks.

The cooperative or conflicting relations formed by the firm are inherently involved in empowering and implementing the strategic decisions over the allocation and leverage of resources, ownership structure, and expansion of investment projects across the geographic boundaries. The firm's structural position within the network of relations with the major economic and political forces, – the state, as well as the domestic and foreign business structures[27], – inevitably contributes to the asymmetric flows of resources and information, competences, alteration of incentive structures within networks and other factors underlying the firm's decision to invest abroad, and hence to the heterogeneous strategies[28] invented by the individual firms facing the same investment opportunities. To a great extent the heterogeneous investment responses occur in result of the asymmetric *domination* and *influence* mechanisms emerging in the firms' networks – as two fundamental domains of relational powers (Knoke, 1990, 1994): the former shaping the resource transfers within and among the firms, and the latter manipulating the incentives and autonomy in decision-making process and joint investment strategies. This duality of relational effects within hybrid networks, discussed in the following paragraphs and reflected in *Table 1*, serves as a fundamental premise for the conceptual framework elaborated in the subsequent *Chapter 3*.

[27] To pursue this, the discussion has to shift the focus from the accepted institutional approach which sets limits for the institutional influences to domestic only, and introduce the major power groups shaping the domestic environment and growth strategies of the firm: i.e., the state, domestic business structures and foreign capital.

[28] The concept of the firm's heterogeneity originates from the literature on the firm's dynamics, considering it contingent on the firm's learning, innovation, and investment (Jovanovic, 1982; Pakes and Ericson, 1998; Hopenhayn, 1992). The effect of the firm's heterogeneity on internationalisation decisions had been not formally modelled until the work by Melitz (2003) and Helpman et al. (2003), which originated the two most influential frameworks for the analysis of the firm's heterogeneity: the *intensive* and *extensive margins*. The empirical efforts have confirmed that the firms which choose to become multinational are systematically different from their domestically oriented peers and self-select into internationalisation strategies on the basis of productivity and size (Clerides et al., 1998; Bernard and Jensen, 1999; Bernard et al., 2007; Head and Ries, 2003; Greenaway and Kneller, 2007; Tomiura, 2007; Wakasugi, 2008; Yeaple, 2009; Wakasugi and Tanaka, 2012; Pietrovito et al., 2013). The present research diverts from this point by incorporating the diversity in the organisational modes of the EM firms and the structures of relational powers in the hybrid networks power as a major source of heterogeneity in the foreign investment behaviour.

The organisation-environment interactions and the firm's network connections have been principally incorporated in the IB research through application of the institutional theory (North, 1990; Scott, 1995) to the firm's strategies, which formulated the *institution-based view*[29] (Wright et al., 2005; Peng, 2002, 2003; Buckley et al., 2007; Meyer et al., 2009; Peng et al., 2008, 2009), as well as by integrating the formal and informal institutional pillars and enforcement mechanisms into the OLI paradigm[30] (Dunning and Lundan, 2008a, 2008b). Both approaches return the IB theorising to the *organisational* and *system theory* grounds, which conceptualise the emergence and evolution of the firm as a result of the interactions amid agents (entrepreneurs, partners, groups, and so forth) with the environment, and reflects the synergy of the firm and external connections (Lewin et al., 1936; Maier, 1963), which shapes the barrier conditions between the firm and its environment – that is, the *firm's boundary* (Katz and Kahn, 1978; Katz and Garner, 1988).

During the hectic periods of demolishing the rigid infrastructure of the planned economy and re-building the institutions on market ground, the boundaries of newly-emerging firms and old-established enterprises under the ownership and technological reconstruction have not been as clearly framed and fail to strictly isolate the resources, work, and processes originating inside the firm[31] from the managerial or organisational relations and roles established outside of the firm's boundary[32]. The stronger firm's reliance on the relations and interdependencies, inevitable at the times of critical institutional changes and voids, induced the emergence of hybrid

[29] The institution-based view on the firm's strategy contributed to the integration of the resource-based view, industry structure and institutional frameworks into a three component model of international strategy, with a particular application for the emerging market countries. Besides defining the impact of the *firm's resources* and *capabilities* (the first component in the model), and the *industry competition* (the second component), the model postulates the *effect of formal and informal institutions* as the third independent strategy determinant, interpreting those as macro-constraints (Meyer and Peng, 2005; Peng et al., 2008), whereas the present research shifts the focus of inquiry towards the role of institutional arrangements as the *channels for resource and knowledge accumulation* and *capability building* at the level of the individual firms. Despite the widely accepted assertion in the IB field (Dunning and Lundan, 2008a, 2008b; Yiu et al., 2007), the institutional effects cannot be separated from the resource and industry determinants, as the firm, in its very essence, is a unit in the institutional system, – particularly in the case of the EM state-owned enterprises. Provided a greater degree of interconnectedness in the EM economies, the impact of the institutions is manifested in the firm's behaviour as setting preconditions for the resource accumulation through building the networks and hybrid incentive structures, and balancing the market power and cooperation in the industries, but *not as a direct macro determinant of the firm's actions* and decision processes (Blumer, 1969, 1986). Therefore, the empirical test of the interplay of the three groups of strategy factors needs a more elaborated conceptual and econometric modelling, than those attempted in the IB research.

[30] Of the particular interest would be the *Relational* component, incorporated with the Internalisation advantage and renamed as **I**$_{\text{r}}$ advantage, recognising the learning benefits and institution-building through the networks (Dunning and Lundan, 2008a) as an advantage in the initial FDI move (Dunning, 2004).

[31] That is, "*inside the boundary conditions*" (Katz and Garner, 1988, p. 432).

[32] That is, "*outside the boundary conditions*" (Katz and Garner, 1988, p. 432).

organisational forms or network structures, which channel the resources and share knowledge across the firm's boundaries. Hence, the identification of expanding boundaries of the EM firms and implied benefits or constraints arising from the relation-based business models would be centremost for a profound insight into their growth strategies in the foreign markets.

The integrity of the agents and environmental connections within the blurred firm's boundaries is reflected in the degree of *embeddedness*[33] of strategic actions in the social structure, – a concept originated from the sociological tradition (Polanyi, 1957; Granovetter, 1985). It powerfully diverted the explanations of firm's behaviour from the fundamental economic assumption of an atomistic market supporting the arm's-length ties among the self-interested firms seeking independency and profits, and avoiding small group bargaining situations (Hirschman, 1970; Macneil, 1978; Krugman, 1986; Wilson, 1989). The relational view of the firm counterbalances the idealised neo-classic concept by placing the *trust-governed network relations* at the opposite end of the firm's exchange continuum, which can serve a conceptual alternative for the EM firms, complementary to the price mechanism of resource allocation and the narrow pursuit of self-interest[34]. The embedded ties within the hybrid networks enable the EM firms to create commitment, rents, and investment opportunities that are hard to replicate via atomistic transacting (Uzzi, 1997).

The understanding of the nature and diversity of networks established by the EM firms, and what advantages the "special relations" bestow for engaging into international venturing, inevitably requires an insight into the origins and intrinsic characteristics of underlying firm's relations and ties (Rasiah, 2002), beyond the two institution-augmented IB frameworks, referred above, – as both suffer from theoretical indefiniteness[35], when the discussion turns to the precise mechanisms of the firm's value-

[33] In contrast to the neo-classic view, the sociological tradition considers the social relations, but not the utilitarian motivation, to determine and shape the human actions, and, hence, the strategic decisions of the firms. The social embeddedness is a multifaceted concept and relates to cognitive, cultural, structural, and political structuration (Zukin and DiMaggio, 1990), though the research interest in the present chapter inclines towards linking the embeddedness and the firm's investment decision processes (*structural embeddedness*), and the influences of power asymmetries on resource distribution (*political embeddedness*).

[34] This essentially opposes the two types of decision-making psychology, which underlie a great deal of the benefits of networking strategies that are discussed later in the present section: the *heuristic-based judgements*, assisting with fast decisions and processing complex information – especially under uncertainty and change, versus the calculative processing that underlies *risk-based judgements* in market system (Kahneman and Tversky, 1982, 1986; Williamson, 1994; Uzzi, 1997).

[35] Besides the institution-based view and institution-augmented OLI paradigm, the evolutionary concept of embeddedness of firms has been echoed in the earlier frameworks of the TCA, agency theory, and cooperative game theory, though was incorporated as a separated research stream only after Granovetter's (1985) work in the *network economics* (Goyal and Moraga, 2001; Calvo-Armentgol, 2004; Elliott and

sharing and value-adding networking with the domestic and foreign business entities, or the government agencies. In contrast to the "power struggle" mechanism of setting the rules though manipulation or control asserted in the institutional analysis (Knight, 2000), the analytical tradition of the *network approach* grants an ability to draw the direct implications of multiplex relations and the *gains of cooperation* within the hybrid structures, – grounded on trust, loyalty and reciprocity[36], – for taking the investment choices by the EM firms.

The benefits of the trust-based relations are exceptionally valuable in uncertain environments of the emerging economies, as the EM firms are inclined to establish the new networks or draw upon the legacy of previous ties in their strategic responses to the void of the formal institutions, – for instance, frailty in private ownership, or weakness in the political, financial, technology, and strategic factor markets. In addition to the self-evident mitigation of business risks, the embedded relations (when governed by reciprocal trust) improve the asset and knowledge exchange and enhance the firm's competence in joint problem solving. In its very essence, the heuristic nature of trust fosters the responsiveness of the firm to unpredictable events and novel situations, building the capability of the firm to actively influence the decision-making environment, *learn directly* in the outside world and *indirectly* via the shared mental models created by other actors. The joint search for inventive strategic combinations induces a flexible capitalisation on market opportunities through the shared investment.

The knowledge transfers within the network structures are not merely featured with an increased intensity, effectively reducing knowledge asymmetries, transaction costs, moral hazards, and ambiguities (e.g., Barney and Hansen, 1994; Dyer, 1998; Gulati, 1999; Zaheer et al., 2000), but qualitatively different from the information exchanges via market. The embedded ties are based on the channels of communications that are able to eliminate the ambiguities and inherent errors[37] in exchange of the elements of skills and competences, acquired through learning by networking partners. The shared learning involves differing cognitive processes in articulation and

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Zhou, 2013) and the organisation studies (Dore, 1983; Asanuma, 1985; Smitka, 1991; Helper, 1990; Gerlach, 1992; Dyer, 1996).

[36] First introduced in Amsden's exploration of the growth variation among the late-industrialising countries (Amsden, 1989), the concept of *reciprocity* in relations between the strong state and diverse business groups was considered a premise for catch up.

[37] The errors in the firm's perception and responses to changes in the institutional settings or strategies of rivals, emphasised in Akerlof's *near-rationality* concept, are rarely corrected by markets (Akerlof and Yellen, 1985; Tversky and Kahneman, 1986), and thereby might impede learning and further increase the firms' heterogeneity in abilities to process information and making decisions (Haltiwanger and Waldman, 1985).

interpretation of the perceptual and goal-oriented "*chunks*" of information (Chase and Simon, 1973), – as opposed to the discrete information bits conveyed via arm's-length transactions. The reciprocal flows of knowledge are enriched with an immediate feedback, often lacking when the decisions made by autonomous organisations (Tversky and Kahneman, 1986).

In addition to building and drawing upon the shared knowledge base and communicating intrinsic meanings, holistic and tacit communication within the network enables the firm to mutually coordinate and swiftly adjust its repertoire to form a *joint strategic response*, raising the *collective efficiency* by internalising and aligning otherwise external interests and promoting economies of time. Hence, along with the *resource effect*, well-elucidated in the inter-organisational research and termed as the "domination" dimension of relational power by Knoke (1994), the hybrid networking manifests the *incentive effect* (or the "influence" dimension of relational power) for aligning the investment strategies, as the firm's behaviour or strategy can only be adjusted after a change in incentive structures.

The joint strategy arrangements are pursued in novel forms in the context of the emerging market economies, as the imperfections in political markets compel the firms to internalise the relations – via establishing the equity ties and informal networks – with the dominant institutional constituents, such as the state elites or foreign capital. The hybrid equity arrangements inevitably raise different implications for FDI decisions of the EM firms, compared to forming inter-organisational ties across business structures, more frequently observed in the developed economies with long-established organisational fields. The tendency to align with the major domestic (i.e., the state) and extra-state interest groups (i.e., foreign capital), observed in the EM economies, yields a greater heterogeneity in the embedded ties contingent on the societal and institutional status or geographic origins of the actors tied in a network, which defines the capacity of all participants to shape the macro- and micro-networks. The configuration of ties and actors corresponds to the diversity and uniqueness of resources, probity, capacity and competences, market and political power, which are conceivably contributed and accumulated within equity network boundaries (*Table 1*).

The ramifications of this type of firm's heterogeneity are far-reaching not only for generating the relational rents[38] – by pooling the complementary assets and capabilities and granting the firm with a privileged access to resources via embedded exchanges, –

[38] As defined by Dyer (1998).

Table 1:
The EM firm as a repository of the accumulated benefits through embedded exchanges.

	Typology of embedded ties				Network effects	Economic and strategic benefits for the firm	Outcomes for FDI decisions
	by status of the partner	by geographical origin of the partner	by nature of relations	by level of commitment			
Duality of the embedded ties	**Structural embeddedness**: [business ties and economic networks]	**Intra-state:** among domestic firms and the state agencies **Extra-state:** foreign partners [*outside of networks of embeddedness*]	**Cooperative**: reciprocity, coherence, embedded autonomy [*via the tactics of bargaining, co-opting and influence*]	**Equity**: hybrid SOEs, FIEs [*tight or strong ties*]	**Resource and knowledge effect:** **[domination mechanism]** extending the resource and knowledge base of individual firms via the accumulation of network resources and capabilities. shared direct and indirect learning within hybrid structures.	Economies of time. Lower costs achieved through operational synergies. Joint problem-solving. Mutual shareholdings and joint equity sharing.	Strengthening the firm-specific advantages in foreign markets via enriching the firm's potential for internationalisation with the shared resource base, knowledge, and capabilities.
	Political embeddedness: [political ties and political networks]	**Inter-state:** with the foreign governments	**Combative**: capture, defy [*via the tactics of control, challenge, and attack*]	**Informal**: the state vis-à-vis business elite [*loose or weak ties*]	**Incentive effect**: **[influence mechanism]** alteration of incentive structures and subjective motivation of managers towards a coherent collective action and effectiveness. growth-oriented networks [*positive synergy*] versus rent-seeking, predatory, and collusive networks [*negative synergy*].	Strategic fit based on complementarity of the assets and operations. Collective power and attuned preferences. Reduced internal conflicts and misalignments with external institutions.	Direct stimuli for FDI via altering cognitive models. Improved co-ordination of the joint investment. Hastened shared investment through the state guarantees.

Source: created by the author.

but as well for formulating the strategic decisions on joint investment into the foreign ventures. The essential implication for the EM firms reveals that the combination of structural and political embedded ties would enable the complementarity effects enhancing the shared investment, which otherwise would not be feasibly undertaken by an autonomous firm. It leads to a preliminary conclusion on a greater tendency to expand the operations in the domestic and foreign markets by the firms with hybrid organisational structures emerged out of co-evolving economic and political networks (e.g., the combination of the state capacity with domestic and foreign capital), which, in turn, further strengthen their structural embeddedness via joint equity sharing.

Although the network effects have been, in general terms, acknowledged by the institutions-augmented OLI paradigm as a specific advantage for the initial FDI decision (Buckley et al., 2007; Dunning and Lundan, 2008a, 2008b; Rugman and Oh, 2013), the deferential effects of the relational mechanisms have not been explicitly incorporated and developed within the FDI research, which tends to narrow down the potential relational benefits to the network assets obtained within industrial business groups (e.g., Dicken et al., 1994; Khanna and Palepu, 1997, 2000a, 2000b; Peng and Luo, 2000; Khanna and Rivkin, 2001; Kogut and Walker, 2001; Bair and Gereffi, 2003). Though considering the network ties as a strategic resource is a valid starting point, the developed research stream overlooks that the hybrid structures formed by the EM firms differ significantly in strategic orientation and relational models adopted within the networks, and conflates the complex network effects into a single attribute.

Relating to the state of IB field, none of the extant IB models elaborates that the firms may respond with heterogeneous investment strategies contingent on their networking pattern and a particular configuration of resources and capabilities complemented and shared within the network, as well as intentionality aligned among the network participants – as the two major network effects, conceptualised in *Table 1*. Neither the writers in institutional economics (e.g., Denzau and North, 1994) profess that the firm's ability to share the potential gains of cooperation might be determined by the nature of relations within networks, which may change dramatically over the critical junctures encountered in the EM economies along their diverse paths of economic and political becoming. To redress this theoretical deficiency, the conceptual framework of the FDI behaviour of the EM firms ought to incorporate the resource and incentive effects (i.e., *domination* and *influence* linkages) as separate dimensions of power, but also to capture their joint effect; for the interrelation and interaction among resource and

incentive power relations may produce distinct network structures and FDI outcomes[26].

The two key outcomes of the network-based growth strategies employed by the EM firms are important to reiterate: strengthening the advantages which are highly specific for international venturing by extending the resource, knowledge, and capability base beyond the firm's boundaries, and incentivising the effective coordination of joint investment. Both network effects reflect the combination and evolution of institutionalised linkages – economic and political – between the firms and the state, and extra-state forces. Hence, the outcomes for the firm's investment strategy crucially depend on the developmental goals pursued by the state to autonomously enhance the *growth-oriented business coalitions* among the major forces or its statist position with embedded, and often predatory, interest in business outcomes.

In the EM economies with distorted political markets and unstable institutions, the firm's ability to influence the resource allocation and capture the gains of cooperation with the state – or with foreign partners – might be determined by where does the balance of power[27] in the *intra-state networks* lie at a particular point of institutional transformations. The long term shared investment within the intra-state networks is likely to be hastened, when the firm is in a relatively more advantageous position to draw upon economic and political networks with the state to achieve growth in the domestic and foreign markets, and the state, in its turn, reconstituted the capacity to endow the firms for entering the foreign markets. The prolonged periods of the state weakness may shift the power balance outside the intra-state networks of embeddedness to foreign capital, and force the firms to draw for advantages and secure autonomy within *extra-state networks*, the influence of which on the strategic investment decisions of the firms is inevitably expanding after economic disruptions in the EM states.

Without a thorough consideration of the balance in relative powers of each side in

[26] For instance, Knoke (1994, p. 5) outlines four possible relational structures: combining a weak or strong "*domination*" relational power with the weak or strong "*influence*" relations in a network. Stark (1996) and Stark and Vedres (2012) emphasise a recombinant property of networks in the East European economies.

[27] A more accurate presentation would be to consider this as a delicate balance of embeddedness and autonomy in the network relations, shaping the captured gains from cooperation. *Overembeddedness* or, in its extreme form, a complete insulation of the network from the external arm's-length interactions, also referred as the "*paradox of embeddedness*" by Uzzi (1997), may impede reciprocity in relations and information flows, and reverse the positive synergy of the network, allowing for rent-seeking, predatory interests or a capture by either of the sides, – so frequently observed in the emerging market countries in the capture of the state resources and property by the growing business conglomerates (e.g., Russia during the neo-liberal reforms in the 1990s), or direct re-nationalisation and capture of the private sector by the state (e.g., Russia after the regime change in the 2000s). Important to note that the positive synergy within the network, and the extent to which it may induce the firm's growth and facilitate foreign investment decisions, may not be an outcome inherent in the embedded ties, but should be considered as a subject to the precedent conditions, as will be discussed in the following section.

the state-business relations, and its purposeful and often rapid transformation over the "critical junctures" in the course of development of the EM economies, it would not be possible to explain the differing capacities arising across the networks or hybrid organisational structures, and neither to yield a model accounting for the heterogeneity in investment strategies pursued by the EM firms. In order to build an enhanced theoretical underpinning for the investment behaviour observed among the EM firms, the following section draws upon the political science literature, to contrast the quality of economic and political relations amidst the firms and governments in the EM states, and infer how the nature of the state-business interactions may condition the coherence and investment capacity of the newly-emerged hybrid organisational structures.

2.4 The firm's relations with the state and foreign capital: the implications of the state capacity and effectiveness for international venturing of hybrid firms

The traditional narrow interpretation of the state as a governance structure in the political science (e.g., Evans, 1995) and the prevalent interpretation of the firm as a unitary trading entity in the economic doctrines are unable to adequately account for a novel context of the more intensive business-state relations in the emerging market countries, which economic structures are immensely dominated by the hybrid institutional arrangements and organisational modes. Over the course of reforms, the EM states developed into inherently a "*trading institution*", purposefully engaging in a more inventive *economic networking* and actively connecting with the private firms by mutual sharing or finance lending, joint venturing, equity ties or interlocked directorships – forming heterogeneous *economic state-business networks*.

The embeddedness of the state in economic relations with the private business yields ample opportunities to complement the *political networks* between the government bureaucrats and business elite or formal coalitions – prevalent in the theoretical models on state-business relations[28], with more subtle *business networking* strategies, fortifying

[28] The governance literature on the state-business relations encompasses three ideal models of interaction, all referring back to postulates of the agency-principal problem, either presupposed to strengthen the *managerial discipline* in poorly performing enterprises with the state control via appointing the state directors or representatives (Kaplan and Minton, 1994), or *rent-extraction* by the state directors once those gain a privilege position and back-up from the ruling elites (Shleifer and Vishny, 1994; Faccio et al., 2006; Hillman, 2011, 2013; Congleton and Hillman, 2015), or mutual *collusion* and exchange of benefits among the state and the firms (Frye, 2002; Iwasaki and Suzuki, 2007; Frye and Iwasaki, 2011). None of the three types, however, accounts for the inevitably complementary nature of the political and economic institutions

the infrastructure of the state with both the material resource base and legitimate coercive force. The strong relational synergy between economic and political institutions empowers the state to gradually reconstitute its capacity and counterbalance the aggression and influence exerted by foreign capital onto the production structure and strategies pursued by the domestic firms. The final configuration of capacities of the domestic firms and the state is shaped by the nature of established relations among major powers, – whether those are *extractive* or *inclusive*[29], – and the scope of the groups included in the relational circles[30]. The established model of the state-business relations defines what relational powers (and in what proportion) will be exerted within the co-evolving political and economic networks among major institutional constituents: whether the *domination* (i.e., resource effect, *Table 1*) or *influence* (i.e., incentive effect, *ibidem*) mechanisms will prevail, or those will combine in a coherent power structure. The resultant relational structure in the networks, in its turn, determines the allocation of institutional benefits and the core-periphery structure of business sector: whether the knowledge and resources will circulate narrowly among the *privileged groups*, or will reach the "periphery" of business networks – the *intermediate* and *latent business groups*[31] – as well. The impact of the relational powers internalised within the firm's networks on the investment capacity and endeavour of the EM firms can hardly be overstated, though it has never been conceptualised in the extant IB research on the EM firms, – by that directing the attention of the following subsections to the models developed in the political economics and political science.

2.4.1 The models of the EM state: from technological dependence to growth-oriented joint investment

The extent to which the economic and political relations interconnecting the business community with the state, along with the *extra-state forces* such as foreign capital, may constitute coherent *growth-oriented hybrid* institutional arrangements and contribute to internationally oriented business ventures greatly depends on the goals

(and networks) in the EM states, and, presuming all parties being self-interested and differing on the direction and extent of rent flows (e.g., Frye and Iwasaki, 2011); neither they elaborate on the alternative to the extractive interests and behaviours in the relations and institutions: for instance, via promoting the benevolent attitudes, or the elements of those, among the developmental state and the firms, – despite the synergetic logic of institutions and historical evidence from the catching-up industrial latecomers.

[29] As termed by Acemoglu et al. (2012, p. 73-91).

[30] This scope is determined by the prevalence of weak or strong inclusive institutions in economy.

[31] As defined by Olson (1965).

pursued by the state, the economic ideology and political character of the regime promoted by the state, which have been traditionally explained either from the developmental, dependency, or statist traditions in the political economy.

The *developmental perspective*, stemming from the neo-classic idea that the optimum stimulus for domestic and international growth of the firms can only be exerted by the free market (Rostow, 1960, 1971; Friedman, 1962; Kuznetz, 1965), whereas the state entrepreneurship distorts the efficient market function and impairs the innovativeness of firms and their expansion into the foreign markets, for the state interventions are viewed as inevitably disruptive. The developmental and growth potential is prescribed to the inflow of foreign capital into the domestic market and the formation of the *extra-state business networks*, facilitating the technology and knowledge transfers to the indigenous firms and bringing the cyclic growth adjustments in market equilibrium.

Though over the course of time, the dominance of foreign capital tends to ultimately supress the activities and the scope of strategies of the domestic firms, turning the developing market into the "resource periphery", if the state institutions remain weak. Contrary to the neo-classical argument, the extractive extra-state networks turn into a major threat for the newly-emerging markets, impeding the potential for innovative strategies of the indigenous firms and their ambitions for international venturing, as predicted by the *dependency view* and supported by the overwhelming historical evidence (e.g., Frank, 1969; Galtung, 1971; Bornschier and Chase-Dunn, 1985).

Following the historical dynamics in the development of nations, the periods of foreign dominance are frequently overturned with a nationalistic reaction; and the dyadic extractive relations between the domestic business elite and foreign owners, prevailing in the economy governed with dependency of the domestic business on foreign capital, are intervened by the strengthened participation of the state in the domestic production. In the dependent economies, the state interference may yield obscured outcomes for the growth strategies of the domestic firms, especially when the active interest of the state elite in business outcomes is impelled with the need to support the corrupted regime or establish the extractive institutions, sustaining the stable flows of "pay-off" to the techno-bureaucracy. The merged extractive political and economic institutions create a "*political adverse selection*" trap in the relations among the firms and the state, which though might be facilitating growth and investment in a shorter term, provided the state is able to centralise power and channel resources towards the highly productive projects. However in the long term, the vertical mistrust, which inevitably replaces

the cooperative motives in networks in the presence of institutional threats and exclusive relational structures, might distort the firms' strategies towards investment in the political support and establishing close informal ties with the state bureaucrats. Political investment helps the firms to survive in the market and benefit from the redistribution of extraordinary rents, but at the great expense of growth-oriented productive investment and innovative learning[32].

The menace of self-interested behaviour in the economically dependent state lies in binding all the sides to support the existing political and economic exchange system. The domestic firms, which become dependent on the politically bestowed benefits and transferred unproductive rents, are likely to resist innovative strategies and restructuring, compared to those that created wealth with their entrepreneurial talents and learning. The self-interested behaviour of the state bureaucrats, well-framed in the theories of public interest and choice (e.g., Vickers and Yarrow, 1991; Shirley and Walsh, 2001), may favour the imperfect political markets and non-transparent regimes, as those broaden the scope for the overt interventions into the private and public enterprises to maximise their personal welfare[33], manipulate information channels and opinions of the voters. To attenuate the economic dependency of the domestic firms and distortions in their investment strategies and incentives, reconstituting the *strong state* might be vital to surpass the institutional trap[34]. The strong state policy might be a key to changing the nature of linkages in unconventional *triad hybrid networks* among the state, domestic private investors, and foreign capital: from funnelling the windfall profits within the narrow groups with *collusive* and *extractive linkages*, – towards the developmental projects within more coherent *growth-oriented networks* supporting knowledge generation and productivity gains, and among other factors promoting internationalisation efforts of the firms.

It is important to note that the strong state policy is frequently misinterpreted in

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[32] The political and productive investments are likely to be substitutive strategies, as the firms might not be capable to pursue both simultaneously (Libman, 2006).

[33] Following the theory of *public manager's utility*, modelled as a function combining social and private welfare (Shapiro and Willig, 1990) and supported with case studies (Jones, 1985; Kikeri et al., 1992), the private welfare of state bureaucrats may reflect both: the personal utilities and interests, and also a gap between immediate political pressures and social benefits in the long run. This implies that the less efficient the political market is – the greater private welfare interests would prevail (Shirley and Walsh, 2001).

[34] For instance, to purposefully decrease the demand for weak and inefficient institutions, profiting the narrow interest groups – however, with wiser measures compared to the direct coercive power frequently exercised by the state in the emerging market countries. Excessive coerciveness (and lack of developmental stimuli) may prompt the escape response by the EM firms, electing to stay or shift their activities and assets to the shadow sector or more favourable environment to avoid costs associated with institutional misalignments (Hoff and Stiglitz, 2003, 2004; Witt and Lewin, 2007).

the political economics, confining the role of the state to a single dimension of the scope of state interventions. However to enable the effective change in the business-state relations and implied investment strategies, the state-building efforts ought to be guided with a *quality* imperative to improve the *strength of the state*[35] institutions – a dimension of the stateness that had been mostly ignored amid the economic and public governance discussions (Fukuyama, 2004), which have been to a greater extent devoted to the *scope of the state*[36] functions in the emerging market countries. The level of effectiveness of the state is central to the *statist argument* which suggests that the state entrepreneurship brings a developmental spur to the economy and business undertakings (e.g., Gerschekron, 1962), endowing with inputs and incentives for more efficient joint venturing and outward FDI expansion in the latecomer countries.

As the state capacity[37] is gradually regaining its strength and mutual trust, the state entrepreneurship may not only provide a benign short-term alternative to extractive coalitions with foreign capital in the strategic sectors, – considering the foreign influence as an external threat to the long-term development, – or in the industries where the domestic business is yet incapable to lead the innovative transformations and growth[38] (Chan et al., 1990), but also to reverse the negative synergies within the triad hybrid networks, turning the narrow rent-seeking and predatory networks into a "*multiple sum game*" – with the reciprocal flows of knowledge and resources, endeavouring for learning and strategic innovativeness. Besides, the transition away from the dominant extractive institutions would induce a greater inclusiveness into shared benefits, complementarities, and the effective catch-up of the forcibly marginalised or latent business groups, prompting wider

[35] Which can be defined as an ability of the state to enforce the laws transparently and execute the policy (Fukuyama, 2004) and maintain the monopoly of legitimate use of force (Weber, 1946).

[36] The mere extent of the state's participation in the economic activity, regardless of the state quality and effectiveness.

[37] The state capacity, or the state infrastructure, resulting out of synergy of economic and political institutions, varies strongly across the state functions or agencies even in the same country (Fukuyama, 2004).

[38] The history of economic development had evidenced the examples of the successful developmentalist states (Amsden, 1985; Cheng, 1987; Gold, 1986; Winckler and Greenhalgh, 1988) – for instance, the developmental capitalism of the East-Asian states: first in Japan (Johnson, 1982), and later in South Korea (Amsden, 1989; Vu, 2007) and Taiwan (Wade, 1990); though those might not be explicitly and completely subsumed to any of the three paradigms in the political economy outlined in the discussion (Chan et al., 1990). Along with a more modest success achieved by the South Asian developmental states (Malaysia, Indonesia, Thailand, and Philippines, e.g., in Chang (2006), Doner et al. (2005), Jomo (2004), Hayashi (2010)) and Social Democratic developmental states in Latin America (Mauritius, Chile, and Costa Rica, e.g., in Sandbrook et al., 2007), there is a prolific historical evidence on the collapses of close relations between the state and business, for instance, in the East African states, which continuingly operate in a manner of *developmental patrimonialism* through centralised rents (Kelsall et al., 2010; Routley, 2012). The role of the developmental state capitalism is closely related to the emerging literature on "Beijing Consensus", as an alternative model of the state-driven economic development compared to the neo-liberal policies of "Washington Consensus" (Ramo, 2004; Kennedy, 2010; Halper and Nye, 2011).

business segments for the shared investment and international venturing.

The outlined four types of the state, as measured with the state effectiveness across the combinations of the scope and quality dimensions, and resultant models of the state-business relations and the types of coalitions (driven by extractive, collusive, or collaborative interests), form the foundation for the model of the FDI behaviour of the EM firms. The intended framework ought to reflect a trajectory among the state types and a change in the nature of the state-business relations and dominant coalitions. Such a shift from the collusive networks to coherent collaboration implies a change in the state approach from reliance on the resources and consolidating the material base towards the development of capabilities – which are contrasted in the following subsection, and related to the FDI outcomes in the later subsections.

2.4.2 The resourcism versus the capability development approach in state-business relations

The recent theoretical tradition of "*bringing the state back in*" (Evans et al., 1995; Maxfield and Schneider, 1997) into research on the developing and emerging market states and studies on political connections amid the EM firms, – associating a higher firm value with a greater ability to secure the preferential treatment and access to debt financing via political channels (e.g., Fisman, 2001; Johnson and Mitton, 2003; Dinc, 2005; Charumilind, 2006; Faccio et al., 2006; and Claessens et al., 2008), – is akin to ignoring the importance of the growth-oriented economic networking. The research inquiry and conceptual frameworks ought to be aimed at the firms' capability-building and the capable state elites maintaining the balanced autonomy, – as the vital preconditions for sustaining and transferring the achieved gains of cooperation into the international undertakings, which is attempted in the present research.

The emerged *resourcism* in the state-business relations, – a common recourse for theoretical grounding in the IB research, – without doubt accounts for the substantial growth achieved by the EM firms, since the sufficient size and composition of the material base within networks create preconditions for the very formation of economic networks with positive synergies, or what the political research on business associations defined as the "*growth coalitions*"[39]. The distinct resource base, nonetheless,

[39] Considered as benign "growth-enhancing relations between business and government elites" (Maxfield and Schneider, 1997, p. 5). "Growth coalitions arise when these relations take the form of active cooperation

can hardly serve as a guarantee for the development of coherent relational mechanisms and effective tacit exchanges within the hybrid structures of the firms. For the state-business collaboration of a true developmental and strategic value to arise, more subtle relational mechanisms ought to be constructed, capable of transforming the heavy reliance on resourcism into the reciprocal complementarity inducing direct and creative soft innovations. The created coalitions ought to be governed with credibility and trust, – the only governance mechanisms which are able to prevent sacrificing of partnerships for the short-sighted political interests, – and take the form to foster the developmental investment in a longer term.

The potential of the growth-oriented coalitions amid the state and the EM firms turns attention to the theoretical alternatives, which are able to countervail and complement the narrowness of resourcism in the IB research: following the lines of the *capability development approach* advanced by Sen (1979, 1999a, 1999b, 1999c, 2005) and more recently by Evans (2010). The positive synergies cannot be considered as an automatic outcome of the networking strategies; thereby, mere monopolising the natural resources or restructuring the material base by the EM state is not suffice to sustain long-term rents from growth-oriented investment. To prevent the relational intra-state and extra-state networks from deteriorating into collusive and rent-extracting coalitions, the state as a network or coalition partner needs to deepen its technological and decision making capacity, as well as to guide the power of ideology to incentivise entrepreneurial undertakings by the EM firms.

When the state capacity is equally matched with the capabilities of the firms in growth coalitions[40] (Thorpe and Durand, 1997; Bräutigam et al., 2002), the greater mutual trust, complementarities, and linkages across the industries may arise. Contrary to the theoretical attacks on the state interference and ownership, the recombination of the entrepreneurial talent with the far-seeing behaviour of the state elite in the emerging economies, capable to set the developmental goals and incentives, and draw on the resource base for value-enhancing investment, underpins the firm's potential for cross-border investment. The coherent growth coalitions are built on the internal mechanism, created to maintain positive synergies and prevent self-interest and collusive decisions, which constitutes the prime point for the following subsection.

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towards the goal of policies that both parties expect will foster investment and increases in productivity" (Bräutigam et al., 2002, p. 520).

[40] Along with other preconditions of the macro-economic stability, fiscal discipline and financial health, removing distortions and interstices across the industries and improving the efficiency of investment.

2.4.3 Sustaining the synergies: the power of collective action within state-business coalitions

To truly understand the potential of the EM firms to achieve cross-border growth, the models on the state-business relations ought to be complemented with the firm behaviour science, enabling to conceptualise the firm's response as internalisation of the relations with the major powers within hybrid structures. Although most of the arguments in the IB research with regard to the state behaviour and the firm's incentives derive from the *principal-agent model*, either in Alchian's (1965) formulation on a superior ability to monitor the managers in private enterprises when compared to the ventures with state participation, or as the comparison of opportunities for shirking and managerial efforts to secure the transfers and tenures from the state in the enterprises with differing organisational structures (DeAlessi, 1974; Jensen and Meckling, 1976; Fama and Jensen, 1983), it might not be an as insightful framework into relational mechanisms and rents within the hybrid networks of the EM firms.

The network approach to the business-state relations, elaborated in the previous section, considers the firm's incentives as not delivered through the chains of command (via monitoring mechanisms or petitioning with the least efforts), but created during equal negotiations and bargaining within the network of the managers and the state actors – in the ideal case of the efficient political markets, sustaining the balanced autonomy between the business interests and the state. In the realities of the distorted political markets in the emerging market countries with low transparency and weak regulatory institutions, the motivation of the firm's managers and the state bureaucrats might be inevitably inclined towards the self-interested behaviour: once either of the groups accumulates the relative power and garners the strategic resources, threatening and manipulating the autonomy of the counterpart for narrow ends. However, the hybrid structures of the EM firms may launch other mechanism guarding the network system from destructive self-interested behaviour. The new organisational structures, also capable for international expansion, are constructed and changed with the *power of collective action*, and rarely by efforts of the self-interested individuals, – on this point the IB literature and the agency-tournament models remain silent.

The *theories of bureaucracy* (Niskanen, 1971, 1975) and *collective power* (Olson, 1965) predict several collective action scenarios: from the purposive attacks on the institutional underpinnings by the narrow business elite to capture control over the distribution of the national resources, especially in the dominant export sectors, closely attuning

the political decision-making and preferences of the state actors with the private privileged groups controlling the assets – often with voting power or bribes, to the counter-pressures exerted by the state onto the various groups in the business sector (privileged, intermediate or latent) to assure the endorsement for existing interests of the government in office, or reconstitute the desired social hierarchy and centralised political order by excluding the threatening business actors from access to the existing system and depriving them of the state support.

Interestingly, both scenarios of collective action could be observed in the emerging market countries, as the frail nature of extractive relations and institutions inherently leads to infighting and reshaping the power structures among the state and the business groups over the different phases of the transition paths or across the strategic sectors. The shifts in the balance of power infuse new ideology and norms, establish new constituencies, and reframe the benefits and costs of the extant and emerging economic and authority relations, which all allows for the new organisational fields[41] to emerge and disappear along the course of the state development. The structural mechanisms by which the novel organisational forms constructed or repressed may differ immensely, depending on the characteristics of the reconstituted organisational field, – as discussed in the following subsections.

2.4.4 Creating the organisational fields: the interstice of state-business interests and FDI incentives

In sharp contrast to the intra-organisational change in the western societies, the striking historical examples of which are outlined by Acemoglu et al. (2012), the new organisational forms in the EM countries rarely appear in response to the broad-based or creative technological innovation, but are pre-eminently empowered by the political and institutional processes (Powell, 1991), social movements, and collective counter-movements challenging the existing institutional arrangements and prying the resources off current uses[42] (Friedland and Alford, 1991; Rao et al., 2000).

[41] The *organisational fields* are best understood as social structures, operating at the meso-level, that mediate between the organisations and multiple levels of actors and institutions. Being a wider concept than the relational networks, organisational fields consist of all types of organisational players, – regulatory agencies and business entities, – distinguished with certain type of relational connections and resource distribution, as well as the models for action and rules they follow, controlling the emergence of new organisational forms (DiMaggio and Powell, 1983; Rao et al., 2000).

[42] As the markets in the EM economies are either absent or inefficient in reducing the negative externalities and social costs, and providing the incentives for intra-organisational restructuring and coordination.

The organisational and geographic boundaries of the EM firms are rather established at the informal "truce agreements" between the changing forces, which – but not the legal contract and enforcement – determine whether the firms are to obtain legitimacy and to be granted with access to the resource channels.

Whether and which of the organisational forms, newly-emerged in the EM countries, would be capable of innovating and pursuing internationally viable investment strategies might be largely defined by the structure and dynamics of transforming organisational fields, and the nature of collaboration among and within those. The weakly organised states without a clear centre of power, fractured with the diverse and often conflicting interests of elites, may prevail with *fragmented organisational fields* (as introduced by Meyer and Scott, 1983), lacking both the coherent infrastructure and incentives for collective learning and inventing the investment strategies. The state and business elites, preoccupied with infighting over the domestic influence and strategic assets – with outcomes not even nearly resembling Schumpeterian "creative destruction", are unlikely to join the entrepreneurial talents and resources, in order to originate organisational forms capable for venturing in the foreign markets. Neither the marginalised or latent business groups could be expected to coordinate an effective joint action or counteraction, as those would have to devote a great deal of their efforts to survival in the market, setting in motions the adaptation and protection mechanisms towards the drifting powers taking the lead. The gaps in the social structure and organisational fields would hardly permit the lucrative allying of the marginalised groups with the extractive power chains; neither would the corrupted collusion and illegal means, even at the regional level. Though the firms of the intermediate groups may undertake an individually organised and competent attempt to initiate foreign investment despite their disadvantaged position, it is likely to take a form of the escape response, promoting the capital flight where the state is unable to centralise the legal power and provide incentives for efficient allocation of the highly liquid private assets.

The *hierarchically structured fields* often emerge after the wave of political and business conflicts in the EM economies freed from the constraints of absolutist regimes, and are endured by the strong centralised state accumulating strategic assets and actively building the investment capacity. In such type of organisational fields, the strategic innovativeness, – crucial for undertaking foreign investment by the EM firms, – might not likewise originate from the business periphery. As an advantage, however, the established or enforced relative truce among previously conflict-oriented privileged groups may enhance the capability of the firms for collective learning and

complementing their efforts through benign collaboration (Rao et al., 2000).

By the same token, the novel organisational forms and innovative investment strategies are most likely to emerge at the "*interstices*" of the previously competing interests and fractured organisational fields: out of the joint efforts of the strong-willed and capable state, strengthening its stance in the international scene and relying onto the entrepreneurial talents of business actors, capable to coordinate and leverage the strategic assets into the international venturing, creating the relational rents and benefits of collective action. The hybrid networks emerging in *collaborative fields* might yield positive synergies among the centralised state and privileged business entities, even though the extractive institutions and relations had not completely transformed.

The rapid and bold expansion of the EM firms might be, in a greater extent, a result of the increased density of inter-organisational interactions in the economy, which brings a wave of organisational founding and venturing, as well as collective learning and complementing the resources within the newly-created hybrid organisational structures, – rather than being an expected outcome of the pro-market reforms, as frequently presumed in the IB literature and comparative economics. The state-business interactions may take various forms, leading to the emergence of fractured or collaborative fields and coalitions; and the FDI potential will in a great extent depend on the ability of the state effectiveness and its ability to induce inclusive institutions and a more coherent collaborative relational model with business sector – as discussed in the following paragraph.

2.4.5 The shift towards an effective model of state-business relations: the inclusiveness of business groups into shared investment

The pervasion of synergies and capital formation across the divergent business groups in the economy, and involvement of those into the foreign operations, might be pronouncedly impelled with the strategic developmental vision of the state purposely adopting a set of inclusive political and economic institutions[43] (Acemoglu et al., 2012) and contributing to the pluralisation of institutional environment. The pluralisation and

[43] Though the inclusive political institutions, and the bound shift towards inclusive economic institutions, is believed to emerge during the critical junctures (for instance, Acemoglu et al., 2012, p. 332), the efficient spread and maximum inclusiveness of the intermediate and latent business groups in the EM countries into the innovative creation and foreign investment projects may only be achieved after stabilising the initial chaotic destructions with a strong-will input by the state, followed with the gradual implementation of industrial policies fostering capability building through the benign collaboration with the private sector.

inclusiveness empower broader business segments for capitalising on the collective knowledge base, developing the competences, and allocating the talents into the internationally competitive lines of business.

The establishment of more effective relations between the state and the latent business groups might be conducive to a greater inclusiveness of the smaller businesses into powerful growth coalitions or harnessing the individual innovative venturing, still rarely observed amid the EM states that favour formation and international expansion of big capital in the strategic sectors. The preceding stage of the extractive coalitions, – unavertable after the critical junctures demolishing the pre-established economic connections and social order, – might shift the state goals towards gaining a stronger hold on power and economic order in the country, and empower the state to rapidly rebuild the economic capacity, giving a rise to the bold foreign investment ambitions amid the political and business elites.

The genuine developmental spur, leading to long-term investment projects, is inherent to the gradual qualitative change in the state capacity and ability to maintain the right degree of autonomy in order to prevent the collusive intentions, which increases the likelihood of reciprocity, credibility, and transparency, and even more information sharing and wealth accumulation. The effective state-business relations create conditions for the purposeful shift towards the complementary industrial policies, improving the economic coordination, building the resources, knowledge, and technology channels across the disaggregated and unequally targeted sectors in the EM economies. As an important implication, a coherent balance in the SBRs shifts learning potential of the EM firms towards applicability in the foreign markets and maximises the collective capacity of the state and business actors across the diverse groups.

The intensive and productive inter-industrial collaboration creates a "strategic bridge" among the firms in the strategic and peripheral sectors, impelling the disadvantaged firms to hasten the technological independency and follow the strategic leaders in their expansion into the foreign markets. With the passage of time and accumulated governance wisdom, the state may ultimately move away from the direct instructive incentives for the acquisition of foreign assets through the hierarchy and equity ties towards the indirect incentives through the positive collaboration within and across the industries, and devising the softer *mental models* (Denzau and North, 1994) to influence the firms' international behaviour via cultivating the value of education, national esteem, and altering the social order in the country.

2.4.6 Conclusion: building grounds for the conceptual framework on FDI transition

The theoretical reflections on the role of the state, – which in the real practice is rather a combination of the state's roles, the major types of which are conceptualised in *Table 2*, – and its immersion into a web of relations with the business groups is considered a premise for constructing the conceptual framework of the investment patterns observed among the diverse hybrid organisational forms operating in the EM markets. The embeddedness of the strong state not merely defines what formal and informal institutional arrangements will be devised and the balance of their relative powers, but also how the firms' boundaries in the domestic sectors will be structured internationally through providing the direct and indirect incentives for effective investment in new capacities, forming the mentality of business actors, and surmounting their inertial resistance to the strategic change and learning.

Attempting to build the theoretical ground for the conceptual framework of the Russian firms, the models of the state-business relations, introduced in *Section 2.4.1*, are presented across the *continuum of power structures* extending from "*dependency*" to "*coherent collaboration*": from the first column to the fourth column accordingly (*Table 2*). Each of the state-business models is disentangled by the regional and industrial patterns, which feature the constructed organisational fields. The characteristics of organisational fields are, in turn, related to the prevailing and emerging organisational forms. The intra-state and extra-state networking strategies, adopted by survived and newly-created firms, reflect the two networking effects introduced in *Section 2.3* (*Table 1*). An essential part of the table concludes on implications for FDI decisions and strategies across all SBR models and emerged hybrid organisational forms. The developed SBR trajectory shows how the investment propensities and commitment shift over time in response to the shifts along the "*power continuum*", which reflects a change in coalitions among the major forces and relational models internalised within the firm's boundaries.

The transformation of resources and capabilities within the hybrid organisational structures, emerging in a result of the peculiar interactions of incentives and interests in the state-business relations and their gradual transformation or radical change over the critical junctures, will constitute the focal point for framing the propositions on the strategic and investment preferences of the Russian firms, and is carried forward to the proceeding *Chapter 3* to formalise the hypotheses.

Table 2:

The trajectory of the development in the state-business relations (SBRs) in the EM economies and the implications for foreign investment decisions.

Political character of the regime		Fractionary liberalism	Autocratic capitalism	Move towards pluralism and transparency
Type of the state	**Dependent**	**Fractured**	**Statist**	
Characteristics of the state	**Weak backward state**: amorphous in coercion and capacity, unable to act and mobilise forces against the powerful foreign interests.	**Weak captured state**: lacking coercion, losing the capacity and scope; with easily manipulated judicial system, and the internal structure of power and authority.	**Strong embedded state**: strong in coercion, rapidly reconstituting the capacity and scope, and centralising the state architecture; though weak in the state effectiveness; driven with geopolitical interests in investment decisions.	**Strong autonomous state**: wise in coordination of development and effective incentives, focused on building a stronger society and the state effectiveness; strong in both power dimensions: resource capacity and quality of business relations.
Patterns of SBRs	**malformed**: dependent on the flow of "pay-off", leading to deterioration of the institutions and domestic industries; lack of probity and reciprocity in interactions.	**conflicting**: infighting for economic and political power via voting prospects and take-overs by powerful private interests; concentrating ownership over the media, strategic resources, and distributional channels.	**collusive**: rely on political appointees and negotiations with the narrow business elite for delivering the economic and investment decisions, using the economic decisions as a political instrument.	**collaborative**: rely on intelligent state actors, entrepreneurial talents, and coherent participation of business groups in the political and economic processes; united with reciprocity, common goals and interests.
Sectoral character of SBRs	Relations and investment patterns are dependent on resource endowments in the particular industries.	Consolidating the power and assets across the industries, with keen interest towards banking and media sectors.	Sharply vary across the industries with asymmetrical investment and greater involvement of the state in strategic industries.	Inter-industrial collaboration lessening the political influence and the political investment of private capital.
Interregional character of SBRs	**weakness of the central state and private domestic groups**: path-dependency and lack of interest from the power groups towards the regions with scare resources.	**dominance of the private influence groups and regional government**: separative conflicts for independent budgets and market segmentation of the regions; frequent power shifts.	**dominance of the central state and the credited business elite**: centralised budgets and limited the power of appointees in the regions; investment decision-making at the centre-offices.	**consulting relations between the central and regional governments**: strengthening the regional business associations and hastening internationalisation of the regions.
Organisational fields and sectorial structure	**fragmented conflicting fields**: with backwardness or degradation of the peripheral industries.	**fragmented restructuring fields**: with sharp asymmetries among the surviving peripheral businesses, involved in "necessity entrepreneurship", and the privileged groups, engaged in the distributional conflicts.	**hierarchically structured fields**: with the state production in the export-oriented strategic sectors and relative stabilisation of the peripheral businesses.	**collaborative and interlinked fields**: with the rapidly catching-up peripheral industries, and the state creating and promoting private firms through public-private partnership.
Prevailing type of relations and organisational forms	**extra-state extractive networks**: dyadic or triad alliances based on equity ties and informal collusions, with a strong domination and influence of foreign capital, substituting for intra-state growth coalitions; conflicting due to the absence of strong government.	**intra-state extractive networks:** informal ties within the privileged groups tunnelling the state resources, manipulating policies and political opportunities; fast growth of sole-owned private businesses escaping to the "shadow sector"; conflicting due to the weak government.	**intra-state hierarchical networks:** a variety of hybrid form, with the dominance of equity ties to establish the state's participation in domestic production and consolidation of the large strategic enterprises; greater reciprocity among hybrid networks, though conflicting due to coercive response of the state.	**intra-state collaborative networks:** a rise of non-equity and inter-industrial collaboration, reciprocal and coherent hybrid arrangements with minority ownership and coordinating participation of the state. shift from the "necessity entrepreneurship" among peripheral segments to the "opportunity entrepreneurship".
Relations and relative power of the foreign capital	**technological and resource dependence** foreign-led growth or stagnation	**extra-state networks:** subordinate role of foreign capital in ownership system.	**extra- and inter-state networks:** less distorted or conflicting ties with the foreign capital and governments, warding off the strategic resources from foreign control.	**extra-state networks:** more balanced ties with the foreign capital, complementing capabilities of the domestic networks.

Table 2:
Continued.

Distribution of relational powers in the networks	**Domination (resource effect)**: resource-extraction and exploitation led by foreign capital. **Influence (incentive effect):** foreign capital in collusion with weak domestic interest groups.	**Domination (resource effect)**: concentration and allocation of the resources among narrow private groups. **Influence (incentive effect):** domestic private interests in collusion with the weak state.	**Domination (resource effect)**: strong power asymmetry in favour of the state, conferred with a greater investment capacity. **Influence (incentive effect):** direct incentives by the coercive state via hierarchy channels.	**Domination (resource effect)**: diverse private groups in collaboration with effective state. **Influence (incentive effect):** indirect incentives via collaborative fields and structures.
Inclusiveness of the business groups	The state is unable or unwilling to ward off the domestic business from foreign control. Too high information, political, and investment costs for the domestic entrepreneurial undertakings.	Unstable, defined by the outcomes of infighting of the major powers for privileged position. The latent groups are marginalised and excluded from distributed benefits, struggling for survival in domestic market.	Resource distribution and capability accumulation among the narrow privileged groups. Supressed stability experienced by the latent groups in non-strategic sectors.	Narrowing the gap between core business groups and periphery; enhancing reciprocity among the business groups. Latent groups accumulating capabilities and wealth, providing technology inputs and diversifying production facilities.
Outcomes for FDI decisions and strategies:				
Resources and capabilities	Concentrated and proprietary to the foreign owners; attenuated capacities of the domestic business groups and the state. Strong dependency on the foreign technologies, with immature abilities for technological absorption.	Concentrated among the group holding the power, raising the information costs and barriers for collaboration with and among the peripheral groups. Exploitation of technologies created at the previous regime; of low technological value for the FDI projects.	Concentrated in the strategic sectors, sourcing for capabilities and resource inputs from the state strategic assets and extra-state coalitions. Improved capacity for the technological self-teaching and imitation.	Capability building through shared learning and rise of innovativeness within the domestic and international collaborative networks. Shift from the technological dependency or slack towards the apprenticeship and independent innovation.
Incentives for investment	Weak incentives for learning, growth, and a rise of foreign investment, focused on the exploitation of the domestic market.	Domestic market orientation or escape into the tax resorts. Strong incentives for short-term political investments to retain the power and recreate the extractive channels, or establish ties with the ruling elite.	Direct and instructive, depending on the international policies and geopolitical ambitions of the state elite. Investment projects in foreign markets, most likely with foreign partners and foreign governments, to reap political concessions and increase the legitimacy of power in the foreign scene.	Indirect stimuli for longer term investment ventures via collaboration, developmental projects and policies. Influencing firms' behaviour via shared mental models and indirect learning; maximising the potential of all groups via investment in new capacities and shared learning valuable for international venturing.
Expected initiator of FDI	Foreign-owned corporations, as the state and domestic business are too weak to initiate the independent investment projects.	The deprived actors, the firms evading taxes and escaping from the institutional and organisational field.	Expansionist conglomerates with state participation and the accredited business groups from the strategic sectors, relying on the minor foreign involvement to obtain legitimacy and credibility in foreign markets.	Hastening the participation of smaller firms in the foreign investment projects, giving a rise to the following (FDI via vertical and horizontal network connections) and innovative SMEs.
The respective historical periods in the development of Russia	**No historical precedents**: the signs of the regional backwardness during the Russian Empire age.	**Post-Soviet transformation:** 1990–2000	**The Soviet State:** 1950–1985 **Post-liberal reforms:** after 2003	**No historical precedents**: the signs of indirect incentives for the entrepreneurial undertakings during the New Economic Policy (NEP) period (1920s).

Source: created by the author.

CHAPTER 3. THE PROPOSED CONCEPTUAL FRAMEWORK: MULTINATIONALITY OF RUSSIAN FIRMS

The conventional theoretical views on the formation of a multinational enterprise, outlined in *Sections 2.1* and *2.2* of the preceding chapter, laid foundation for the empirical research in the IB fields and have been vastly incorporated to explain the prerequisites for the firm's multinationality, via modelling the firm's investment decision as a function of superior firm-specific attributes and ability to internalise those advantages. A few historical points on the empirical research are worth making before developing the conceptual framework and emphasising its contribution.

The first strand of the empirical research followed the early financial models (MacDougall, 1960; Aliber, 1970) in asserting that a MNE is a firm that engages in capital arbitrage, which implies that in the world of perfect competition there should not be significant differences between a MNE and domestic firms apart from the cost of capital and capital intensity. The second research stream incorporated the Hymer's (1960) insight that the MNE is an oligopolist competing in the foreign markets and emphasised the importance of the firm's tangible assets (as a measure of the firm's size) and product differentiation for the likelihood of its foreign expansion. The propositions of the industrial economics were scrutinised in the first empirical studies by Caves (1971) and Horst (1972), confirming that the variation in the firm's tangible assets was indeed the significant factor distinguishing the MNE from purely domestic firms within a given industry and verifying the strong associations between product differentiation and the proportion of firms in an industry having a foreign subsidiary. The third strand of the IB research defined the prerequisites of FDI along the lines of the literature on the firm's boundaries (Dunning, 1977; Rugman, 1981; Helpman, 1984; Markusen, 1984; Caves, 1996) and empirically tested the importance of knowledge, R&D intensity, goodwill, and advertising intensity. The latter studies asserted that the accumulated intangible assets lead to increase in the probability that the firm becomes a foreign direct investor, which well complements the findings of the studies on the economics of industrial organisations, as the larger firms indeed tend to be more research-oriented, spend more heavily on advertising, and collectively form the industries with oligopolistic structure and differentiated products.

More recent empirical studies on the firm investment behaviour made further advancements in identifying the FDI prerequisites and firm-level characteristics that distinguish the MNEs from non-internationalising firms, though remained within

a narrow band of the attributive approach. In addition to the firm's size and heavy expenditures on R&D and advertising investigated in the earlier literature, they have found significant other factors that affect the selection of foreign direct investors within industries, extending the portfolio of firm-level advantages. For instance, compared to the purely domestic firms, multinational companies tend (*i*) to have a higher foreign trade intensity, (*ii*) to be technological and innovation leaders, (*iii*) to possess human capital of higher quality, (*iv*) to be more diversified, (*v*) to record higher export to sales ratio, (*vi*) to pay higher wages, or (*vii*) to have higher labour intensity, (*viii*) to report higher sales and net profit, and (*ix*) to consolidate larger shares of the domestic market (Vernon, 1971; Vaupel, 1971; Lall, 1981; Grubaugh, 1987; Kogut and Chang, 1991; Hennart and Park, 1993; Makino et al., 2004; Lau and Ngo, 2004; Wei and Lau, 2005; Yiu at al., 2007; Tseng et al., 2007).

The emerged interest over the last two decades and improved econometrics techniques in measuring the firm's productivity paved the road for a new stream of empirical research on the firm's heterogeneity, which yielded the evidence that internationalising firms tend to be more productive than those trading and investing domestically, and foreign direct investors – enjoying the highest productivity premiums (Clerides et al., 1998; Bernard et al., 1999, 2007; Head and Ries, 2003; Melitz, 2003; Helpman, 2004, 2006; Mayer et al., 2007; Tomiura, 2007; Wakasugi, 2008, 2012). The productivity level of the firm was found also strongly associated with the extent of international involvement, implying that the most productive firms tend to establish a greater number of foreign subsidiaries in the multiple FDI destinations (e.g., Grossman et al., 2006; Yeaple, 2008).

However, the radical change in the political landscape encountered in the early 1990s, shattering the rigid structures of the planned economies and the hierarchal delivery of incentives, brought a new direction into the established IB inquiry[44]: to contrast and comprehend the behaviour of the firms, restructured or newly-emerged at the space of the transition economies. The ideas and models of the institutional economics, – that captivated the scholarly thinking at that time, – accentuated the importance of institutional environment (and gradual or critical changes in its nature) not only for the economic prosperity of the transition states, but, interestingly,

[44] Despite the first evidence on FDI of third world enterprises dating back to 1920s and more aggressive internationalisation attempts in the 1960s, only a few authors had looked at the emerging international expansion of third world MNEs prior the 1990s (e.g., Kumar and McLeod, 1981; Fagre and Wells, 1982; Wells, 1983; Lall, 1983; Khan, 1986; Dunning, 1986; Svetličič, 1986, 1987).

for the very principles of behaviour and strategies of the individual firms. When the history of organisational genesis is given a deserved consideration, and the EM firm is considered as a "*political actor*" embedded in the social structure and strongly influenced by the inclusiveness of institutions and modelled as a "*political system*" or "*coalition*" itself, the natural conclusion would imply that the significance of a particular firm's attribute from the range of tangible or intangible assets and its effect on the firm's FDI propensity might vary immensely, if not divert, for the firms with a differing institutional "baggage": that is, the foreign direct investors from the advanced economies and the latecomers from the EM countries.

Distinguished with more interactive relations with the state, a greater density of ownership networks and interactions under the statist regimes, and more sharply evolving social values and entrepreneurial mentality, the EM firms more actively draw for their growth upon the resources and capabilities beyond their proprietary boundaries – i.e., within the hybrid networks, largely unattainable for the established MNEs from the OECD countries which compete on the proprietary technology and assets. The greater degree of embeddedness into the political life, which has ever been synergetic and indivisible from the economic institutions in the EM states compared to the pluralised regimes and market exchanges in the matured capitalist economies, suggests a new viewing angle on the firms' heterogeneity – invoked with the emerging hybrid arrangements within the informal networks and joint equity structures.

Although the growth strategies of the EM firms were conceptualised through recombining the valuable insights of the resource-based view with the peculiar features of their institutional environment (e.g., Filatotchev et al., 2003; Meyer et al., 2009; Bhaumik et al., 2010; Meyer and Tan, 2010), the prior research has taken no notice of a limitation inherent to the institutional approach in depicting the state-social relations. The strategic actions in the EM economies might be not as conclusively defined with the macro-measures of institutions – for instance, the corruption levels or reform indicators, which are commonly conceptualised despite being a mere surface of the political and economic movements and developments in the EM states, – but rather with the interrelations among the major constituents internalised within hybrid structures of the firms and the responsiveness of actual actors amid the state elite and business groups.

The more recent attention to the role of the state in the EM economies primary aimed to model the extent of state involvement (Cui and Jiang, 2012; Duanmu, 2012),

though conflating the participation of the state in domestic production to a function of its scope and overlooking the complementary, and more influential, dimensions of the state quality and effectiveness in relations with business community. The impact of the state scope on the firms' investment behaviour varies immensely with the state strength and the nature of relations with the privileged and peripheral business groups. For the relational model, adopted at a certain point of time and internalised within the firm's boundaries, features the extent of reciprocity and probity in the hybrid networks, the state capacity and willingness for coherent resource flows, sharing information, and altering incentives for cross-border growth, – which all shape the investment capacity emerging in the hybrid networks, and might be a decisive factor for the firm's decision to involve into international venturing. The intermediate hybrid mechanisms, internalising the power relations and relating those to investment choices and growth strategies pursued by the EM firms, have not been theorised in the IB literature nor included in the empirical models. However, the hybrid organisational structures might be precisely those channels that hasten the shared innovative learning and knowledge accumulation, effectively transfuse the shared mental models and incentives, and decrease the transaction and fixed costs of internationalisation for the newly-emerged and reconstructed firms from the EM economies.

Grounding the conceptual model on the idea that the EM firms hardly behave as a unitary actor, but rather extend the resource and knowledge base within the blurred boundaries which encompass the politically affiliated actors and the extra-state forces, the present research contributes to the IB literature by incorporating the insights of network economics and political science, which have been related to the firm's growth strategies and investment decisions in *Sections 2.3* and *2.4* of the previous chapter (and summarised in *Table 2*).

In order to extend the existing evidence on the FDI determinants of the EM firms and test their validity and importance for the firms from one of the major emerging market countries, the conceptual framework seeks not only to integrate the effect of the firm-level attributes on investment decisions of the Russian firms, but, importantly, define how those effects might be conditioned on the hybrid organisational structures observed amidst the Russian firms. The two foreign investment decisions of the Russian firms: (*i*) the initial transition to multinationality, and (*ii*) the subsequent expansion of the network of foreign subsidiaries, will be disentangled and considered as strategically different. The proceeding sections hypothesise the initial decision of the Russian firms to invest abroad and become a multinational, and the subsequent growth in the foreign

markets, as a function of the relational synergies within the intra-state and extra-state networks, providing the direct incentives for growth into the foreign markets and indirectly influencing the FDI intentionality of the firms via mediating the accumulation of the firm's resources and capabilities, each explained below.

3.1 Constructing the framework: the comparative effects of state-business relations and extra-state networking for capability building and international venturing of Russian firms

The impact of the state-business relations and networking on the firm's propensity to invest abroad might be immensely interesting and far-reaching in the Russian dynamic context, where the centralised state historically owned the enterprises and economic infrastructure, and was the sole investor making the decisions on the direction and scope of the ventures. After the hectic transition period characterised with the capture of the state by the narrow oligarchical group during the 1990s and initiating a new agenda of building the strong state in the early 2000s, the current Russian government regained the administrative and financial capacity to change the rules of the economic development and lead the industrial transformation. The strong coercive state re-created the centralised institutions to discipline or deprive more powerful private interests and restitute the control over the strategic assets in the natural resource, banking and media sectors.

The drastic shift in the state policies relates to the trajectory or continuum of the state-business relations, reflected as a transition from the fractured liberalism with a weak captured state (column 2 of *Table 2, Chapter 2.4*) to the autocratic capitalism with a strong embedded state after the government change in the year 2000 (column 3, *ibidem*). Despite the mass privatisation and the subsequent ownership reforms, Russia has been persistently retaining the tradition of the tight business relations with the state, holding the third position among the ten countries with the highest coefficients of the state's participation in the economy[45] and concentration of the state ownership among the largest and internationalised firms[46], which is in accord with the statist approach and emphasises the importance of equity ties with the state as a networking

[45] The first two leaders in the SOE shares among the largest firms are China and the UAE, followed by Indonesia, Malaysia, Saudi Arabia, India and Brazil (Kowalski et al., 2013).

[46] As would be predicted by the industrial economics, the Russian SOEs are on average larger than the private firms (online Rosstat database, 2000-2012; Sprenger, 2008), which is confirmed with the calculations in the proceeding analysis sections.

strategy pursued by the Russian firms.

The two successive rounds of rapid policy change induced by the critical junctures, – the phase of neo-liberal reforms after the break-down of the Soviet state in 1991 and the catching-up reforms after the default of 1998, – triggered the highly asymmetric power shifts in the state-business relations and conjugated restructuring of the organisational structures and equity ties between the state and private investors. As with any kind of the relational asymmetry, those political and social movements impeded the reciprocity and autonomy among the state elite and the private interest groups, and hastened marginalisation of the small businesses.

During the initial period of reforms and dubious privatisation, the relational patterns in the shattered economy closely resembled the state capture scenario (relating to column 2, *ibidem*), when the defragmented state infrastructure and broken organisational ties rendered possible for the narrow group of the new business elite to merge the vast economic privileges with political interests via the media control and corruption networks. The extractive business networks, fortified with the political power, raised the barriers for the developmental investment and inter-industrial and inter-regional collaboration.

The "vicious balance" of the extractive economic and political interconnectedness, distorting the strategies of the Russian firms towards the political investment, could hardly be intervened without a strong external trigger, – for the collective action was unlikely to emerge among the business groups guarding the extractive institutions and weak inclusiveness from the change. The financial default, followed with the Putin's accession to power, served as an opening for the aggressive responsive moves by the state rebuilding the coercive strength, vertical hierarchy, and interregional architecture (corresponding to column 3, *ibidem*). Interesting to note that in spite of the destructive impact of the acute power conflicts and separatist movements in the South regions, the ruling elites – during the both regime periods – were able to ward off the strategic industries from the foreign influence and retain the ownership and market shares in the booming construction and retailing sectors.

Although the reverse shift in the domination and influence from the infighting business groups to the strong state allowed to consolidate the strategic resources and fortify the state structure and financial standing, the current Russian state has hardly been capable of reconstituting its quality and constructing the effective relations with the business community, which could promote the capability building and inclusiveness

of small businesses into the developmental and growth-oriented coalitions (as reflected in column 4, *ibidem*). Instead of enhancing the innovative shared learning and reciprocity, the state has fortified the centralised regime through decisively applying the coercive and threatening tactics to manipulate the informal networking strategies within and between the private conglomerates, linking to or replacing those with more formalistic relations within the united political party.

Though dramatic for the economic development and the social order in Russia, the contradictory moves in the state-business domination gave a rise to hybrid institutional arrangements and a new type of organisational field, based on the state equity and the intertwined and co-evolving political and economic interests. The balance of the intra-state and extra-state forces in the Russian economy has been primary embodied in the equity structures and networks of the firms, which have been reshuffled by changes in the organisational character of political regime. Despite of a drastic shift in the relational powers, the hybrid networks retained a critical feature of qualitative relations and partnership in the economy which suffers from the acute vertical and horizontal mistrust: the state embeddedness into inter-organisational activities.

Disentangling the networks of the equity relations among the state and private domestic business into the groups or types of the organisational structures may help to identify more precisely how the change in the state-business relations has been influencing the investment behaviour of the diverse organisational forms which survived through the hectic transition times of the 1990s or newly-emerged in the 2000s, and whether the extra-state networks have been complementary or substitutive in terms of capability building, resource accumulation, and incentivising the international venturing, – with what the following subsections accordingly proceed.

3.2 The state as an investor: the effect of intra-state networking on FDI propensity of Russian firms

Most of the classic literature on the state's participation in business venturing narrowly focused on the dichotomy of the state versus private ownership, emphasising the superior performance and efficiency in investment decisions of the private firms (Alchian, 1965; Olson, 1965; Vickers and Yarrow, 1988; Kornai, 1990; Laffont and Tirole, 1990; Williamson, 2004). The recent empirical research has been adopting the public-private dichotomy in assigning the separate roles for two types of firms:

modelling the private firms as growth-oriented profit-maximisers, whereas the state-owned enterprises have been considered as inefficient followers of the social objectives burdened with an excessive employment, often unresponsive to reforms, and hampered with internal conflicts over the multiple goals and pressures from the state interest groups (Boycko et al., 1996; Lawson, 1994; Dixit et al., 1997; Djankov et al., 2000; Guriev et al., 2007; Estrin et al., 2009). Such modelling implies that the firms with state participation lack the incentives for probing into the international markets or being constrained in foreign investment choices with an "institutional baggage", even when facing the incentives and investment opportunities of equal nature, as do the owners and managers of the private firms.

However, the straightforward assumptions of the governance literature may considerably change, when the two significant oversights are redressed. The first omission concerns the very dichotomic approach to organisational structures of the firms, for it overlooks a remarkable trend in the networking patterns in the EM economies which extend and intertwine the boundaries of the EM firms. Up to date, the studies on the evolution of the state capitalism predominantly considered the participation of the state in the firm's equity as an *absolute* or *sole control* through founding or acquisition of assets, and therewith establishing enterprises wholly-owned by the state (Megginson and Netter, 2001).

In the context of the state-business relations in Russia, however, the last two decades of the ownerships reforms have created the hybrid institutional arrangements and new relational mechanisms, – actuated by the collective action of the emerging business elite in the 1990s and changed to more formalistic business associations under Putin's regime. Via the created hybrid structures, the state can maintain its autonomy and power, channel information and resources, undertake investments, and indirectly exercise control without retaining a whole ownership of the assets. Gradually recovered after the 1998 default, but still relatively shallow Russian capital market helped to establish a new organisational mode, where the state can influence foreign investment decisions of the firms via a *joint control* with the private owners – both domestic and foreign. Such model of the state intervention into business can be considered as a *hybrid mode of state participation* (Williamson, 1985; Musacchio and Lazzarini, 2012; Wooldridge, 2012), which may potentially confer both types of shareholders with a decisive influence over the new start-ups and investment undertakings.

The aggregated trends and legal changes in the ownership system may help to

depict the significance of the hybrid arrangements for the state-business relations in Russia. The Russian government has acquired minority positions in a large (and expanding) set of firms, and since 2004, the share of the state in market capitalisation had almost doubled: from 24% to 40%[47]. Remarkably, until 2005 the Russian state acted as a minority shareholder; during the first years of the strong state building regime, for instance in 2001, 84.9% of all state equity was a *minority interest*: from which 49.5% constituted the stakes below 25% of issued share capital, and 34.4% – holdings in the range of 25–50%[48]. Over the following years, however, the distribution of the state equity holdings has been changing towards a *majority control*, especially after the adoption of the Law on The State Corporations in 2007, when the state fortified its reconstituted capacity with establishing six state corporations, merging political power with the ownership of business assets in the strategic sectors. In 2008, for instance, the state majority interest was prevalent, with 61.4% of all stakes – above 50% of issued capital[49], which nonetheless shows a significant proportion of joint operations under the hybrid arrangements.

Acceding to the evidence on the change in ownership and organisational structures in the context of the power shifts in Russia, the effect of the state embeddedness into business community and its influence onto investment decisions would be more precisely characterised not with the number of the wholly-owned SOEs, but rather with a qualitative changeover in the state-business relations. Though the aggregate numbers might not be indicative of the factual or 'de jure' control over the ventures, those might be intaken to reflect the density of business ties and partnership between the state and business groups across the strategic and non-strategic industries. The network of equity ties joining the efforts of the state and business actors, as opposed to the consolidation of sole ownership, is more likely to induce the cooperative adjustments in public-private coalitions, indicating the reviving strength of the state. The strategic decisiveness and capacity of bureaucrats to maintain the power in a more intelligent way endeavour and pave the way for the conversion towards a more collaborative style and reciprocity within the growth coalitions in the longer term (shift from column 3 to column 4 in *Table 2*), which carries a great potential for innovative learning and foreign investment propensity across all business groups, – being privileged, intermediate, or latent.

The emerging signs of the state-business collaboration within the hybrid equity

[47] Source: online Rosstat database, 2000-2012.

[48] Source: *ibidem.*

[49] Source: *ibidem.*

structures, – though not yet as effective, reciprocal, and intelligent future-wise, – relate to the second oversight in the empirical research on the state ownership effects, attributing the state's participation in the production and investment with inevitably and solely rent-extracting contests[50], which deteriorate the firm's strategic innovativeness and divert incentives of the firms from effective growth in the foreign markets. Though in some measure true, this line of argument contradicts the very logic and history of the state building and political transformations in the Asian latecomers and EM countries, and most evidently Russia, where the period of liberalisation with minimum intervention from the weak state unleashed the distributional conflicts in the emerging private sector, diverting its entrepreneurial talents for re-creation of the extractive economic and political institutions (rarely carried with legal means), filling the void in the formal institutions and devastating the social values.

The private business groups, which had been actively deteriorating the state assets within the rent-seeking coalitions, were hardly capable of investment into international markets, as the mere downsizing of the *state scope* not in the least translates into a spur of the creative and internationally oriented private entrepreneurship[51]. The accumulated evidence on the decisive transformation of the planned state system in Russia, and other EM countries, is sufficient to conclude that the newly-emerging private firms could hardly yield capabilities and garner valuable resources for productive investment out of institutional voids brought by the state collapse, especially if the state capacity is too weak to discipline the manipulative political interests amid the rising business elite or hasten the latent business group for innovative learning.

For, when it concerns attuning the mental models among the business groups and the state elite, which are slow to form and absorb incentives for cross-border growth even in ideal conditions, it might be rather a matter of the state st-rength (with emphasis on the quality dimension) to induce the capability building, learning, innovativeness, and ultimately the international venturing. In the intertwined environment of the EM economies, any change in the firm's behaviour emerges only after restructuring the incentives, crafting and effectively sharing the state capacity. The strong state,

[50] Tullock's (1967) initial insight into the rent-seeking behaviour, brought to a wider research audience by Krueger (1974) and Posner (1974), has been widely used in the public governance research (e.g., Shleifer and Vishny, 1994; Fisman, 2001; Faccio, 2006; Faccio et al., 2006; Congleton, 2008) and the literature on conflicts between weak and strong powers (e.g., Skaperdas, 2003; Hillman et al., 2004; Garfinkel and Skaperdas, 2007), contributing to the long-established view that the state-business relations are inevitably collusive and rent-extracting (e.g., Doner and Schneider, 2000; Velde, 2010).

[51] Asset-striping by the emerged small subset of the private owners by definition cannot be equated to the creation of new products or services with an entrepreneurial endeavour.

capable to reinvest its accumulated funds, is required to achieve the growth with the prevalent extractive institutions (Acemoglu at el., 2012), – otherwise unattainable for the diverse business groups, – and establish relative reciprocity in the allocation of subsidies and resources (Amsden, 1989).

Reverting this argument to the Russian context, the weak captured state of the 1990s had been evidently unable to support the collaborative linkages among the collapsing technological research institutes and industries inherited from the Soviet system, neither to direct the emerging entrepreneurial endeavour and talents to the technology acquisitions or partnerships in the foreign markets, resulting in the flight and round-tripping of highly-liquid private capital. The efforts of the new government to reconstitute the state capacity indeed succeeded to rebuild the *coercive strength* of the state via firming up the internal forces and reforming interregional governance, which might be a natural, if not the only, route towards building the *effective strength* in the fragmented state. The shift from the model of the strong embedded state to the effectiveness of a strong autonomous state (from column 3 to column 4 in *Table 2*, accordingly) would imply a rise of collaborative ties among the industries and inclusiveness of the peripheral regions and business groups into productive investment, bringing a spur of internationalisation through more delicate networking manoeuvres, – which is as yet an unattainable goal for the Russian state. Nonetheless, the factual achievements in stabilising and bringing hierarchy to the fragmented organisational fields reduced uncertainty and hastened the learning – though in a highly asymmetric manner across the business groups and industries, leading to the asymmetric cross-border effects across the business groups, industries, and regions.

Though being far off a coherent wisdom in the state-business collaboration and reciprocal networking, the reconstituted capacity enabled the state for conveying the resources through the joint equity sharing and control, improving the investment opportunities for the privilege business groups embedded in the tight equity relations with the state. Under the hybrid structures, the state not merely acts as a monitor, but far-forth as a powerful business partner within the network with a strategic and entrepreneurial set of mind. The state can act as a venture capitalist[52] and be an efficient investor as any other firm (Christiansen, 2013), contributing directly with the capital and knowledge, or indirectly enhancing the capability accumulation within the firm, and

[52] Through investing in the majority-controlled SOEs or the state corporations, controlling appointments on the boards and influencing investment strategies, or exercising control more indirectly – via targeted lending and acquisition of minority equity stakes, or keeping minority shares in partially privatised firms.

mimicking the governance practices of the private firms. Even though the hybrid organisational structures in Russia largely rely on the extractive institutions and lack reciprocity[53], the change towards rebuilding the state strength may hasten the growth of the firms in the foreign markets in the shorter run. Therefore, the effect of the equity ties with the state onto the firms' investment decisions is contingent on the state capacity to extend the firms boundaries through the resources transfers and complement the capabilities of the private co-owners through the shared learning and joint control, facilitating the initial transition and the subsequent expansion of the foreign subsidiary networks of the hybrid firms.

Although in the OECD countries the private ownership was found to have a higher internationalisation propensity compared to the SOEs (Miroudot and Ragoussis, 2011), those conclusions and effects, however, may not hold for the EM firms. The institutional settings and relational synergies in the emerging market economies, – defining a host of factors that can influence the costs and benefits of organisational modes, – may prioritise different organisational structures to lead the foreign investment. Thereby in Russia, the state capacity to spur the complementary investment and R&D via the state-owned banks and funds, relatively to the weakening innovativeness of the private sector after supressing the liberalisation policies[54], is rather expected to enhance the investment propensities of firms with state participation in equity[55].

Besides endowing the firms with tangible and intangible advantages through

[53] The prevalence of extractive relations can exacerbate the issue of *public-private cronyism* (Musacchio and Lazzarini, 2012; Lin and Milhaupt, 2013), especially in the country with high levels of corruption, such as Russia, where the opportunities for "tunnelling" the state capital and resources can be high within the firms with minority and majority state equity shares. The issue of "channelling" the state funds has been acute in Russia, where private owners, involved in the state projects, attract and "tunnel" the low cost state capital via complex corporate structures for purposes other than to support R&D, efficient investment, and internationalisation. This is most likely to happen when the SOE is majority-owned by a corporate "pyramids" or a business group. The high level of corruption and cronyism in Russia can have consistently negative effect on efficiency of resource allocation, investment decisions and FDI propensity of the SOEs with minority state equities. The state capital may be less effective when the state-supported firm belongs to the business group (Musacchio and Lazzarini, 2012).

[54] The capital investment by the Russian SOEs have increased fivefold since 2000; the number of the SOE investing in R&D and innovation has increased from 1,247 in 2000 to 1,457 in 2011, while the number of the innovative private firms has dropped from 2,278 to 1,450 for corresponding years (Source: online Rosstat database, 2000–2012).

[55] This proposition is supported with the national statistics, revealing that the Russian state-owned firms are not predominantly oriented on the domestic market and – compared to the SOEs from the OECD countries – more actively engage in the international trade and acquisitions of the foreign assets and technologies. Foreign direct investment, R&D expenditures, and import of technologies undertaken by the Russian SOEs has been steadily increasing since the change in the regime over the last decade. As a consequence, the Russian firms with state ownership are at least as internationalised as the private firms and even more actively traded on the stock exchange market outside of Russia (NYSE, LSE, and FSE): 30% of the SOEs are listed, compared to only 9% of the private firms (Source: online Rosstat database, 2000–2012).

the equity channels (i.e., the *domination* mechanism in hybrid networks), the strong state is capable to exercise its accumulated relational power and initialise the initial transition of the firm into a foreign market and the subsequent expansion of the network of foreign subsidiaries through altering the *incentive structures* (i.e., the *influence* mechanism). The hierarchical fields and the centralised state-business relations, established in Russia, rather predispose for the directly delivered incentives for undertaking a foreign investment project via the state command authority and instructions. The centralised incentives are commonly attributed with a more intensive agency conflict in the public governance literature (e.g., Boycko et al., 1996; Hart et al., 1997; Shleifer and Vishny, 1997; Shleifer, 1998; Williamson, 1999; Uhlenbruck and Castro, 2000; Cui and Jiang, 2012; Estrin, 2012; Johansson, 2013), and may lead to inferior investment choices. The theoretical assertions of the governance literature, however, do not take into account the political realities in the EM countries, and apparently the transition among SBR models in the EM states. The geopolitical interests of the strong Russian state, embodied in the direct incentives, may overcome the initial barriers for the FDI transition and incentivise the firms affiliated with the state for a more rapid expansion of the subsidiary networks in the foreign countries.

The extent of goal misalignments in the equity relations with the state largely depends on the state wisdom to select and qualify the competent and intelligent bureaucrats, its wiliness to consult on the investment decisions, and ability to confer the coordination of investment ventures to the most skilled technical personnel and managers. The need to nurture the *capable bureaucracy*, combining the long-term developmental vision of the state and the entrepreneurial talents of private co-owners for strategic investment decisions, points out another dimension of the stateness along with the scope and coercive strength of the state, frequently omitted in the political and governance studies: the *state quality* in reviving and aligning the mental models for maximising the learning potential of the state actors and firms across all business groups. The state effectiveness in leading the business community out of the technological slack of the 1990s by means of the apprenticeship of talents – is a more effective path towards the independent innovation, compared to the "technological imitation" fostered by the Chinese government. Only in conjunction with the state quality, the strength of the state contributes to the *state effectiveness* in averting the incentives for political investment and redirecting private capital towards the long-term productive investment into foreign ventures.

The conventional agency-based approach, which forms the foundation of

the governance literature and criticises the state's participation in the business outcomes, neglects the very nature of the human cognition, for the interactions within the hybrid organisational structures are more prone to align the unique individual mental models for coherent collaboration and convey more closely the shared incentives and true perceptions of the turbulent environment. Though being far from the effective stateness (as exemplified in column 4 of *Table 2*), the strong Russian state is in position to enhance the investment incentives through the joint equity control. With a wise approach, the joint control may hasten indirect learning from the shared mental models and moderate the non-trivial incentive problem via the hybrid arrangements, – even though the incentive issues and extractive motives are impossible to eliminate because of yet imperfect reciprocity within the hybrid ownership networks.

Besides, the state governance in Russia historically inclined towards professionalism, supported with a vast network of the prestigious educational institutions and qualification centres, raising the statesmen not only in general governance matters but conferring them with a profound technical expertise. This peculiarity of the Russian education philosophy may mitigate the misalignments in investment choices and strategies through "elite exchanges" between the business and state governance posts – a distinctive feature of state-business relations in Russia.

The socio-economic status of a public servant is still high and prestigious, and supported through the state-owned mass media. Compared to the governance structures of the newly-emerged private firms in Russia, often formed and expanding in a chaotic or semi-legal manner hampering the learning and ability to carry out the non-routine strategic choices, the effectiveness of investment decision-making in the firms with state participation in equity might be greatly improved with a greater capability of the state to nourish the sense of duty amidst the managers and the autonomy in their decisions. Vis-à-vis the short-term market motivation among the private owners, the state provides the bureaucrats and managers with incentives to learn and invest in new capabilities and supports this motivation with better-crafted contracts and compensation schemes. When analysed from a wider angle, this allows for a career development outside of the firm, for instance, the preferment to a government position. In such conditions, as emphasised by the *tournament theory* (Lazear and Rosen, 1981; Rosen, 1985; Main et al., 1993; Bognanno, 2001; Johansson, 2013) and the *new public management view of SOE* (Barberis, 1998; Musacchio and Flores-Macias, 2009; Musacchio and Lazzarini, 2012), the Russian state-owned enterprises might be enjoying the effectiveness in governance

practices, commonly assigned to the private firms, and greater reciprocity, though within a narrow interest group.

Contrary to the interactions within the public-private hybrids, the incentives received by the privately-owned firms, given the lack of the formal institutions or their weakness in the Russian environment, may distort the investment strategies towards political investment through forming the networks and developing the *informal linkages*, serving as channels for interactions with the state. The informal networks are inherently weaker and less effective compared to the strong equity links in the society with extremely high vertical and horizontal mistrust, and evidently not as much enriching through the resources and knowledge exchange with the centralised state that reconstituted the strong preference for hierarchal relations based on equity. Besides, the excessive political investment is hardly complementary to the productive investment in the new capacities valuable in the foreign markets and, therefore, may yield a weaker scope of the relational benefits for the private firms, decreasing their internationalisation propensity. The informal network relationships and ties with the government can also provide the private firms with better opportunities and state orders within the domestic market, which lowers the attractiveness of the foreign locations and, thus, slacken their endeavour to invest abroad.

Integrating the two main lines of the argument, the change in the political regime and relations of the Russian firms with the state, which concentrated the strategic resources and reconstituted investment capacity, led to the accumulation of capabilities and resources within the expanding boundaries of the firms tied in ownership relations with the state. The cross-border growth strategies of the firms have also been fostered via the direct investment incentives for the initial transition into the foreign markets and the subsequent expansion of the networks of foreign subsidiaries, delivered via the hybrid equity structures, – which prompts to conclude:

H1a: *The created equity networks with state (intra-state networks) will increase the firm's propensity to transit to multinationality.*

H1b: *The effect of hybrid equity arrangements with the state will be in a greater extent conveyed via the aligned direct incentives, compared to alternative equity structures (classic governance structures and extra-state networks).*

H1c: *The state incentives will exert the greatest influence on the subsequent of the hybrid firms in the foreign market, resulting in a more rapid expansion of the networks of foreign subsidiaries, compared to the private firms with classic governance structures.*

3.3 The resourcism versus capability building: the indirect effect of equity relations with the state and foreign capital on multinationality of Russian firms.

Beside extending the *resource boundaries* of the firms and the direct contribution with the unique strategic capabilities shared and complemented through the equity channels, the stronger embeddedness of the state enables it to shape the firm's investment capacity from a more delicate aspect of human cognition. For instance, the coercive state as a powerful network partner alters the managerial perceptions and attitudes via the joint control within the hybrid structures or refracts the impacts of institutional voids and the extra-state forces onto the firm's ability to generate its own resources, and ultimately its investment behaviour. In such wise, the hybrid form of state participation in the restructured, newly-established, or partially privatised enterprises extends the *"cognition boundaries"* and changes the very mode of how mental models of managers and bureaucrats interact with the institutions and ideologies in the domestic and foreign settings.

The idea of a change in cognition models opposes the assumptions in the established IB research, associating the state's participation in production with inherent risk-aversive firm's behaviour and consequently reinforcing the negative effect of the lack of capabilities on the international venturing (e.g., Estrin, 2012). The shared cognitive boundaries may rather provide the firms with the risk assurance in the face of investment uncertainties in a foreign market and foster the strategic innovativeness in international venturing; for the perceptions formed within the firms affiliated with the state are not merely constructed through the direct learning from the outside world, but complemented with the shared mental models developed by the other actors in the equity network. Given the international ambitions of the Russian state, the government elite is capable to contribute with the substantial political and economic experience from the inter-state interactions, improving the mental models of the business actors in the privileged groups closely related with the state and endeavouring more bold investment ventures in the foreign markets.

Though in the centralised Russian state with the immense gaps between the elites and the latent business groups and the constrained intermediate class, the state capacity to enhance the mental models and strategic vision of the peripheral businesses and alleviate the strength of institutional constraints onto the FDI behaviour of firms is weak due the underdeveloped inclusive institutions and the lack of meaningful efforts to

devise those. The weak inclusiveness relates to a less supportive environment with poorly protected property rights and incomplete contract settings, high risks and persistent uncertainty, sharp resource and information asymmetries among the dominating state and the non-privileged business groups.

In such conditions, the private owners, inexperienced in coordinating the international ventures and unable to indirectly learn from the superior knowledge base within the intra-state or extra-state networks, might be locked in inferior strategic choices and be too bounded to exercise a meaningful investment choice or predict the outcomes of their FDI decisions. The private firms with the classic governance structures might be reluctant of investing into the risky large-scale ventures with a longer maturity, especially when the strong coercive state may strain the conflict of the firm's internal interests with the external – for instance, the regulatory – pressures, and the opportunities of shielding in networking with foreign capital for the private firms from the low credited countries are constrained. While the firms backed up through the extended boundaries and the state support within hybrid structures might be more inclined to adopt more risky investment strategies in the domestic and foreign markets, despite the opposite argument has been adopted in the IB studies.

The strong state, which reconstituted its financial and investment capacity, is able to support the firms with a more "patient source of capital" (Musacchio and Lazzarini, 2012) and subsidise the foreign investment valuable for the long-term learning and technological apprenticeship without fearing the longer payback periods. It especially concerns the FDI projects coinciding with the international ambitions and geopolitical interests of the state, seeking to legitimise its power in the international political scene. Therefore, the SOEs can more easily withstand the periods of low FDI returns and market turbulence in the foreign locations, expanding their international presence despite a lower short-term efficiency.

The lower risk-aversion and financial cushion may change the perceived importance of proprietary resources and capabilities – tangible assets, business experience, knowledge and technological capabilities, productive efficiency and profitability – for the initial decision to enter a foreign market via FDI. The greater relational benefits and direct incentives, conferred by the state to the affiliated firms within equity network, constitute an advantage in international expansion and allow the firms lacking the proprietary firm-specific advantages to internationalise. Thereby, the equity relations with the state may lessen the importance of conventional

FDI prerequisites on the firm's propensity to initiate an international venture, – which enables to hypothesise:

H2a: *The state's participation in equity moderates the effect of firm's business experience, knowledge and technological level, labour productivity and profitability onto the likelihood to transit to multinationality.*

H2b: *The importance of the firm's attributes will be highest for the privately-owned firms (POEs).*

3.3.1 The resource accumulation through equity channels and foreign operations of Russian firms

The state-business relations during the both transformation periods in Russia, featured with the absence of inclusive political and economic institutions, launched the processes of active restructuring of economic assets and consolidation of market power, facilitating the early emergence of the large-scale business. The consolidation of strategic assets and the emergence of big capital have been a natural consequence of the destructive critical junctures, annihilating the collective action from the small and medium business classes, and the merely formalistic efforts of the state bureaucracy on promoting their inclusiveness.

The resource accumulation within large enterprises, supported with the historical traditions of the command economy, converts them into a locus of learning and initiators of investment strategies and growth. The direct effect of assets onto FDI incidence has been profoundly documented in the IB research[56], which considered the firm's domestic size as a threshold for its ability to internalise technological, production, and investment capabilities and become a multinational. However, none of the empirical models has acknowledged that the diverse and novel organisational structures, observed among the EM firms, may vary in their efficiency to garner the resources that are valuable and

[56] The significant influence of the firm's size in determining which firms become multinational was confirmed in the extant literature (Horst, 1972; Caves, 1982). The more recent empirical studies on the U.S. and European firms have supported the Horst's and Caves's findings on the importance of the firm's size in deciding whether to invest abroad, and showed that FDI incidence is positively related to the firm's size (Wolf, 1977; Lall, 1980b, Yu and Ito, 1988; Blomström, 1991). Lipsey et al. (1983) investigated the differences between U.S. firms that invested abroad and those that did not, and suggested that the firm's size, followed with R&D intensity and profitability, to be the most important determinant of the probability of having a foreign subsidiary. Swedenborg (1979) also confirmed the Horst's conclusions on the positive relationship between firms' size and the probability of being a foreign investor for Swedish firms. The larger firms, therefore, are expected to have a greater tendency to undertake FDI than the smaller firms.

transferable into foreign markets, which accounts for the asymmetric propensity for international venturing amidst the hybrid and sole-owned firms.

The coercive efforts of the Russian state at the restitution of ownership over the strategic assets led the formation of the natural monopolies in the primary sector, accounting for a bulk of GDP[57], and induced the sharp gaps among the business groups – disproportionally endowing those with the resources, capabilities, and bargaining power. The economic contribution of the large enterprises allows the embedded state to employ its equity holdings for retaining the power of the government elite in the office. The ingenious strategy of merging the political power with the national stockpile and ownership of the strategic production, intensively traded and demanded in the foreign markets, allowed the government to obtain the legitimacy in the international political scene after the dubious re-elections, – leaving the moral hazards and the distorted economy for the future generations.

The distribution of the relational powers in the networks in favour of *domination* and *influence* of the state suggests greater resource transfers within the intra-state hybrid networks. The state-supported resource accumulation has been inevitably conveyed through the equity channels, consolidating the asset base and extending the branch network in the domestic and foreign markets. In conjunction with the state ability to facilitate negotiations with the foreign governments, the vast resource base may lower the fixed costs of learning and transaction costs incurred during foreign expansion, while those constitute a significant barrier for smaller firms in their decision to invest abroad. The indirect effect of the hybrid equity structures onto the resource accumulation may confer the state-owned firms with a differential advantage and create continuous economies of scales in their foreign investment projects, while the smaller private firms might be locked in relatively marginal or peripheral positions within the resource distribution networks – which, in turn, allows to conclude:

H3a: *The positive effect of the intra-state networks on the probability of the firm's transition to multinationality is significantly mediated through the tangible resources accumulated by the firm.*

H3b: *The indirect effect attributable to the resource accumulation will be greater for the firms with the equity linkages with the state (within the intra-state networks), than amid the privately-owned firms.*

[57] During 1994–2008, approximately 20% the GDP was generated by the largest five companies; the top twenty companies accounted for 30-40% of the GDP (Chernykh, 2011).

3.3.2 The technological capabilities, learning and investment strategies under diverse equity structures

In order to derive the theoretical predictions about the learning and innovation capabilities of the EM firms and their likelihood of switching to multinationality, the established argument in the IB research – presuming that the technological level of the firm belongs to the asset advantage side of the firm's ownership-specific advantages[58] (Dunning, 1988), endowing the technological leaders in a given industry with an advantage over the indigenous firms and enhancing their capacity to compete in a foreign market, – must be complemented, or corrected, with the heterogeneous learning strategies invented by the firms in a more interactive environment of the EM states. The dense relations within the hybrid organisational structures of the EM firms change the relative emphasise from the direct innovation and technological change, driving the internationalisation of the firms in the individualistic western cultures with a long history of engineering and product innovations, towards more innovative learning abilities (as one of the various soft organisational innovations),[59] – which are the two conceptually distinct models of the firm evolution, growth, and investment.

The failure to restructure and modernise the economic linkages and inflexible hierarchical organisational fields during the 1980s and the resulting decisive breakdown of the political and geographic infrastructure in the early 1990s were destructive for the technological platform of the country. The neo-liberal reforms contributed to the further disintegration of the vast network of research-industry linkages with the strong scientific content, devised during the Soviet era, deteriorating the intellectual values and the pursuit of knowledge and in the newly-emerging business community. The capture of the state by the powerful private interests, – preoccupied with the redistribution and exploitation of the remaining strategic assets, – distorted

[58] The positive relationship between the technological level and the probability of a firm to become a foreign investor has been also asserted in the resource-based view. The intangible resources, such as technical expertise or marketing knowledge, can represent the underutilised resources of the firm on which it can generate additional rents, and encourage the firms to diversify into new business and enter into foreign markets, in order to exploit the "public goods" nature of knowledge-intensive products (Penrose, 1959; Rubin, 1973; Barney, 1986). Given the market imperfections and information asymmetries of the markets for technology, innovating firms should prefer to expand their activity abroad through agreements and FDI rather than arm-length transactions. Thus, the firms in possess of product, process, or organisational innovations will be more likely to invest abroad. The empirical studies has also confirmed the positive relationship between intangible assets, – that can be measured as R&D and advertising intensities, the number of patents, license income, or technological assistance, – and the likelihood of the foreign market entry via FDI (McClain, 1983; Pugel, 1985; Grubaugh, 1987; Kogut and Chang, 1991; Pfaffermayr, 1996; Molero and Álvarez, 2003).

[59] Also acknowledged as one of the strategic components in the LLL model developed by Mathews (2006b).

the industrial and export structure of the economy, depriving the private firms emerged during the first transition period at the 1990s of the technological base and prompting them into the short-term quests for windfall profits.

The consequences of the innovation slump became more dramatic in the second period of catching-up reforms in the 2000s, – when the short-sightedness of the initial transition policies inhibited the potential secondary effects of the technological innovation: via prominent inter-industrial collaborations that could have emerged with more wise state policies and a consequent indirect learning in peripheral business segments from the technologies disseminated in the market. Both shortages had an immense effect on the heterogeneity in the technological and learning capabilities of the old-established and newly-created firms, constraining the innovation channels to the vertically transmitted knowledge and incentives for technological catch-up within the large state-owned enterprises. The formalistic reforms of the research institutions, undertaken by the new regime, merely masked the strategy of growth and investment based on the exploitation of the natural resources deployed by the state, – which has proved incapable of restoring the technological excellence and, for political reasons, averse to investing the efforts and the political will into nourishing and directing the entrepreneurial talents for direct innovation.

Interestingly, the critical junctures – that devastated the technological capabilities of the reconstructed Russian enterprises and deprived the newly-founded firms of the national technological base – have partly offset the innovation slump by creating the institutional conditions for soft innovations: a rapid innovative learning and creative adoption of the entrepreneurial endeavour into new business areas. The emerging entrepreneurial talents had been devising new industries and markets, absent during the Soviet era, with an unprecedented speed, – largely owing to the absence of crystallised rules and a burden of experience, which was inducing the fluid intelligence, the flexibility in investment decision-making and the strategic change towards the foreign markets. The newly-created private firms, – though incapable of systematically generating technological change or benefiting from the horizontal dissemination of technologies within and across industries and transferring those into the foreign ventures, – intensively complement the natural entrepreneurial talents with fluid competences developed by means of the *direct experiential learning* in the evolving environment. The innovative learning strategies had been prompting the newly-emerging firms for the accumulation of tacit knowledge and creative strategic choices, even though the firms-in-creation tend to be bounded with the resource constraints.

In contrast to the newly-emerging firms adopting self-learning strategies directly in the turbulent environment, the participation of the strong coercive state through hybrid organisational structures enriches the firm's competences with *indirect learning* via *shared mental models*, created during the political and economic interactions of the state elite with the foreign states and businesses – i.e., the inter-state networking. The political and economic ties of the Russian state, established beyond the national boundaries, are embodied in the mental models transferred within intra-state hybrid networks and may have a greater potential to improve the intellectual understanding and the reliability of interpretations of the environmental signals in the foreign markets, compared to the private extra-state network. Though the hierarchically constructed rules may restrict the flexibility and strategic innovativeness of the choices (soft innovations) of the firms tied with the state, they may provide more effective mechanisms to hasten the accumulation of the codified knowledge base and internal innovation (direct innovation) through hybrid equity channels, compared to the classic private governance structures.

Despite the straightforward implications for investment strategies of the EM firms, the FDI outcomes of the two learning modes (direct and indirect) and the two innovation strategies of growth and investment (soft and direct innovations) have not been explicitly conceptualised in the extant IB research. The learning effects can hardly be captured with the straightforward modelling of causal links – a widespread approach in the IB studies, for the diverse organisational structures amid the EM firms differ in the types of knowledge they generate and may potentially transfer to the foreign ventures. Besides aligning communication, perceptions, and mutual goal setting, the thicker knowledge exchange within the hybrid arrangements in the state-owned firms contributes to a more rapid *generation of the shared codified knowledge* with a stronger R&D component. The codified nature of their knowledge base may improve its exploitability in the foreign markets, and hence the propensity of the hybrid firms to transfer it to the foreign ventures via FDI. By the same means, the knowledge commuted through the hierarchical organisational fields, which dominate the inter-organisational relations in Russia, may create path-dependence in the ideas and investment strategies and exert a lagged effect onto the FDI decisions. The latter effect, however, could be eliminated with a purposive shift from the state coerciveness towards a greater inclusiveness of the business groups in collaboration and improved inter-industrial linkages, hardly observed in the current state-business relations and policies in Russia.

The classic privately-owned firms, featured with a low receptivity towards the external sources of R&D and knowledge, contrariwise, would be more inclined to capitalise upon a stronger tacit component in their set of competences, acquired during direct learning processes in the novel turbulent environment. The Russian private firms, conferred with a capability for "soft innovations" in creating novel organisational forms, business lines, and markets, might be more capable for a *knowledge exploration strategy* in the foreign markets prompted with their fluid learning abilities, – which transform their non-technological innovations into a unique advantage hard to imitate in the foreign markets. Although the theory predicts that the suitability and effectiveness of the tacit knowledge for FDI in the various locations might be hampered with additional costs of transferring the tacit knowledge across the national borders, which makes it problematic and uneconomical for international investment, and, hence, might rather encourage diversification and expansion in the domestic market (e.g., Teece, 1977, 1981; Martin and Salomon, 2003), the entrepreneurial talents and abilities to create advantages "on-the-fly" out of the newness in the foreign markets may offset the incurred transaction costs, – and, thus, enable to conclude:

H4a: *The positive effect of the state's participation in equity onto the probability of the firm transition to multinationality will be mediated through accumulation of the codified knowledge within intra-state networks, measured as a number and international affiliation of the patents registered by the firm.*

H4b: *The FDI transition probability of the privately-owned firms will be mediated through a greater intangibility of assets, compared to the firms with hybrid (intra-state) network structures.*

3.4 Extending the networks: the complementarity of resources and capabilities within the extra-state networks for FDI decisions of Russian firms

The referred upheavals in the political regime and internal economic ties in Russia, and other transition states, along with the rise of the private entrepreneurship, had also removed the barriers for the participation of foreign capital and accelerated the formation of networks with the foreign businesses and states. The nature of relations within the created extra-state networks had been drastically changing and shifting the relative bargaining power and resource distribution between the major forces –

the state, domestic private and foreign capital – in the national industries and political scene, causing a redesign of the equity strategies and investment responses of the firms.

While in most of the transition and EM states the power balance had ordinarily drifted towards the dominance of foreign interests (e.g., Stopford et al., 1991; Stark, 1996; Uhlenbruck and Castro, 2003), the subordinate position of the foreign capital in Russia[60] in restructuring the old-established enterprises and establishing *de novo* private firms (Gryaznov, 2000; Libman, 2006) reveals the uniqueness of its transition path. The Russian state had retained sovereignty, or at least a management control, over the strategic assets. This ability of the strong state to restrain the extractive foreign interests raises the potential for forming more coherently aligned hybrid organisational structures with the participation of foreign capital.

In contrast to other EM countries, the relations among the three major powers in Russia have been centred on the domestic constituents: with the private collusive interests being overtaken by the strong state after the turn to statism in the early 2000s. The influence of the extra-state forces on the domestic state-business relations has been confined, and in numerous instances coercively restrained[61], which defined the complementary role of the foreign capital in the Russian economy, rather than substitutive to the domestic investment. Although the comparative impact of both modes of foreign influence – substitutive and complementary – onto the foreign investment strategies of the indigenous firms have not been hypothesised in the IB research[62], the present research proceeds with a presumption that the domestic and international structure of the intra-firm relations is expected to shape the strategic responses (Gulati, 1999) and investment behaviour of the Russian firms.

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[60] The share of foreign capital in the Russian ownership system was minimal over the both regime periods: gaining its maximum from 1.5% in 2000 to 8.2% by 2005 year, and gradually losing its position to 6.6% by 2008. Interestingly, the position of the hybrid foreign-domestic relations in ownership system has been significantly stronger during all the reformations years: gradually growing from 2.7% in 1995 to 8.2% in 2008, with the peak values over the 2000-2003 years, 12.2-11.8% respectfully (Source: online Rosstat database, 2000-2012).

[61] For instance, BP and Shell had to surrender their interests in the BP-TNK and Sakhalin-2 oil and gas project accordingly after the state-initiated cases.

[62] The more recent strand in the extant IB research on the EM MNEs predominantly focused on the effects of the state ownership (e.g., Brewer, 1993; Buckley et al., 2007; Cui and Jiang, 2012; Estrin, 2012; Wang et al., 2012) or introduced the separate category for foreign ownership (e.g., Bhaumik et al., 2010; Meyer and Tan, 2010). This approach overlooked the potential complementarities arising in the hybrid ownership structure among the state, domestic private investors, and foreign capital. Whether those complementarities arising in the hybrid networks among the three forces will be oriented on coherent collaboration and long-term investment or dominated with short-term extractive motives depends on the strength and effectiveness of the state and the nature of relations among major constituents in a particular EM economy; this aspect of the firm's behaviour and international strategies remains under-theorised in the IB literature.

The activism of the Russian state, – aimed at complementing its capacity, reconstituted through economic embeddedness, with a closer cooperation with the foreign technology leaders[63], – may initiate more coherent hybrid arrangements within the triad inter-firm networks. When analysed from a wider angle than just an internal governance mechanism, the complex hybrid networks among three major constituents align the forces commonly perceived as conflicting in the political economics into a "*triad growth coalition*", capable to change the "*strategic foundation*" (as termed by Welch and Welch, 1996, p. 14) in the EM economies. Apparently, the extra-state networking strategy introduces a new source of heterogeneity for investment behaviour of the firms with the hybrid equity structures.

The ultimate benefits of mutual shareholdings within the combined intra-state and extra-state networks greatly depend on the state capacity to purposively design the networking strategies promoting the reciprocity and long-term investment in new capabilities, – which can hardly be considered as an assured consequence of bridging ties as presumed in the literature on inter-organisational relations (e.g., Kogut and Zander, 1992; Gulati, 1995, 1999; Powell et al., 1996; Dyer and Singh, 1998; Zaheer et al., 2000). The coherent networking strategies, in an ideal case, ought to restrain the extractive motives of investing actors and improve the strategic fit among distinct governance structures and investment objectives (corresponding to column 4, *Table 2*). The stronger position of the Russian state in transforming the asymmetric and hectic structure of the economic relations, prevalent during the 1990s and assuring its sovereignty from the foreign influence, might indeed hasten a more coherent inflow of the resources, information, and capabilities contributed by the foreign owners through equity channels.

Whether the narrow production linkages with the foreign shareholders and contributed inputs would translate into the shared investment in the foreign ventures is yet ambiguous and ought to be tested in the present research. Instead of contributing to the formation of growth coalitions and promoting relational synergies and complementarities within hybrid networks, the foreign investors might be rather inclined to exploit a domestic market size in the retailing and the emerging market for services, as well as the national base of natural resource, and withdraw from cooperation when their intent is confined by the coercive state. The transfers of the state-of-art proprietary technologies, – being a common argument in the IB research on spillover

[63] A good example would be the state efforts in the airspace industry to merge the major construction facilities in the United Space Corporation, and establishing partnerships with the international leaders, e.g., Boeing, Airbus, Bombardier, and Embraer (Hanson, 2007).

channels, – to the state with a limited rule of law and perceived as a competitor in the international political scene are not well-warranted, neither well-founded.

The more ascertained complementarities within the extra-state networks may potentially arise from the reputational and legitimising mechanisms, which convey the geopolitical interests of the state into the foreign markets through more effective negotiations, especially when the equity network encompasses the foreign states (i.e., the inter-state networks). The foreign equity ties expedite adaptation to the foreign normative systems of the less experienced domestic private investors, otherwise burdened with the liability of foreignness and newness. The long history of political and economic hostility and the deteriorated image of the Russian state during the 1990s incur extremely high reputational costs for the Russian firms[64] not affiliated with the foreign networks, consequently raising the normative barriers and transaction costs for establishing business networks in the foreign markets.

As another implication for FDI strategies, the emergence of joint ownership structures fragmented the network strategy of the state: transforming the hierarchical relations with the private owners into a more collaborative and learning style when a foreign shareholder enters the equity network. This indirect impact of the foreign ownership might to a greater extent contribute to capability building of the domestic firms, changing the mindset and behaviourism of managers and investors for knowledge accumulation and creative quests into new markets, – compared to the direct fragmentary transfers of the information and technology bits, which contribution might be limited to hastening the imitation skills.

The corroborating evidence can be found in the national statistics on the import of technologies, supporting the assertion that the hybrid firms are more prone to adopt the *apprenticeship style* in learning and developing the technological capabilities[65], expanding the cognitive boundaries for investment decision-making and aligning the incentives of the network participants from the distinct cultural settings for

[64] The imperfect law system and changing social values have burdened the Russian firms with a "*double lack of legitimacy*" (Libman, 2006). The *legal legitimacy* has occurred from the dubious sources of their formation during the privatisation stage, and the *social legitimacy* – from the mistrust of the majority of population towards the property distribution and privatisation results and the immense income gaps. The heavy legitimacy burden made the previously privileged business groups vulnerable towards aggressive actions from the state and ceased a possibility of the collective action against the rising authoritative power of the state elite.

[65] The value of agreements on import of technologies by the firms with shared foreign and domestic ownership, for instance, in 2011 reached 1,210.7 million USD, which was significantly higher (when taken as average per firm) compared to both groups of purely domestic firms: the SOEs (the total value: 425.9 million USD) and private firms (the total value: 782.7 million USD) (Source: online Rosstat database, 2000–2012).

the mutual indirect learning and shared investment. In contradiction to the principal-principal model, which predicts the exacerbation of the conflict among the strategically distinct shareholders[66], the collaborative orientation in the "triad equity network" (among the state, private domestic and foreign investors), consolidated with a stronger position and investment capacity of the state, may put forth the reciprocity arrangements, preventing or reducing the goal misalignments and motivating towards the shared investment. The aggressive government takeovers of the private firms in Russia – a frequent argument to indicate the potential governance conflicts – were not targeted against the foreign businesses[67], pointing at the differential relational strategy of the state towards the domestic and foreign investors.

The steeper learning curve experienced by the foreign-invested enterprises (FIEs), accommodating the shared mental models created within the extra-state networks, is likely to correlate to the accelerated pace of the outward foreign investment, compared to the firms in pure domestic ownership, – narrowing the time lag between the firm's investment into the new capabilities and the strategic change for international venturing. The power asymmetry in the economic relations with the business, which has shifted towards a stronger embedded state, inevitably induces the asymmetric relational gains amidst the FIEs with and without state participation in equity. The state, as a guarantor of contract enforcement in the environment featured with the deficit of law and trust and a controlling agency of the valuable assets, is more capable of attracting the foreign investors, than the private business lacking stable rules and norms. What is more important, the strong state also possesses a greater relational power to confine the extractive interests of the foreign investors and compass the hybrid network for cooperation and investment, embodying the foreign technologies and facilitating inventive learning.

By contrast, the purely private Russian firms, dominating in the non-strategic sectors, are likely to be perceived by the foreign firms as competitors or distributional channels in the promising market, fostering the constrained relational mechanisms based

[66] As suggested by the governance literature, the principal-principal conflict is likely to arise when the multiple and strategically distinct shareholders invest in equity stakes (Dharwadkar et al., 2000; Young et al., 2008; Estrin, 2012). However the potential misalignment might be smoothed over, as the foreign shareholders investing into the established firms in the EM economies are aware of the risks and inevitably go through negotiation processes with the domestic owners and the state agencies, alleviating the normative pressures and gaps in the management practices. An elegant confutation to the agency approach can be drawn from the supermodality logic (Milgrom and Roberts, 1990, 1994, 1995) in that the superior gains are generated with an ability to simultaneously combine diverse strategies, which diminishes the theoretical power of the agency model to a narrower case of the relational failure and strategic short-sightedness.

[67] In contrast to the selective nationalisations undertaken in Latin America (Chernykh, 2011).

on the cashflow exchange, which are unlikely to facilitate the shared foreign investment projects. The deficit of trust, which features the relational model in the private extra-state networks, diminishes the potential complementarity gains and synergies – or *supermodality* in mathematical terms[68] – within the equity networks with the foreign investors. The lack of reciprocity in the private extra-state networks may hinder the long-term commitment for capability-building and degrade the bargaining power of the domestic owners frequently yearning for a mere inflow of foreign finance into the business accounts, – which prompts to conclude:

H5a: *The equity relations with the foreign firms (extra-state networks) will increase the likelihood of the state-owned and private firms to transit to multinationality, though expected to exert a differential influence.*

H5b: *The positive effect of the extra-state networking on the FDI transition probability will be significantly higher for the firms with state participation (within triad hybrid structures), when compared to the equity relations among the foreign and domestic private owners (within dyadic extra-state networks).*

3.5 The firm's newness: the effect of institutional experience and policy change on FDI decisions of strategic groups.

The organisational and investment heterogeneity amidst the EM firms is not restricted to the property types and the peculiar combinations of relational powers within the firm's boundaries. In contrast to the developed market-oriented economies, which business environment is characterised with the persistence of organisational forms over time and dominated by the long-established firms starting new ventures within a branch network, the initial abandonment of the Soviet hierarchical relations and the absolute state ownership in the early 1990s had launched a spurt of *organisational genesis* in the restructured Russian economy. The emergence of millions of new firms, initiated by sole entrepreneurs or a group of investors without a prior market experience or a Western-type business education, had turned the post-Soviet states into the "incubators of organisational creativity", rearing the new ventures and rapidly constructing the new industries and markets, non-extant during the Soviet era.

[68] Originating from the *lattice theory* (Birkhoff, 1967; Grätzer, 1971, 2011), the concept of supermodality has been incorporated into the economic doctrines and decision theories in the form of "Edgeworth complementarity" (Milgrom and Roberts, 1994).

The massive scale of organisational founding in Russia ought to kindle an academic interest for testing the theoretical postulates on a constrained position of inexperienced firms, lacking unique resources. For the evolving organisational environment may challenge the assumptions taken for granted in the management and IB literature, considering the newly-founded and inexperienced firms to be *a priory* disadvantaged and incapable for internationalisation. The novelties of the structural transformations in the EM states can turn the resource exiguity and the *liability of newness* and *adolescence*[69] into an advantage for prompt strategic moves into the foreign markets.

The need to conceptualise the newness of the Russian firms – to clearly depict its constraining or inducing effect on the endeavour for international venturing – returns the framework-building efforts to the primary ideas of the environmental contingency theory in the organisational behaviour literature (Lawrence and Lorsch, 1967; Pfeffer and Salancik, 1978; Priem and Butler, 2001). In case of Russia, the interactions of the firm's attributes with an external environment have been serving as a vehicle for the intense and recursive macro- and micro-transformations – not only in the emerging markets, but also within firm's internal structures and relational mechanisms. This link between macro- and micro-transformations during the salient periods of the environmental turbulence in Russia gets inevitably imprinted in the firms' experience via direct learning in the outside world and translated into a differential ability to capitalise on the accumulated institutional experience by the firms emerged at the distant transition phases. The firms founded prior and after the two major critical junctures – i.e., the state policy turns at 1990–1992 and 2000–2003 years, demarcating the two regime periods with the radically different models of the state-business relations on the Russian transition path, – are expected to exhibit the differing organisational properties and the diverse investment behaviour.

Not yet crystallised routines and nonrigidly formed organisational structures of the new Russian firms, founded during the liberalisation phase in the institutional development, offered a greater room for the strategic and investment flexibility, alleviating a heavier burden of switching costs ordinarily accrued to the long-established firms. The spur of entrepreneurial talents, upheaving the social order during the 1990s,

[69] The concepts of the *liability of newness* and *adolescence* originate from the organisational literature on the age dependence, both suggesting that the long-established organisations have an advantage over the newly-created ventures, as the former are capable to draw on the prior-developed routines to establish the new ones (Stinchombe, 1965; Nelson and Winter, 1982; Hannan and Freeman, 1984). While, in contradiction to this argument, the older Soviet-type enterprises had rather encountered the *liability of obsolescence*, described in a more recent strand of the organisational literature (e.g., Baum and Oliver, 1991; Ingram and Baum, 1997; Barron et al., 1994; Baum, 1996), and became inefficient and unresponsive to the institutional changes.

may realise in the strategic innovativeness of the newly-created firms yet on the stage of organisational formation and result in a foreign investment outflow, when supported with the specifically configured environmental conditions: capable to change the association between the institutional experience and learning of the firms-in-creation which are featured with more dynamic *cognitive* and *structural properties*[70] compared to the long-established organisations.

The literature on institutional change and entrepreneurial activity in the transition economies, however, has settled for the retrospective analysis presuming the EM firm to be an existing entity with the formed structural attributes. The alike narrow structural approach has been also prevalent in the IB research, which considers the firm's newness as a liability and depicts the EM firms as entities lacking the resources for internationalisation. This approach can hardly be suitable for explaining the change in FDI intentionality and geographical boundaries of the Russian *firms-in-creation* over the drastically distinct regime phases, for the properties of the established organisations and the emerging firms differ immensely in their flexibility and capabilities for soft innovations, for instance, reshaping the firm's relational boundaries and internalisation of otherwise external sources of resources and knowledge.

The three groups of Russian firms founded at the distinct policy periods (as depicted in *Table 3*) are distinguished not merely with the number of years that a firm has been operating in the market – being a common proxy in the IB studies for experience accumulated by the firm and knowledge needed to perceive the risks and become multinational. Neither the older firms' groups, established during the Soviet and neo-liberal times, can be characterised with superior replication routines and inventing new disciplines of practice that could potentially enhance the quality and bring down the costs of cross-border transfers of technology and knowledge via FDI (as, for instance, suggested by Teece, 1981; Nelson and Winter, 1982; Yu, 1990; Levin, 2000; Martin and Salomon, 2003; Argote, 2012).

Compared to the enterprises of old Soviet type that entered into the liberalisation era with a cumbersome baggage of the institutional ties and the obsolete assets, the new firms emerged during the initial transition phase in the 1990s, though lacking the resources and experience, had been created with a very different intentionality in

[70] For instance, Katz and Gartner (1988) defined four properties of an emerging organisation: the *firm's intentionality* with reference to the cognitively oriented theories (Shapero, 1975; Aldefer, 1997; Weick, 1979), the *resources* – drawing upon the resource dependence approach (Pfeffer and Salancik, 1977, 1978), the *boundaries* – in line with the system theorists (Katz and Kahn, 1978), and the *exchange* – from the entrepreneurial literature (Singh et al., 1986).

mind for the fast growth and profit generation, and do not need to overcome the domestic orientation and decision-making inertia of the older Soviet firms. The economic change towards a more competitive industrial structure had endowed the newly-founded firms – especially in the newly-emerging industries and markets – with a greater capacity for technological innovation and strategic innovativeness (Katila and Shane, 2005), ability to realise novel decisions and establish new ventures in the foreign markets. In conditions of the immense organisational founding, the lack of the resources and the "liability of newness" (Stinchcombe, 1965) can be transformed into a *"learning advantage of newness"* acknowledged by very few organisational scholars (e.g., Autio et al., 2000; McDougall and Oviatt, 2000), which, nonetheless, might be associated with a greater propensity to locate the ventures abroad.

After the second critical juncture occurred in early 2000s, the policy turn to statism changed the social structure and the value of resources and drastically shifted the relative advantages of the interests and ties, newly-vested during the previous period of the neo-liberal reforms and the state capture by powerful private interests. That radical change in the relational model between the state and business elite had put forth a transformation in relational mechanisms within the firm's intra-state networks, shifting the domination and influence powers away from the private business groups established during the 1990s.

The outcomes of such shift in the relational powers reshaped the fractured organisational field towards a centralised hierarchical mode (corresponding to the shift from column 2 to column 3, *Table 2*), supressing the innovativeness and the FDI intentions of the firms founded during the initial transition period but not internationalised yet. While for those newly-founded private firms with established subsidiaries during the 2000s, this change strengthened the incentives to intensify their foreign presence: for being unable for an individual or collective action to redesign the power field in their favour, they might choose to escape the misalignments between the new order with a changing normative base and the intentionality of the firm.

On opposite, those Soviet enterprises that had been able to overcome the *liability of obsolescence* and reconstruct their *core rigidities*[71] into competences, and had survived the market turbulences and the financial default of 1998, have become a locus of the state's

[71] Following the terminology introduced in the innovation literature (Miller, 1990; Leonard-Barton, 1992; Johannessen et al., 2001), the technological capabilities and leadership of the enterprises in the Soviet times have evolved into the *core rigidities* hindering the innovation and adaptation to the drastically new institutional settings.

strategic interest and promotion into the foreign markets: with a direct (via incentives or *influence* mechanisms) and indirect support (via resource-building or *domination* mechanisms) from the state, which had begun to actively restore its positions in the formerly-privatised firms.

Despite the IB and organisational theories consider the new wave of the firms founded during the statist regime, after the policy turn in the early 2000s, as being at the least advantaged position in terms of the accumulated resources and experience, those firms – often the spin-offs of the existing successful enterprises – might exhibit a greater capability to capitalise on the closer match with the changed normative base. Their stronger equity ties with the investing shareholders were specifically designed to cope with and benefit from the changed environment and apply those capabilities on a larger geographical scale in the foreign market, – which enables to conclude:

H6a: *Amid the newly-created firms after the Soviet state-control period, the FDI transition probability will be lowest among the firms established during the initial liberalisation period (1992–2001), compared to the firms newly founded during the post-reformation statist period (2002–2011), featured with a greater embeddedness of the state in business relations and intensified support.*

H6b: *The FDI transition probability of the newly-emerged firms will be in a greater extent facilitated through a faster learning (measured with the accumulated intangible assets), compared to the old-established Soviet enterprises.*

Table 3**:**

The matrix of the institutional experience and the organisational genesis in the Russian state.

The firms founded during the period of:	**Neo-liberal reforms:** 1992–2001		**Statist regime:** 2002–2011	
	FDI intentionality	Resource constraints	FDI intentionality	Resource constraints
The Soviet state-control period **until 1991**	the inability to swiftly adopt mental models to new business realities and reconfigure the core rigidities, inhibiting the FDI motivation.	bounded with the inherited core rigidities and inertia in reconstructing the collapsed political and economic ties and investing in new lines of business.	leading FDI positions in the strategic sectors; hastened by the reconstituted state's domination and influence: the direct incentives from the state and indirect resource effects.	eliminated with the reconstructed investment capacity and assets under increasing control of the strong state, consolidating the strategic assets.
The neo-liberal reformations **1992–2001**	driven with the soft innovations (organisational and strategic), which are likely to flourish in the small newly-emerging industries, helping to build up the base for future expansion in the foreign markets.	the lack of resources as a benefit for direct learning and strategic innovativeness; developing fluid intelligence along steep learning curve.	hindered for the firms with slower adaptation mechanisms; enhanced for those firms that were capable of swift adopting to and internalising the changing relational powers within hybrid networks.	the lack of resources as a constraint for strategic innovativeness; the firms accumulating capabilities within hybrid structures.
The turn to statism **2002–2011**			enhanced by the hybrid arrangements and the lower uncertainty, brought by stabilisation and the seizure of power infighting.	capitalising on a more rich information environment in the established industries and hybrid networks.
	The initial spurt of organisational genesis.		The period of a slower growth in the foundation of organisations.	

Source: created by the author.

CHAPTER 4. THE SPECIFICATION OF THE FDI TRANSITION PROBABILITY AND NETWORK EXPANSION MODELS

Carrying forward the theoretical propositions and the conceptual framework, developed in the preceding *Chapters 2* and *3*, the prime interest lies in formally testing the four questions: (*i*) whether the initial firm's decision to transit to multinationality is resultant of the proprietary firm's resources, knowledge-intensity, technological capabilities, and efficiency, or in a greater extent defined by the complementarities and incentives arising in the hybrid networks and equity linkages with the state and foreign owners (**H1a** and **H5a-b**), (*ii*) whether the firm's incentives to transit to multinationality differ significantly among the firms created at the distinct periods of the state regime, and enhanced with faster learning capabilities of the newly-emerged firms compared to the old-established and reconstructed enterprises (**H6a-b**), (*iii*) whether the created intra-state and extra-state hybrid networks are conducive to accumulation of the resources and capabilities transferred into the foreign markets via FDI, or their effect in a greater extent conveyed via direct incentives (**H1b**, **H2a-b**, **H3a-b,** and **H4a-b**), and (*iv*) whether the effect of the conventional firm-level attributes and networking strategies change for the subsequent decisions to expand the network of foreign subsidiaries (**H1c**). The thorough examination of the hypothesised effects requires differently formulated mathematical forms and econometric tests, capable to trace the processes occurring within the firm's boundaries over time, – each ought to be specified in the according section of the present chapter.

4.1 The Markov models of the firm's initial transition in FDI status: the choice of functional form

The examination of whether the firm-specific attributes play as significant role in the transition in the FDI status by the Russian firms, as conventionally asserted in the IB literature, or whether the initial FDI decision is specific to the institutional experience and the relational networks established by the firms – i.e., the questions (*i*) and (*ii*) formulated in the preceding introduction – primarily involve estimating the Markov type transition probabilities for the firm's movement or transition between the two FDI states: from the initial state of a domestically-oriented non-FDI firm to the foreign direct investor or the MNE. The Markov transition matrix between the FDI states chosen by the firms ought to be constructed with the regularly spaced annual

intervals using the two techniques: the non-parametric method of counts and predicting the Markov transition probabilities from the likelihood function with the EM algorithm.

The first non-parametric method will be implemented in *Chapter 5.4*, when constructing the comparative tables with a relatively straightforward counting procedure connumerating the number of times the firms in the sample move between the two FDI states during each time unit, and grouping the transition occurrences by the firm's network structures, industrial and regional affiliation, and other attributes. From the mathematical aspect, the transition in the binary FDI state [$TrFDI$] from the non-FDI state [$\mathbf{0}$] to being a Foreign Investor [$\mathbf{1}$] by a particular firm [$\boldsymbol{i}$] can be defined as follows:

$$TrFDI_{\mathbf{0\rightarrow 1}} = \sum_{i=1}^{N} \sum_{t=2002}^{T=2011} I(y_i\,(t) = \mathbf{1}, y_i(t-1) = \mathbf{0}),$$

where:

$\boldsymbol{y_i(t)}$ – is the realisation of the FDI state of an individual firm $\boldsymbol{i}$ in the year $\boldsymbol{t} \in \{\mathbf{2002}, \ldots, \mathbf{2011}\}$ with the regular annual intervals (i.e., the realisation of the dependent variable $FDIstatus_{it}$, introduced and explained in the subsequent *Chapter 5*).

After registering the number of the direct transitions $TrFDI$ from $\mathbf{0 \rightarrow 1}$ for the firms of all equity structures and attributes, the transition probability, denoted as $Prob_{\mathbf{0\rightarrow 1}}$, can be calculated:

$$Prob_{\mathbf{0\rightarrow 1}}(t) = P(y_t = 1 | y_{t-1} = \mathbf{0}) = \frac{TrFDI_{\mathbf{0\rightarrow 1}}}{\sum_{\boldsymbol{i=1}}^{\boldsymbol{N}} \sum_{\boldsymbol{t=2002}}^{\boldsymbol{T}} \boldsymbol{I(y_{i(t-1)} = 0)}}.$$

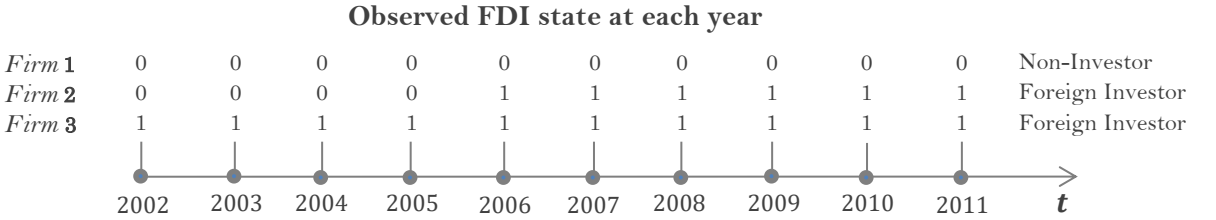
The frequency distributions [$TrFDI_{\mathbf{0\rightarrow 1}}$] and the computed transition probabilities [$Prob_{\mathbf{0\rightarrow 1}}$] will be conditioned on the hypothesised predictors of the initial FDI decision and reported in *Chapter 6*.

A more comprehensive and satisfactory approach, however, would be to construct and utilise the firm-level data and individual observations on the transition in the FDI status, and herewith to suggest methodological refinements to the IB research confined with the lack of time-series and micro-unit data. In order to appropriately describe the investment strategies of the EM firms, the variables must record the transitions of the individual firms between the FDI states for each of the time points in the research span. Such approach to the data construction enables to apply the second method and

estimate the Markov transition probabilities for the firm's FDI status over time as a likelihood function of the networking strategies and other specific attributes, measured at the firm level.

Figure 2 elucidates the implemented approach to constructing the data on transition in the qualitative state that obtains two possible FDI outcomes: [**0**] and [**1**], with observations made at the regular annual intervals standardised for each firm, allowing ten time points for estimating the transition probabilities. The FDI status of the individual firms is known at each of time units $\boldsymbol{t} \in \{\mathbf{2002}, \ldots, \mathbf{2011}\}$ between the first and last year-observation and recorded in the $FDIstatus_{it}$ variable, and, therefore, the data can be regarded as complete.

Figure 2:
The structure of the complete data on progression through the two FDI states for three exemplificative firms.



Notes:

Firm **1** – the domestically-oriented firm without foreign subsidiaries, labelled as a Non-Investor: $FDIstatus_{it} = 0$, $FDIstatusBefore2002_{it} = 0$.

Firm **2** – the multinational firm, establishing a foreign subsidiary and switching to FDI status in 2006, labelled as a Foreign-Investor: $FDIstatus_{it} = 0 \rightarrow 1$ at $t(2006)$, $FDIstatusBefore2002_{it} = 0$.

Firm **3** – the multinational firm that established a foreign subsidiary before 2002, labelled as a Foreign Investor: $FDIstatus_{it} = 1$, $FDIstatusBefore2002_{it} = 1$.

The formulated hypotheses **H1a**, **H5a-b,** and **H6a-b** require inferring the firm-specific determinants, using the time-varying two-states [$\mathbf{0} \rightarrow \mathbf{1}$] investment choice model: i.e., switching to the "Foreign Investor" status [**1**] versus staying a domestically-oriented non-FDI firm [**0**]. The function $Prob_i(0|1)$ denotes the probability that the firm chooses to become a foreign investor and transit to multinationality: the FDI state = [**1**] in the observable time unit $\boldsymbol{t} \in \{\mathbf{2002}, \ldots, \mathbf{2011}\}$, conditional on having drawn the FDI status [**0**] in the preceding period [$\boldsymbol{t-1}$]. In the mathematical terms, the binary outcome can be expresses with an index variable, taking one of the two values:

$$\boldsymbol{y_{it}} = \begin{cases} \mathbf{1} & with\ probability: \quad p_{it} \\ \mathbf{0} & with\ probability: \quad (1 - p_{it}) \end{cases}.$$

Estimating the likelihood function allows the transition probabilities to vary with the firms' characteristics, summarised in the vector $[\boldsymbol{x}_{it}]$ for an individual firm $[\boldsymbol{i}]$ in time unit $[\boldsymbol{t}]$, which will be introduced and explained in the subsequent *Chapter 5*:

$$\boldsymbol{x}_{it} = \{\, \boldsymbol{x}_{EquityNetwork,t}, \boldsymbol{x}_{FirmAge,t}, \boldsymbol{x}_{FoundationGroup,t}, \boldsymbol{x}_{FirmSizeTA,t}, \boldsymbol{x}_{FirmSizeEmp,t}, \boldsymbol{x}_{Intangibility,t}, \boldsymbol{x}_{Patents,t}, \boldsymbol{x}_{PatentClass,t}, \boldsymbol{x}_{Revenue,t}, \boldsymbol{x}_{LProductivity,t}, \boldsymbol{x}_{RAO,t}, \boldsymbol{x}_{ProfitMargin,t} \,\}_i.$$

The Markov transition probability for the FDI states of the firm $[\boldsymbol{i}]$ in period $[\boldsymbol{t}]$, conditional on the specified firm's attributes $[\boldsymbol{x}_{it}]$, can be defined as the odds or ratio of probabilities:

$$Prob(\boldsymbol{y}_{it} = 1|\boldsymbol{x}_{it}) = \frac{Prob_i(\boldsymbol{y}_{it} = 1|\boldsymbol{x}_{it})}{Prob_i(\boldsymbol{y}_{it} = 0|\boldsymbol{x}_{it})} = \frac{p_{it}|\boldsymbol{x}_{it}}{1 - p_{it}|\boldsymbol{x}_{it}},$$

which yields a nonlinear probability model relating the firm's attributes $[\boldsymbol{x}_{it}]$ to the probability of an event: i.e., the FDI transition occurrence $[\boldsymbol{0} \rightarrow \boldsymbol{1}]$, with the binomial logit specification:

$$ln\left[\frac{p_{it}|\boldsymbol{x}_{it}}{1 - p_{it}|\boldsymbol{x}_{it}}\right] = f(\beta \boldsymbol{x}_{it}).$$

The binary probability model is equivalent to the logit model constructed with the continuous latent variable $\boldsymbol{y}^*_{it}$ ranging from $[-\infty; \infty]$ that generates the outcome $\boldsymbol{y}_{it}$ observed only in the two states:

$$\boldsymbol{y_{it}} = \begin{cases} 1 & if\ \ \boldsymbol{y}^*_{it} > \tau \\ 0 & if\ \ \boldsymbol{y}^*_{it} \leq \tau \end{cases}, \text{ where } \tau \text{ is the threshold,}$$

and assumed to be linearly related to the observed vector of the firm's attributes $[\boldsymbol{x}_{it}]$, increasing or decreasing the underlying firm's propensity to conduct FDI resulting in transition between the two FDI states or decision to stay in the initial non-FDI status, through a structural model (Long, 1997; Franses and Paap, 2004; Cameron and Trivedi, 2009):

$$\boldsymbol{y}^*_{it} = \beta \boldsymbol{x}_{it} + \varepsilon_{it}.$$

Letting $Prob(\boldsymbol{y}_{it})$ to be the probability of FDI transition, the resultant model leads to an estimable probability function with a *logistic regression*:

$$Prob(\boldsymbol{y}_{it} = 1|\boldsymbol{x}_{it}) = f(\beta \boldsymbol{x}_{it}) = \frac{\exp(\beta \boldsymbol{x}_{it})}{1 + \exp(\beta \boldsymbol{x}_{it})} = \frac{1}{1 + \exp(-\beta \boldsymbol{x}_{it})},$$

where the right-hand side is a cumulative distribution function (*cdf*) for the logistic variable with the variance $\boldsymbol{\delta^2} = \pi^2/3$.

Although the *logit* models are frequently used to test the behaviour of binary response variables, the outlined estimation technique might not be most efficient and accurate for the constructed dataset. For the Russian firms, conducting FDI and switching to the multinational status, $[FDIstatus_{it}|\mathbf{0} \rightarrow \mathbf{1}]$, appear to be a *rare event.* As will be detailed in the following *Chapter 5* on the data collection, the large proportion of the firms in the sample may not undertake FDI and stay in the initial state of being a "Non-Investor", $[FDIstatus_{it} = \mathbf{0}]$, dominating over those firms that establish a foreign subsidiary and move to the "Foreign Investor" state, $[FDIstatus_{it} = \mathbf{1}]$.

The widely deployed alternative to the *logit* estimation – the *probit* model with standard normally distributed variance of errors (*Table 4*) – might neither be able to efficiently discriminate between the firms which do transit to multinationality and those which do not. Under the *over-dispersed distribution* in the tested sample, the probit and logit specifications may lead to an inferior estimator of $Prob(\boldsymbol{y}_{it} = 1|\boldsymbol{x}_{it})$ and overestimation of $Prob(\boldsymbol{y}_{it} = 0|\boldsymbol{x}_{it})$. Therefore, the validity of *logit* and *probit* estimations for the FDI transition probability model will be checked against a more appropriate mathematical specification for the asymmetric data in $[\mathbf{0}, \mathbf{1}]$ interval with a high proportion of zero values $[FDIstatus_{it} = \mathbf{0}]$. Particularly, the *complementary log-log* model will be estimated in the form defined by the following equality (Agresti, 1990; Long, 1997):

$$Prob(\boldsymbol{y}_{it} = 1|\boldsymbol{x}_{it}) = 1 - \exp(-\exp(\beta \boldsymbol{x}_{it})).$$

The property of asymmetry, introduced in the *complementary log-log* model, allows for a slower gain in probability in the $[0 - 0.2]$ range with increase in the $[\boldsymbol{x}_{it}]$ values and a more rapid change from $[0.8 - 1]$ in response to $[\boldsymbol{x}_{it}]$ obtaining higher values, compared to proportional increases or decreases in the probability amounts around the $[0.5]$ middle point on the probability curve of the *logit* and *probit* functions. As an additional advantage, the *complementary log-log* model is more closely related to continuous-time models for the occurrence of events and has a direct interpretation in terms of hazards ratios – an important factor for the analysing the transition probability function.

To facilitate understanding of the relationships between the coefficients estimated by the alternative models and improve their interpretability, the structural models and identifying assumptions of the three FDI transition probability models are depicted in *Table 4*. Although frequently advised in the econometric texts, the linear probability model (LPM) suffers from a number of inherent biases, for the linear function estimated on the binary variable inevitably violates several assumptions, resulting in the biased standard errors and nonsensical predictions[72], and, thereby, will be avoided for testing the hypothesised transition probability model.

Important to note that β-parameters of the *logit*, *probit*, and *complementary log-log* specifications are scaled differently in the outlined functions; therefore, the transformation coefficients are calculated, based on equating the variances and *cdf* of distributions across the models. The computed conversion coefficients are presented in *Table 4* and will be employed to compare the magnitudes of the point-estimators across the alternative transition probability models.

Table 4:
The estimated FDI transition probability models and the rescaling factors for the unbiased comparison of the models.

Models:	**Probability function:**	**Variance:**	**Conversion coefficients:**
Linear probability	$\mathrm{F}(\beta \boldsymbol{x}_{it}) = \beta \boldsymbol{x}_{it}$	not implemented in the model due to the inherent issues with heteroscedasticity and normality assumptions	
Logit	$\Lambda(\beta \boldsymbol{x}_{it}) = e^{\beta \boldsymbol{x}_{it}}/(1 + e^{\beta \boldsymbol{x}_{it}})$	$\mathrm{Var}(\varepsilon_{\mathrm{L}}\|\boldsymbol{x}_{it}) = \pi^2/3$	$\beta_{\boldsymbol{L}} \approx \mathbf{1.86}\beta_{\mathbf{P}} \approx \mathbf{1.238}\beta_{\mathbf{C}}$
Probit	$\Phi(\beta \boldsymbol{x}_{it}) = \int_{-\infty}^{\beta \boldsymbol{x}_{it}} \frac{1}{\sqrt{2\pi}} exp(-\frac{\upsilon^2}{2}) d\upsilon$	$\mathrm{Var}(\varepsilon_{\mathrm{P}}\|\boldsymbol{x}_{it}) = 1$	$\beta_{\boldsymbol{L}} \approx \sqrt[2]{\mathrm{Var}(\varepsilon_{\mathrm{L}}\|\boldsymbol{x}_{it})}\beta_{\mathbf{P}}$ $\approx \sqrt[2]{\pi^2/3}\,\beta_{\mathbf{P}} \approx \mathbf{1.86}\beta_{\mathbf{P}}$
Complementary log-log	$\mathrm{C}(\beta \boldsymbol{x}_{it}) = 1 - exp(-exp(\beta \boldsymbol{x}_{it}))$	$\mathrm{Var}(\varepsilon_{\mathrm{C}}\|\boldsymbol{x}_{it}) = \pi^2/6$	$\beta_{\boldsymbol{L}} \approx \sqrt[2]{\mathrm{Var}(\varepsilon_{L}\|\boldsymbol{x}_{it})}\beta_{\mathbf{C}}$ $\approx \sqrt[2]{\pi^2/6}\,\beta_{\mathbf{C}} \approx \mathbf{1.238}\beta_{\mathbf{C}}$

Therefore, in order to examine the effect of the firm's networking strategies and other attributes on the probability to switch to multinationality, the three non-linear probability choice functions with the *logit*, *probit*, and *complementary log-log* specifications will be employed and compared. Such comparison will provide a rigorous test of

[72] The heteroscedastic property of the LPM is likely to lead to inefficient estimators of β is likely to return and incorrect test statistics. The normality assumption is also violated, as the errors cannot be normally distributed. Besides, the LPM predicts the values out of the mathematically sensible probability range [0,1] leading to unreasonable predictions of the negative or greater than [1] probability values. However, the most serious problem with the LPM for the intended research is in its linear functional form, implying the constant change in the probability of the transition with a unit increase in $[\boldsymbol{x}_{it}]$, while more realistic would be to expect the diminishing effect on probability (Long, 1997; Franses and Paap, 2004; Cameron and Trivedi, 2009); therefore, the non-linear functions will be applied in the present research.

the hypotheses **H1a**, **H5a-b,** and **H6a-b.** The determinants of the firm's transition in the FDI state will be modelled in the form specified in the Equation (**1**). The comparison of the functional links becomes especially important under the two conditions: a large sample of firms $[n > 1{,}000]$ and an extreme behaviour of the variables, such as skewedness in the dependent variable (Chamber and Cox, 1967; Hahn and Soyer, 2005). Both conditions are observed in the constructed panel dataset of the Russian firms (*Chapter 5.1–5.3*). The consequences of failing to correctly account for the overdispersion in the data on EM MNEs, typical in the IB research, are significant for interpretations of the effects.

The derived non-linear *logit*, *probit*, and *complementary log-log* functions will be rigorously examined to correct for the obvious issues with the LMP functional form and accurately model the non-constant probabilities in transitions between the FDI states.

Model Equation (1): Transition in the FDI status of the firm

$$
\begin{aligned}
Prob(\text{FDIstatus}_{it} = 1|\boldsymbol{x}_{it}) \; = \boldsymbol{f}(\beta_0 + & \beta_1 \mathbf{EquityNetwork}_{it} + \beta_2 \mathbf{FirmAge}_{it} + \beta_3 \mathbf{FirmAgeSqr}_{it} + \\
+ \; & \beta_4 \mathbf{FoundationGroup}_{it} + \beta_5 \mathbf{FirmSizeTA}_{it} + \beta_6 \mathbf{FirmSizeEmp}_{it} + \\
+ \; & \beta_7 \mathbf{Intangibles}_{it} + \beta_8 \mathbf{Intangibility}_{it} + \beta_9 \mathbf{Patents}_{it} + \\
+ \; & \beta_{10} \mathbf{PatentsSqr}_{it} + \beta_{11} \mathbf{PatentClass}_{it} + \beta_{12} \mathbf{Revenue}_{it} + \\
+ \; & \beta_{13} \mathbf{LProductivity}_{it} + \beta_{14} \mathbf{RAO}_{it} + \beta_{15} \mathbf{ProfitMargin}_{it} + \\
+ \; & \beta_{16} \mathbf{Sector}_{it} + \beta_{17} \mathbf{Region}_{it} + \varepsilon_{it}),
\end{aligned}
$$

where:

- $\boldsymbol{i}$ – is the identifier for the individual firms: $\boldsymbol{i} \in \{\mathbf{1}, \ldots, \mathbf{4\,348\,900}\}$;
- $\boldsymbol{t}$ – is the identifier for the time units: $\boldsymbol{t} \in \{\mathbf{2002}, \ldots, \mathbf{2011}\}$;
- $\boldsymbol{f}$ – is the logistic *cdf* [Λ] for the logit model, the normal *cdf* [Φ] for the probit model, and *cdf* [C] for the complementary log-log model;
- $\boldsymbol{\varepsilon_{it}}$ – is the error term;
- $\boldsymbol{\beta}_0$ through $\boldsymbol{\beta}_{17}$ – is the vector of the parameters that indicate the effect of a given $[\boldsymbol{x}_{it}]$ on $[Prob(\boldsymbol{y}_{it} = 1)]$.

The specified non-linear $Prob(\text{FDIstatus}_{it} = 1|\boldsymbol{x}_{it})$ model will be tested with the ML estimation on the long panel of the individual firms with the observed transition times and the FDI states in the first empirical *Chapter 7.1* (**H1a** and **H5a-b**). The final FDI transition probability model will be adjusted to test the effect of organisational genesis in the empirical *Chapter 10.1* (**H6a**). The hypotheses **H6b** and **H2a-b** will be tested by addition of the moderating effects between the networking strategies and the relevant firm-level attributes (**H2a-b**) in the Equation (**1**) in the empirical *Chapter 8.1*, or between the foundation groups and learning strategies (**H6b**) in *Chapter 10.1*.

The major advantages of the constructed large panel dataset over the conventional cross-sectional or time-series datasets will be detailed in *Chapter 5*, which also explains the construction of the dependent $FDIstatus_{it}$ variable and the regressors modelled in the Equation (**1**). The following section develops a more comprehensive and novel model for measuring how the effect of networking with the state or a foreign firm on the firm's FDI propensity are mediated via the garnering the relational benefits in addition to the proprietary resources and capabilities.

4.2 The resource complementarity and incentive effects within intra-state and extra-state networks: the unbiased cross-group comparisons in non-linear probability models

A novel method will be applied to rigorously test and unbiasedly compare the relational benefits conferred by the firm's networking within the hybrid equity structures, and herewith to verify the hypotheses **H1b, H3a-b,** and **H4a-b**. The understanding and comparison of the two networking effects (the resource or *domination* effect versus the incentive or *influence* effect), conceptualised in *Table 1* and the outlined hypotheses, require an estimation of the non-linear mediating model.

The functional form of such model must relate the firm's equity networks with the state and foreign shareholders and their ultimate impact on the FDI transition probability of the Russian firms via the resource accumulation (**H3a-b**), shared learning, joint technological advancements (**H4a-b**), or direct incentives (**H1b**) conveyed within the hybrid networks. Mathematically, modelling the mediating effects of the intra-state and extra-state networks created by the firms implies the decomposition of the total effect exerted by the participation of the state and foreign capital in the firm's equity (tested with the FDI transition models outlined in the previous section), into the direct and indirect parts. The unbiased decomposition would allow for the comparison of indirect (resource or *domination*) and direct (incentive or *influence*) effects across the strategic equity groups: the classic POEs, the dual hybrid SOEs and FI-POEs, and the triad FI-SOEs.

Although the decomposition of the total effect into the sum of the direct and indirect effects (i.e., the method of computing the difference in coefficients) is a commonly applied method in the social research, – along with estimating the separate regression models for the group subsamples, – there is an econometric pitfall inherent to

the both methods, largely ignored amid the business scholars (Allison, 1999; Hoetker, 2004). In contrast to the estimates of the linear models, the coefficients of the non-linear probability model formulated in the Model Equation (**1**), constructed with either of the *logit*, *probit*, or *complementary log-log* links (*Table 4*), cannot be unbiasedly decomposed into the direct and indirect effects (Karlson et al., 2010, 2012, Breen et al., 2011, 2013). Alike, the cross-group comparison of coefficients obtained from separate regressions estimated on the group subsamples, while feasible in the linear models, is not indicative of the true differences in the non-linear probability effect.

In mathematical terms, the total effect of the created hybrid networks on the FDI transition probabilities of the Russian firms would not be equal to the sum of the direct (i.e., via the state incentives) and indirect (i.e., via the network complementarities for the firm's resource and capability building) effects, as suggested with the popularised linear path decomposition model developed by Lazarsfeld (1955) and Duncan (1966), which basic assumptions are presented in *Table 5*. In the non-linear transition probability models, however, the coefficients of $[\boldsymbol{x}_{it}]$ are inherently standardised and depend on the magnitude of the disturbance term, which implies that they are measured on different scales. Thereby, the comparison of the coefficients across the models without and with the effect of the mediating factor $[\boldsymbol{z}_{it}]$ reflects not only the confounding or truly indirect effect, but also the change in the coefficients due to (1) inherent differences in the residual variation $[\boldsymbol{\delta}_{\boldsymbol{v}}^2]$ across the nested models, measured with the rescaling parameter $[\boldsymbol{\delta}_{\boldsymbol{\varepsilon}}]$ yielding the variance $[\boldsymbol{\delta}_{\boldsymbol{v}}^2 = \boldsymbol{\delta}_{\boldsymbol{\varepsilon}}^2\pi^2/3]$, as well as (2) the changes in the fit of the error term to the applied non-linear functional form, i.e., the logistic or normal distribution (Amemiya, 1975; Allison, 1999; Breen et al., 2013). Therefore, the conventional linear path decomposition approach is unsuitable for testing the network effects conceptualised in the hypotheses **H1b, H3a-b,** and **H4a-b**, for it is unable to yield the coefficients for the true casual effects free of the rescaling bias.

For drawing inferences about the direct incentive effect and the indirect resource- and capability-building effect of the hybrid networks onto the FDI transition probability of the Russian firms, the true confounding effect ought to be separated from the rescaling factor (variance of the error term) and the error distribution. To unbiasedly assess the relative significance of the indirect effect of the state participation in the firm's equity through garnering the resources (**H3a-b**), knowledge and technological capabilities (**H4a-b**) against providing the direct incentives via administrative channels within hybrid structures (**H1b**), the new method suggested by Karlson et al. (2012), will be implemented. Essentially, the new approach allows for decomposing the difference in

the coefficients $[\boldsymbol{x}_{it}]$ between the transition probability model without the mediator factors $[\boldsymbol{z}_{it}]$ – i.e., the reduced model, – and the model including $[\boldsymbol{z}_{it}]$, – i.e., the full model, – into the component attributable to confounding, which is the true indirect effect mediated by $[\boldsymbol{z}_{it}]$, and the component attributable to rescaling of the coefficients of $[\boldsymbol{x}_{it}]$, when controlling for other covariates.

Table 5:
The decomposition of the total effect for linear and non-linear probability transition models.

Models:	**Linear path decomposition:** $[\boldsymbol{y} = \beta_{\mathbf{yx\cdot z}}x + \beta_{\mathbf{yz\cdot x}}z + \varepsilon]$[a]	**Non-linear probability model:** $[Prob(\boldsymbol{y} = \mathbf{1}\|x) = \beta_{\mathbf{yx\cdot z}}x + \beta_{\mathbf{yz\cdot x}}z + v]$
Total effect	$\beta_{\mathbf{yx}} = \sum\left(\beta_{\mathbf{yx\cdot z}} + \theta_{\mathbf{zx}} \times \beta_{\mathbf{yz\cdot x}}\right)$	$\frac{\beta_{\mathbf{yx}}}{\boldsymbol{\delta_\varepsilon}} = \frac{\beta_{\mathbf{yx\cdot z}}}{\boldsymbol{\delta_\varepsilon}} + \frac{\theta_{\mathbf{zx}} \times \beta_{\mathbf{yz\cdot x}}}{\boldsymbol{\delta_\varepsilon}}$
Direct effect [the partial effect of $\boldsymbol{x}$ on $\boldsymbol{y}$, net of $\boldsymbol{z}$]	$= \beta_{\mathbf{yx\cdot z}}$	$= \frac{\beta_{\mathbf{yx\cdot z}}}{\widetilde{\boldsymbol{\delta}}_{\boldsymbol{\varepsilon}}}$
Indirect effect [the effect of $\boldsymbol{x}$ on $\boldsymbol{y}$, running though $\boldsymbol{z}$]	$= \beta_{\mathbf{yx}} - \beta_{\mathbf{yx\cdot z}} = \theta_{\mathbf{zx}} \times \beta_{\mathbf{yz\cdot x}}$	$= \frac{\beta_{\mathbf{yx}}}{\boldsymbol{\delta_\varepsilon}} - \frac{\beta_{\mathbf{yz\cdot x}}}{\widetilde{\boldsymbol{\delta}}_{\boldsymbol{\varepsilon}}} \neq \beta_{\mathbf{yx}} - \beta_{\mathbf{yx\cdot z}}$
	where $\theta_{\mathbf{zx}}$ captures the effect of $\boldsymbol{x}$ on the mediating variable $\boldsymbol{z}$: $[\boldsymbol{z} = \theta_{\mathbf{zx}}x + \varepsilon^*]$.	
Unbiased comparison:	Variance $\boldsymbol{\delta_\varepsilon}$ is constant across the models, therefore, the difference between the coefficients can be interpreted as the confounding effect only. **Indirect effect** = difference in the coefficient of $\boldsymbol{x}$ between the full model including $\boldsymbol{z}$ and the reduced model excluding $\boldsymbol{z}$.	Variance $\boldsymbol{\delta_v}$ is not separately identified from the coefficients and differs across the models, therefore, the cross-model comparison is hampered with the scale parameter $\boldsymbol{\delta_e}$. **Indirect effect** = difference in the coefficient of $\boldsymbol{x}$ between the full model including $\boldsymbol{z}$ and the reduced model excluding $\boldsymbol{z}$, net of rescaling.

Note:
[a] The individual firm $[\boldsymbol{i}]$ and time $[\boldsymbol{t}]$ identifiers are omitted for all variables, coefficients and error terms presented in the formula.

Instead of comparing across the two differently specified models (full and restricted) with a different degree of residual variation due to unobserved heterogeneity, as the linear path decomposition approach would imply:

$$\beta_{\mathbf{yx}} - \beta_{\mathbf{yx\cdot z}} \neq \frac{\beta_{\mathbf{yx}}}{\boldsymbol{\delta_R}} - \frac{\beta_{\mathbf{yz\cdot x}}}{\boldsymbol{\delta_F}},$$

where: $\boldsymbol{\delta_R}$ – is the variance of the restricted model without $[\boldsymbol{z}_{it}]$, and
$\boldsymbol{\delta_F}$ – is the variance of the full model including $[\boldsymbol{z}_{it}]$,

the indirect effect, net of rescaling, is calculated as the difference across the reparameterisations of the same model with the identical scale parameter and the identical error distribution, specified as (Karlson et al., 2012):

$$Prob(\boldsymbol{y} = \mathbf{1}|x) = \beta_{\mathbf{yx\cdot\tilde{z}}}x + \beta_{\mathbf{y\tilde{z}\cdot x}}\tilde{z} + \upsilon = \frac{\beta_{\mathbf{yx\cdot\tilde{z}}}}{\boldsymbol{\delta}_{\boldsymbol{F}}^{*}} + \frac{\beta_{\mathbf{y\tilde{z}\cdot x}}}{\boldsymbol{\delta}_{\boldsymbol{F}}^{*}},$$

where: $\tilde{\boldsymbol{z}}$ – is the $\boldsymbol{x}$-residualised $[\boldsymbol{z}_{it}]$ mediator variables, i.e., $\tilde{\boldsymbol{z}}$ is a residual from the regression of $[\boldsymbol{z}_{it}]$ on $[\boldsymbol{x}_{it}]$,
$\boldsymbol{\delta}_{\boldsymbol{F}}^{*}$ – is the reparameterized model variance, $sd(\upsilon) = \boldsymbol{\delta}_{\boldsymbol{F}}^{*}\,\pi/\sqrt[2]{3}$.

The true indirect effect of the networking strategies pursued by the Russian firms will be estimated with three measures of confounding, which remove the rescaling bias, as (1) the *difference measure* between the two coefficients of $[\boldsymbol{x}_{it}]$ from the original (with variance $\boldsymbol{\delta}_{\boldsymbol{F}}$) and reparameterised (with variance $\boldsymbol{\delta}_{\boldsymbol{F}}^{*}$) full transition probability models, given the equality of $\boldsymbol{\delta}_{\boldsymbol{F}} = \boldsymbol{\delta}_{\boldsymbol{F}}^{*}$ derived by Karlson et al. (2012):

$$\beta_{\mathbf{yx\cdot\tilde{z}}} - \beta_{\mathbf{yx\cdot z}} = \frac{\beta_{\mathbf{yx\cdot\tilde{z}}}}{\delta_{\boldsymbol{F}}^{*}} - \frac{\beta_{\mathbf{yx\cdot z}}}{\delta_{\boldsymbol{F}}} = \frac{\beta_{\mathbf{yx}}}{\delta_{\boldsymbol{F}}} - \frac{\beta_{\mathbf{yx\cdot z}}}{\delta_{\boldsymbol{F}}} = \frac{\beta_{\mathbf{yx}} - \beta_{\mathbf{yx\cdot z}}}{\delta_{\boldsymbol{F}}},$$

and (2) the *scale-free ratio measure* between the two coefficients of $[\boldsymbol{x}_{it}]$ in the original and reparameterised transition probability models:

$$\frac{\beta_{\mathbf{yx\cdot z}}}{\beta_{\mathbf{yx\cdot\tilde{z}}}} = \frac{\frac{\beta_{\mathbf{yx\cdot z}}}{\delta_{\boldsymbol{F}}}}{\frac{\beta_{\mathbf{yx\cdot\tilde{z}}}}{\delta_{\boldsymbol{F}}^{*}}} = \frac{\frac{\beta_{\mathbf{yx\cdot z}}}{\delta_{\boldsymbol{F}}}}{\frac{\beta_{\mathbf{yx\cdot\tilde{z}}}}{\delta_{\boldsymbol{F}}}} = \frac{\beta_{\mathbf{yx\cdot z}}}{\beta_{\mathbf{yx}}},$$

as well as (3) the *percentage change* in the coefficients of $[\boldsymbol{x}_{it}]$ attributable to true confounding or true indirect effect, net of rescaling:

$$\frac{(\beta_{\mathbf{yx\cdot\tilde{z}}} - \beta_{\mathbf{yx\cdot z}})}{\beta_{\mathbf{yx\cdot\tilde{z}}}} \times 100\% = \frac{\frac{\beta_{\mathbf{yx\cdot\tilde{z}}} - \beta_{\mathbf{yx\cdot z}}}{\delta_{\boldsymbol{F}}}}{\frac{\beta_{\mathbf{yx\cdot\tilde{z}}}}{\delta_{\boldsymbol{F}}^{*}}} \times 100\% = \frac{\beta_{\mathbf{yx\cdot\tilde{z}}} - \beta_{\mathbf{yx\cdot z}}}{\beta_{\mathbf{x|\tilde{z}}}} \times 100\% = \frac{\beta_{\mathbf{yx\cdot z}}}{\beta_{\mathbf{yx}}} \times 100\%.$$

The suggested measures of the true confounding will be of a greater convenience for the interpretation and comparison of the indirect effects via the resource accumulation and capability building across the hybrid networks (**H3a-b** and **H4a-b**).

The unbiased decomposition into the direct and indirect effect exerted by the firm's intra-state and extra-state networks on $Prob_i(\text{FDIstatus}_{it} = 1|\boldsymbol{x}_{it})$ will be computed with a recently introduced *khb*-module in the Stata package, which is also comprehensive in deriving the formal test of the relative significance of the confounding effect net of rescaling against the direct incentive effect, and also across the mediators $[\boldsymbol{x}_{it}]$. Along with the key variable approximating the hybrid networks and the mediating variables for the accumulated resources, learning, and technological capabilities

(specified in the following *Chapter 5*), the equation of the full mediating model will include the identical vector of the control variables, defined as important factors of the FDI decisions in the model Equation (**1**). The mediating model will be estimated in the proceeding *Chapter 7.2.2*, employing the same dependent variable $FDIstatus_{it}$, as a time-variant measure of the firm's transition in the FDI status, and will be compared across the *logit*, *probit*, and *complementary log-log* functional forms as specified in *Table 5*.

4.3 The non-linear count models of the firm's expansion in foreign markets

The estimation of the subsequent expansion of the network of foreign subsidiaries of the Russian firms, after their initial transition to multinationality, also requires a differently specified non-linear model. To capture the further expansion of foreign subsidiary networks, the model ought to be designed to address the response of counts or the number of occurrences of the hypothesised event over the time period: the increase in the number of foreign subsidiaries of the Russian firms after their initial transition into a foreign market.

The logical starting point for modelling the occurrence of events involves a traditional log-likelihood *Poisson* function, which estimates the log of the expected count at a particular point of time, given the values of the modelled determinants of FDI decisions. The *Poisson* model is derived from the univariate $Poisson(\boldsymbol{y}|\boldsymbol{\mu})$ distribution, which is characterised with the probability mass function (Hilbe, 2011; Cameron and Trivedi, 2009):

$$Prob(\boldsymbol{y}|\boldsymbol{\mu}) = \frac{e^{-t_i\mu_i}(t_i\mu_i)^{y_i}}{y_i!}, \quad \boldsymbol{y_i} = 0,1,2,\dots,n_i; \quad \boldsymbol{\mu} > 0,$$

where: $\boldsymbol{y}$ – is the time-variant response variable, counting the events of establishment of a new foreign subsidiary,
$\boldsymbol{\mu}$ – is the predicted mean of count response [$\boldsymbol{y}$], the intensity parameter or the rate at which the event occur in a given period [$\boldsymbol{t}$], and
$\boldsymbol{t}$ – the exposure period or length of time during, [$\boldsymbol{t}$], in which the event [$\boldsymbol{y}$] occurs.

Since the expansion of the firm's network of foreign subsidiaries ought to be investigated over the period of consequent years on the long panel dataset, the *Poisson individual-effects* model will be applied, assuming that the dependent time-variant count variable $\boldsymbol{y_{it}}$ is Poisson distributed with a mean of:

$$E(\boldsymbol{y_{it}}|\boldsymbol{a_i}, \boldsymbol{x_{it}}) = exp(\gamma_i + \acute{x}_{it}\beta) = a_i exp(\acute{x}_{it}\beta),$$

where: $\boldsymbol{\alpha}$ – is gamma distributed with a mean of $[\boldsymbol{\mu} = \mathbf{1}]$ and variance of $[\boldsymbol{\eta}]$,
$\boldsymbol{\gamma_i}$ – is $[ln\boldsymbol{a_i}]$, and
$\boldsymbol{\acute{x}_{it}}$ – includes an intercept.

The *Poisson random effect* (RE) estimator will be obtained with cluster robust standard errors, and implies that:

$$\frac{\boldsymbol{\partial} E(y_{it}|a_i, x_{it})}{\boldsymbol{\partial} x_{j,it}} = \beta_j \times E(y_{it}|a_i, x_{it}),$$

which makes it convenient to interpret the modelled parameters as a semielasticity (Cameron and Trivedi, 2009).

The efficiency of the *Poisson* estimation is a subject to the distributional assumptions, which the data on the Russian firms is likely to violate on the several major points: (1) the dominance of the firms that do not transit to multinationality, resulting in the excess zeroes in the count dependent variable, (2) the subsamples of the actual data may follow different distributions, (3) the panel or clustered structure of the data, with the firm's attributes changing values and effects during the duration of network expansion, is inherently not independent, and (4) potential endogeneity in the model.

The excessive zero counts may challenge the equidispersion property of the *Poisson* distribution, i.e. the equality of mean and variance of $\boldsymbol{y_{it}}$:

$$\begin{pmatrix} E(y_{it}|x_{it}) = \mu \\ Var(y_{it}|x_{it}) = \mu \end{pmatrix},$$

which is frequently violated in the applied research. The firm-level data on the FDI transition are likely to be featured with a high percentage of zero counts, with the firms opting for the investment within the domestic market dominating the sample. In result, the conditional variance may exceed the conditional mean $Var(y_{it}|x_{it}) > E(y_{it}|x_{it})$. The violation of the crucial distributional assumption will be verified with the formal test of the overdispersion (Cameron and Trivedi, 2005), following the equality:

$$Var(y_{it}|x_{it}) = E(y_{it}|x_{it}) + \alpha^2 E(y_{it}|x_{it}).$$

To accommodate the apparent overdispersion, occurring from the zero counts and the extra correlation due to within-firm dependence of observations in the panel data, the non-linear *negative binominal* (NB) model will be employed as the first remedy.

The more flexible functional form of the NB model, with the negative binominal distribution $NB(\mu, \alpha)$, maximises the log-likelihood on basis of the probability mass function:

$$Prob(\boldsymbol{y}|\boldsymbol{\mu}, \boldsymbol{\alpha}) = \frac{\Gamma(\alpha^{-1} + y)}{\Gamma(\alpha^{-1})\Gamma(y+1)}\left(\frac{\alpha^{-1}}{\alpha^{-1} + \mu}\right)^{\alpha^{-1}}\left(\frac{\mu}{\mu + \alpha^{-1}}\right)^{y},$$

where $\Gamma(\cdot)$ specifies the gamma integral, and $[\alpha]$ is a variance parameter of the gamma distribution – kept constant for the NB model (Cameron and Trivedi, 2009). The quadratic variance function ($Var(\mu) = \mu + \alpha\mu^2$) allows accommodating a wider variety of the overdispersed firm-level data, transforming the moments of the NB model to:

$$\begin{pmatrix} E(y_{it}|\mu, \alpha) = \mu \\ Var(y_{it}|\mu, \alpha) = \mu(1 + \alpha\mu) \end{pmatrix}.$$

In presence of the substantial discrepancies in the overdispersed *Poisson* and NB data, the alternative variance parameterisation will be utilised to address the distributional and variance issues arising in the primary *Poisson* and NB functions. The non-linear *zero-inflated* (ZI) models, developed by Lambert (1992), may more efficiently handle the data with extreme zero counts and accommodate the research propositions on the foreign investment strategies of the EM firms. The two-part structure of the *zero-inflated* functions allows disentangling the firm's initial transition to multinationality and the subsequent expansion of the network of foreign subsidiaries into two sections, modelling those as the strategically different but related decisions.

The zero counts are incorporated in the both components of the ZI models, simultaneously estimating the binary and positive counts processes, addressing the overabundance of non-FDI firms and also the right-skewedness of the non-zero count data on a more rapid expansion of foreign subsidiaries among a smaller subsample of MNEs. Besides, the log-likelihood functions of the count component will be tested with the *Poisson* and *negative binominal* (NB) specifications, formulated as a *zero-inflated Poisson* (ZIP) and *zero-inflated* NB (ZINB) models accordingly, given by:

$$\begin{cases} Prob(\boldsymbol{y}_{it} = 0|\boldsymbol{x}_{it}) = (1 - \varphi) + \varphi e^{-\mu}, & 0 \leq \boldsymbol{\varphi} \leq 1 \\ Prob(Y = \boldsymbol{y}_{it}|\boldsymbol{x}_{it}) = \varphi\left(\frac{\mu^{y} e^{-\mu}}{y!}\right), & \boldsymbol{y_i} = 0,1,2,\dots,n_i; \quad \boldsymbol{\mu} > 0. \end{cases}$$

The mean and variance of the ZI models are specified as:

$$\begin{pmatrix} E(y_{it}|\mu,\varphi) = \varphi\mu \\ Var(y_{it}|\mu,\varphi) = \varphi\mu(1+(1-\varphi)\mu) \end{pmatrix},$$

therefore, $Var(y_{it}) > E(y_{it})$, and the model is overdispersed when $[\boldsymbol{\varphi} < 1]$. When $[\boldsymbol{\varphi} = 1]$, there is no zero inflation and the model is reduced to the standard *Poisson* (Neelon, 2013).

To estimate how the networking strategies and other firm-related factors change their impact on the firm's intention to continue foreign expansion and increase the number of foreign subsidiaries, all four derived non-linear functions for the count panel data will be employed to rigorously and unbiasedly test the model, specified below.

Model Equation (2): The expansion of the firm's network of foreign subsidiaries

$$\begin{aligned} Prob(\text{ForSubNetwork}_{it} = \boldsymbol{y}_{it}|\boldsymbol{x}_{it}) = \boldsymbol{f}(\beta_0 &+\beta_1\mathbf{EquityNetwork}_{it} + \beta_2\mathbf{FirmAge}_{it} + \beta_3\mathbf{FirmAgeSqr}_{it} + \\ &+ \beta_4\mathbf{FoundationGroup}_{it} + \beta_5\mathbf{FirmSizeTA}_{it} + \beta_6\mathbf{FirmSizeEmp}_{it} + \\ &+ \beta_7\mathbf{Intangibles}_{it} + \beta_8\mathbf{Intangibility}_{it} + \beta_9\mathbf{Patents}_{it} + \beta_{10}\mathbf{PatentsSqr}_{it} + \\ &+ \beta_{11}\mathbf{PatentClass}_{it} + \beta_{12}\mathbf{Revenue}_{it} + + \beta_{13}\mathbf{LProductivity}_{it} + \\ &+ \beta_{14}\mathbf{RAO}_{it} + \beta_{15}\mathbf{ProfitMargin}_{it} + \beta_{16}\mathbf{Sector}_{it} + \beta_{17}\mathbf{Region}_{it} + \varepsilon_{it}), \end{aligned}$$

where:

- $\boldsymbol{i}$ – is the identifier for the individual firms: $\boldsymbol{i} \in \{\mathbf{1}, \ldots, \mathbf{4\,348\,900}\}$;
- $\boldsymbol{t}$ – is the identifier for the time units: $\boldsymbol{t} \in \{\mathbf{2002}, \ldots, \mathbf{2011}\}$;
- $\boldsymbol{f}$ – is the *cdf* for the tested Poisson, negative binominal, zero-inflated Poisson, and zero-inflated NB models;
- $\boldsymbol{\varepsilon_{it}}$– is the error term;
- $\boldsymbol{\beta}_0$ through $\boldsymbol{\beta}_{17}$ – is the vector of the parameters that indicate the effect of a given $[\boldsymbol{x}_{it}]$ on the count outcome $[\boldsymbol{y}_{it}]$.

The non-linear $Prob(\text{ForSubNetwork}_{it} = y|\boldsymbol{x}_{it})$ models, specified in the Equation (2) will be tested in the last empirical *Chapter 11*, with the ML estimation on the long panel of the individual firms with the observed counts for each time point. The information criteria and the Voung test will allow for evaluation and comparison of the relative fits of the four models.

4.4 The model-building strategy: the estimation algorithm and diagnostics

The estimation procedure of the hypothesised effects is carried out in five stages and reported in the corresponding empirical *Chapters 7-11*. Each of the empirical chapters tackles a conceptually different research question, and accomplishes a comprehensive cycle of model-building to rigorously and unbiasedly test the developed time-continuous models of the FDI transition and the subsequent growth in foreign markets. The regression analysis of the non-linear FDI transition probability models across all five stages is complemented with visualisation of predictive margins and testing more complex interaction and mediating effects occurring within the hybrid equity networks. This section develops the crucial steps of model-building strategy, which will be followed in empirical *Chapters 7-11*.

The formal modelling effort will commence with an estimation of the initial FDI transition probability model, specified in the preceding *Section 4.1*, on the whole sample of the Russian firm, which construction will be explained in the following *Chapter 5*. All models are designed with the time-variant dependent variables, denoting either (1) the two-state FDI status of the individual firms at a particular point of time and its change over time period (Model Equation 1, *Section 4.2*), or (2) the expansion of networks of foreign subsidiaries (Model Equation 2, *Section 4.3*). The modelling process will follow a comprehensive cycle of (1) the parameter estimations, (2) the diagnostics of the non-linear transition models and their respecification, as well as (3) the selection of the final model among the alternative specifications, as advocated by experts in model-building (Long, 1997; Leeflang and Wittink, 2000; Franses and Paap, 2004; Cameron and Trivedi, 2009).

The first step in building the FDI transition probability model concerns the estimation of a forward stepwise *logistic* regression algorithm, which was developed to test the FDI transition probability of the Russian firms as a function of the hybrid equity structures, while controlling for other firm-specific attributes, as specified by the Model Equation (**1**) in *Section 4.1*. The stepwise estimation strategy proved to be more efficient at the initial stage of the estimation and selection of the models on the unbalanced dataset with a great deal of the missing values following the non-MCAR pattern, which will be explained in *Chapter 5.6*. The available cases estimation strategy allows each of the firm-level regressor variables to be included sequentially into the equation, and herewith to extract most of information from the available observations

and evaluate the consistency of estimates across the alternative models and measures.

Before considering the interpretation of parameters and how they are related to the probability of the Russian firms to transit to multinationality, the empirical adequacy of the models will be evaluated at the second step of modelling process. To ensure the correct specification of the model, and also the unhazardous model selection and unbiased interpretation of the individual parameters and standard errors, the *pseudo-R^2* and *Wald* test statistics will be computed as rough indices of fit, testing constrains on every non-linear probability Models, reported in *Chapters 7-11*.

Among the distinct alternative *pseudo-R^2* scalar indices of model fit, *McKelvey* and *Zavoina's pseudo-R^2* (McKelvey and Zavoina, 1975) is regarded as the most efficient numerical goodness-of-fit measure for the two-state transition probability models defined in terms of a latent outcome (Hagle and Mitchell, 1992; Windmeijer, 1995; Long, 1997), which most closely matches the specified FDI transition probability model. Relying on the estimated variance of the underlying latent variable $[\boldsymbol{y}^*_{it}]$, instead of using the variance of the observed $[\boldsymbol{y}_{it}]$, and fixing the variance of the error term $[\varepsilon]$ to $[\mathrm{Var}(\varepsilon_{\mathrm{L}}|\boldsymbol{x}_{it}) = \pi^2/3]$ for the logit link and $[\mathrm{Var}(\varepsilon_{\mathrm{P}}|\boldsymbol{x}_{it}) = 1]$ for the probit specification (as defined in *Table 4*), *McKelvey* and *Zavoina's pseudo-R^2* aids to efficiently approximate the R^2 measure obtained from the regression on the latent variable $[\boldsymbol{y}^*_{it}]$.

Besides, the *Wald* test will be applied in its general form to determine the joint significance of the multiple regressors added in the non-linear probability model: that is, testing the null hypothesis on whether the effects of the networking strategies and the firm-level attributes are simultaneously equal to zero. Hence, the adequacy of the tested models will be jointly determined with the higher *McKelvey* and *Zavoina's pseudo-R^2* and the significant *Wald* test statistic, rejecting the null hypotheses that all coefficients in the model, except the intercept, are simultaneously equal to zero.

The third step motivates the selection across any pair of nested models, which are built by including or eliminating one new regressor in the estimated stepwise *logistic* regression algorithm. The *likelihood ratio* (LR) test will be utilised to obtain the two efficient statistics for the non-sparse data developed for the hypotheses testing. The first statistic, *LR chi-square*, will compare a given model to the constrained intercept model with all slope coefficients equal to zero; while the second statistic, *scaled deviance*, will compare the given model to the full model. The both measures will be utilised in the *difference of the chi-square test*, which is reported for the regressed models in *Chapters 7-11*.

This test will help to determine whether the addition of a new firm-specific attribute significantly improves the fit and should remain in the model, if the null hypothesis on insignificance of the added variable is rejected.

The comparison of the non-nested models and the models estimated on different samples, which cannot be evaluated with the LR test, will be facilitated with the *Akaike's* and *Schwarz's Bayesian information criteria* (AIC and BIC). Both information criteria allow comparing explanatory powers across estimated ML models that measure the probability of the same event of switching to the multinational status via establishing a foreign subsidiary (*Chapters 7-10*) or expansion of networks of foreign subsidiaries (*Chapter 11*), which implies that the compared models are regressed on the identical time-continuous dependent variable (Akaike, 1974; Swartz, 1978). The difference in the AICs and BICs values across two models indicates which model specification can be regarded as better fitting: that is, the model with a smaller AIC and BIC value is preferred. As an additional benefit, the absolute difference in the BIC criteria between the compared models also conditions the strength of evidence, depending on its magnitude (Note "a" in *Table 7.A.1*, *Appendix*). Other standard statistics for the model comparison, such as *log-likelihood*, will be also reported in the tables with estimation results (*Chapters 7-11*).

The rigorous comparison of estimates across the regressed nested and non-nested models will facilitate the choice among the alternative firm's size and knowledge-intensity measures and combinations of the variables, and helps to identify the most efficient model specification, which is implemented in the empirical *Chapter 7*.

The following chapter proceeds with the construction of time-variant variables, aimed to capture the change in the FDI status of the firms: i.e., the initial transition of the Russian firms to multinationality and the subsequent expansion of their networks of foreign subsidiaries. The construction of variables is followed by the rigorous tests of properties of the panel dataset, allowing for an adequate correction of identified biases.

CHAPTER 5. THE DATA COLLECTION STRATEGIES AND CONSTRUCTION OF THE PANEL DATASET

The comprehensive test of the formulated hypotheses (*Chapter 3*) and the three types of FDI probability models, developed in the preceding *Chapter 4*, require addressing the several challenges in the data collection process. The very statement of the research objective on the transition to multinationality by the Russian firms, i.e., the change in the firm's status from a domestically-oriented to a foreign investor over time, as well as the subsequent growth of the network of foreign subsidiaries, necessitates the construction of the comprehensive panel dataset of the Russian firms with the duration dependent variables, not endeavoured in the extant IB research.

For the dataset analysis to yield the valid inferences, the data time span should be long enough to capture the change in the state-business relations and other essential forces influencing the FDI outcome, with a combination of the data sources detailed in *Section 5.1* of the present chapter, which also reflects on issues with the research design.

To explore the effects of the state-business relations on the investment behaviour of the individual firms, the firm-level data have to be obtained, and, importantly, the time-variant measures for the foreign investment status and the firm's attributes ought to be carefully created, not to select on the explanatory variables differently for the two FDI status subsamples, which construction process is explained in *Sections 5.2* and *5.3*. The definitions of the variables used in the FDI transition probability models are provided in *Section 5.4*.

Although the panel structure of the dataset reduces the magnitude of potential econometric issues, the creation of the time-variant variables is followed with the exploration of possible econometric pitfalls with unobserved data and collinearity issues in *Sections 5.5* and *5.6* accordingly.

The two particular novelties, implemented in the current research, – the creation of the time-variant parent-subsidiaries links and tracking the shareholder composition for coding the hybrid equity arrangements, – allow extending the established IB research agenda with a new evidence from a major EM country and bridging it with the theoretical postulates from the political science and the literature on inter-organisational relations.

5.1 The sources of the data and the data collection strategy

The data employed to construct the measures for testing the hypotheses on the initial foreign investment decision and transition to multinationality of the Russian firms, derived in *Chapter 3*, have been drawn from the two commercial sources: the *Orbis* and *Zephyr* databases[73], both collated and provided by Bureau van Dijk Electronic Publishing (BvD). The BvD databases compile the information from the published firms' filings on a great majority of the financial, industrial, and locational characteristics of parent firms and their subsidiaries in the domestic market and foreign locations on the basis of the uniform accounting methods, thereby, assuring the methodological consistency across the collected data. The data time span of ten years (2002–2011), covered by the database at the moment of the data collection, is adequate to test the propositions on the subsequent effects on the investment behaviour of individual firms, since it includes the second major turn in the state policies, around 2003, and the state-business relations during the period of the catching-up reformation since the collapse of the Soviet Union in the early 1990s.

The essential advantage of the extensive *Orbis* database, over to the alternative sources of the firm-level data, is that it enables to implement the sampling design with independent random (or complete) selection of observations simultaneously for both examined groups of firms – i.e., with domestic growth orientation and multinational. The employed *random sampling strategy* allows collecting all the data and constructing the variables on one complete sample of the Russian firms, improving the information content of the created dataset, unlike a *choice-based* or *endogenous stratified sampling*, more commonly employed in the IB research. The latter sampling strategy, widespread in the empirical studies on FDI determinants, combines two separately selected subsamples of firms, which is likely to lead to issues with a weighting procedure of the firm's categories and bias the presentation of a rare event, such as the transition to multinationality of the EM firms, in the choice-based sample.

The next and also crucial advantage of the *Orbis* database is the availability of detailed ownership reports, which have been downloaded for the *complete sample* of the Russian firms and their foreign subsidiaries, including the country of origin, industry affiliation, type and level of direct or total ownership for each of the domestic and foreign shareholders of the individual firms. The comprehensive ownership data, thereby,

[73] The access to both databases was provided by the Aston Business School.

enables to establish the "shareholder-firm" and "parent firm-subsidiary" links, and also track the variations of hybrid equity structures with a joint participation of the state, private domestic investors, and foreign capital.

To tackle another data challenge on detecting the time-variant FDI status of the Russian firms, the *Orbis* firm-level data had to be complemented with the information on the cross-border M&A deals, extracted from the *Zephyr* database. The combination of both datasets permitted to trace the amount of the foreign direct investment undertaken by each firm, the date of each FDI event, geographical distribution and type of the deal, and accurately distinguish the foreign investors from the non-investing firms in the sample. In total, the *Zephyr* database provided 2,128 cross-border deals between Russian firms as acquirers and foreign targets completed between 1997 and 2012 years. Importantly, the *Zephyr* deals data also allowed to match the date of incorporation of each foreign subsidiary and create the time-varying dependent variables to distinguish the initial and subsequent foreign market entries via FDI. The computed number of firm's subsidiaries varies over the research period of interest, which covers ten years: 2002–2011. The precise principles of the construction of the time-variant measures explained in *Section 5.2*. Matching the data from the two BvD databases allowed creating the original dataset, which associates the networking strategies and other attributes of the Russian firms with their FDI status, – all constructed as time-continuous measures. Herewith, the complete sample and the panel design resolved the common data collection trade-off: allowing for collecting a greater number of firm-year observations and at the same time encompassing a better quality and number of the explanatory variables, collected on one complete sample of the Russian firms.

The research idea to test the variation in the foreign investment effects across the diverse equity structures, capability levels, industrial and regional affiliation required an extraction of the complete random sample of 7,909,437 Russian enterprises available in the *Orbis* database. The obtained sample is well-representative of the whole population of the Russian firms, which are heterogeneous in size and ownership types, established prior and after the critical junctures of 1991 and 2001 years, and operating in the various industries and regions of the Russian Federation. The only restriction imposed on the extracted random sample was the number of the employees. In order to exclude the sole entrepreneurs and individual foreign investors from the sample, the firms with an unknown number and less than ten employees[74] were excluded from the initially

[74] In accordance with the Federal Law on Taxes of the RF #155-F3 dated 22.07.2008, the number of the employees hired by an individual entrepreneur cannot exceed five employees; and therefore, all

extracted complete sample. Hence, the final sample comprises 598,453 Russian firms – both publically listed and private – that employ ten or more staff members and hold the active status.

For each individual Russian firm in the final complete sample, including the firms of both FDI status, the following information was collected from the *Orbis* database: (1) the date of establishment, (2) the major sector, (3) the four-digit SIC industry code, (4) the region, (5) the name and type of an ultimate shareholder, (6) the list of all shareholders, their country of origin and type, (7) the direct and total ownership shares held by the state agencies, (8) the direct and total ownership shares held by the foreign shareholders, (9) the list of the foreign subsidiaries, (10) the country, the date of establishment, and ownership details for each subsidiary, (11) the number of patents registered by each firms and the registration agency, (12) the R&D expenses, (13) the number of employees, (14) the total and intangible assets, (15) the total operating revenue or sales, (16) the gross and net profits, and profit margins, (17) the cash flow, (18) the return on assets, and (19) other financial ratios for descriptive purposes. From the *Zephyr* database: (20) the list of the cross-border deals have been obtained for each investing Russian firm in the final sample, detailing on the date of each deal, the country of origin and sector of the target, which, in turn, were matched and merged with the *Orbis* data in a reliable dataset.

To analyse the prerequisites of the transition to multinationality by the Russian firms, the collected data from both commercial databases was transformed into the comprehensive panel dataset, consisting of the period of ten years: starting with 2002 which was the earliest available year in the Orbis database, for which the necessary data could be obtained for the firms in the sample. The first time point, recorded in the dataset, precedes the year of the major policy change towards building the strong state and intensifying its embeddedness in the economic relations with the business groups through creating and expanding the portfolio of equity ties.

5.2 The organisation of the panel-data

The dataset created for the current research includes, as depicted in *Table 6*, a subset of 598,458 firms selected on the firm's size criteria out of the total 7,909,437

businesses with a larger number of employees should be registered as corporate entities.

business entities registered in the RF and published by the BvD, resulting in 4,348,900 firm-year pair observations. The large number of observations in the panel format allows for constructing and testing more complex models on the transitions in the investment status of the firms over time and investigating interdependencies between the firm's networking strategies and the resultant relational benefits, by utilising the information on both inter-temporal dynamics and the firm's specificity in the garnering resources and learning. The constructed panel dataset on the investment path histories of the individual firm's will allow to estimate the probability of transition in the FDI state and the subsequent expansion of the networks of foreign subsidiaries, and design the proper interdependent structure of the three models specified in the previous *Chapter 4*.

Covering both the Russian foreign investors and non-investing abroad firms, the extensive dataset strives for an accurate representation of the dynamic organisational founding in Russia and restructuring of businesses in the post-reform period, characterised with the drastic shift in the state regime and the state-business relations. The panel structure of the dataset enables to capture the effects of heterogeneity in the equity structures, accumulated tangible and intangible resources, technological capabilities, and their conceptualised interactive interrelations on FDI propensity of the Russian firms, controlling for the industrial and regional affiliation, as well as the efficiency of the firms. One peculiarity of the constructed dataset ought to be emphasised: the sample is dominated by the firms with the investment strategies oriented on the domestic market solely (*Non-Investors*), which compose nearly 99% of the sample. Therefore, this overdispersed property of the sample distribution must be accounted for by selecting and comparing the econometric regressions tailored to model this feature of the data, was explained in the preceding *Chapter 4*.

The composition of the constructed dataset reveals the dynamics in organisational founding over the statist period of the state building, with a net entry into the market during the research period accounting for 369,174 firms, and only 228,395 firms have been established before 2002 and have the data for all 2001–2011 years. The observed activity in creating new ventures over the research time span defines the unbalanced nature of the complied panel. No records on the exit of firms could be identified in the Orbis database, – all the firms in the sample were reported as active on the last available date (as for 2011); therefore, no issues with endogenous attrition in the panel dataset are expected to arise.

Table 6:

The patterns of the panel data: creation of the new firms after 2002, with the breakdown for the firms investing in foreign locations and non-investing Russian firms.

Year:	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total number of active firms in the market [a]	228,395	261,551	297,395	345,661	418,853	483,002	538,202	571,877	597,555	597,568
among those [b]:										
Foreign Investors	1,043	1,054	1,069	1,087	1,099	1,109	1,116	1,120	1,124	1,127
Non-Investors	227,352	260,497	296,326	344,574	417,754	481,893	537,086	570,757	596,431	596,441
Number of new firms entered the market	-	33,156	35,844	48,266	73,192	64,149	55,200	33,675	25,678	13
growth in percentage:	-	*15%*	*14%*	*16%*	*21%*	*15%*	*11%*	*6%*	*4%*	*0.002%*
among those [b]:										
Foreign Investors	-	11	15	18	12	10	7	4	4	4
Non-Investors	-	33,145	35,829	48,248	73,180	64,139	55,193	33,671	25,674	10

Number of firms with missing date of establishment:	885
Total number of firms in the sample:	598,453
Total number of the firm-year observations:	4,348,900

Notes:

[a] The number of the firms established at the current or previous years.

[b] **Foreign Investors**: here and after, this category includes the firms classified as undertaking FDI in the current or any other year.

Non-Investors: here and after, this category includes the firms that have no record on FDI and have not invested in a foreign subsidiary at any time point, – before or after 2002 year.

Table 7:

The panel description of the dataset.

Distribution of T_i:	*min*	5%	25%	50%	75%	95%	*max*
	1	3	5	7	10	10	10

Frequency	Percent	Cumulative	Pattern
228,395	38.22	38.22	1111111111
73,192	12.25	50.47	 111111
64,149	10.73	61.20	 11111
55,200	9.24	70.44	 1111
48,266	8.08	78.52	. . . 1111111
35,844	6.00	84.52	. . 11111111
33,675	5.64	90.15	 111
33,156	5.55	95.7	. 111111111
25,678	4.30	100.00	 11
15	0.00	100.00	(other patterns)
597,568	**100.00**		XXXXXXXXXX

After the raw dataset has been imported into the Stata statistical package and reshaped to the long format, the organisation of the panel data has been further explored, using the individual firm and time identifiers to describe the extent to which

the dataset is unbalanced. *Table 7* reveals an interesting trend in the organisational founding in Russia: almost a half of the firms, – to be precise 274,482 firms, accounting for 46% of the total sample, – has been newly-established during the 2005–2009 years, and appears in the sample in the middle of the research period. The diminishing trend in the organisation founding might be indicative of tightening the state regime and constraining effect of the state-business relations on new venturing in Russia.

Table 8:
The distribution of the firms by the three distinct periods in the state-business relations and comparison of the group-level characteristics across the firm's foundation groups.

Firm's foundation group:	Code[a]	Number of firms	Frequency	Investors[b]	Firm's size[c]: Number of employees	Total assets	Revenue	Firm's attributes[d]: Intangible assets	Asset intangibility	Patents	ROA
Firms established in the Soviet state-controlled period: **before 1991**	**1**	11,767	1.97%	0.45%	1,206	250,762	90,791	1,391.2	0.0030	3.0	6.51%
Firms established during the liberalisation period: **1991-2001**	**2**	216,627	36.25%	0.07%	94	15,717	9,218	172.4	0.0034	0.8	9.45%
Firms established during the statist period: **after 2001**	**3**	369,174	61.78%	0.02%	43	27,531	5,483	75.8	0.0027	0.3	10.18%
Total sample:		597,568	100%	-	67	25,449	7,287	116.6	0.0029	0.4	9.92%

Notes:

[a] The coded categories of the foundation groups in the dataset.

[b] Calculated as a percentage of the foreign investors for each of the foundation groups.

[c] Calculated as a group average. The total values are calculated as an average for the sample.

[d] *Total assets*, *Revenues*, and *Intangible assets* are measured in the absolute values of thousand USD. *Intangibility of assets* is calculated as a ratio of intangible assets to total assets. *Patents* measured as an average number of patents per each foundation group.

Since a large proportion of the firms have been newly founded during the research period (2002–2011), nearly 62% of the firms in the sample are young businesses with age less than ten years, and 30% of the firms with business experience less than five years. The age composition of the sample is, therefore, inevitably skewed towards the younger firms (foundation group 3) which are less experienced in the foreign markets, and tend to be smaller across all size measures, less innovative and knowledge-intensive, however achieving greater asset efficiency, when compared to the mature restructured firms from the first group founded at the Soviet times (foundation group 1) and the second group of the newly-created firms with the institutional baggage of the liberalisation reforms (foundation group 2), and also to the sample average values (*Table 8*). The foreign investment propensities of the young ventures might be in a greater extent contingent on the network strategies and the bestowed relational benefits via equity ties with

the state, affiliation to the domestic business groups, or knowledge and resource transfers by the foreign shareholders, compared to the mature businesses established before or during the liberalisation period of 1991–2001.

To combine the raw BvD data into a reliable dataset for testing the hypotheses, the dependent variables, defining the foreign investment status, and the several sets of the explanatory variables have been constructed to reflect: (1) the equity structure of the firm, which enables to identify the intra-state and extra-state networking strategies, (2) the firm's age and institutional experience with relation to one of the three foundation groups, as classified in *Table 3* of *Chapter 3.5*, (3) the amount of accumulated tangible assets and human resources, (4) the technological capabilities and direct innovation output, (5) the accumulated stock of tacit knowledge and intangibility of assets, (6) the labour, cost, and asset efficiency of the firms, and as well (7) the industrial and regional affiliation of the firms. The construction of the time-varying dependent and explanatory variables, utilised in the Model Equations (**1**) and (**2**), is explained in the following section.

5.3 The construction of time-variant variables

The greatest impediment to examining how the networking strategies and other attributes of the Russian firms impact the likelihood to establish a foreign subsidiary and transit to multinationality has been an inability to identify the foreign investors among the firms and the number of foreign subsidiaries for each firm in the Orbis database and directly link these measures to the firm-specific longitudinal observations. To construct the time-varying dependent variables on the change in FDI status of each firm, $FDIstatus_{it}$, and the subsequent expansion of the network of foreign subsidiaries, $ForSubNetwork_{it}$, the data collected from the *Zephyr* database on the cross-border M&A deals, accomplished by the Russian firms, was matched and merged with the data on the foreign subsidiaries and the firm-year observations created basing on the raw data from the *Orbis* database, using the Excel VBA technique[75]. The crucial step was to clean the *Zephyr* deals data and extract the year of all completed deals, which was treated as the date of establishment of the foreign subsidiary. After accomplishing this, the initial list of the foreign subsidiaries extracted from the *Orbis* database for each individual firm was complemented with the identified establishment date, obtained from the *Zephyr* deals

[75] The automated algorithm to match and merge the data was developed by the author.

data. The unmatched foreign subsidiaries were considered as a greenfield investment with the incorporation date provided in the *Orbis* database. The next step was to transfer the data on the establishment of foreign subsidiaries into a longitudinal matrix constructed for the firm-years entries. The initial valued matrix was created in the case-event form, coding the FDI status variable as [**1**] at the year of the first FDI incidence and further counting the increase or decrease in the number of foreign subsidiaries at each subsequent time-point[76]. For the years preceding the first FDI entry, the FDI status was coded as [**0**].

The constructed valued matrix of FDI events in the longitudinal format for all firm-cases, identified in the sample, eventually enabled to create two *time-varying* depended variables: (1) the two-state [**0, 1**] variable for the observed transitions to multinationality, $FDIstatus_{it}$, switching from [**0**] to [**1**] at the year of the occurrence of the first FDI event, (2) the time-varying count variable for the total number of the foreign subsidiaries, $ForSubNetwork_{it}$, established at each of the ten time points, and also the variable reflecting the change in the number of the established foreign subsidiaries at each year, $ForSubChange_{it}$. The first dependent variable, $FDIstatus_{it}$, was created by dichotomising the initial valued matrix and constructing the binary matrix of FDI transition for every firm-case, while the second dependent variable, $ForSubNetwork_{it}$, was derived from the valued form of the initial matrix.

The created FDI transition variables present the regularly spaced sequence of observations on the FDI status of the firms, known at each of the time units, and allow modelling with the Markov chain techniques described in *Chapter 4*. The empirical *Chapters 7.1–10.1* centres the analysis on the initial decision of the Russian firms to conduct FDI and the transition between the two states (from a non-FDI firm to the MNE), therefore, employing the first dependent variable $FDIstatus_{it}$, while the second FDI variable will be incorporated into the modelling strategy in the last empirical *Chapter 11.1* of the present thesis.

In order to examine whether the state embeddedness and networking with the foreign capital compensate for the lack of foreign investment experience and the paucity of the resources and capabilities, – or contrariwise enhance the inventive learning and the direct innovation within the established intra-state and extra-state hybrid networks, – the central explanatory variable, reflecting the firm's equity

[76] The automated algorithm, developed by author in MS Excel, was utilised to code all variables for the large number of the Russian firms and construct the time-continuous matrices for the subsequent data analysis.

structure, has to be constructed. The extensive data on all shareholders for the individual firms, extracted from the *Orbis* database, allowed tracking the country of origin and type of each shareholder, and, therewith, to establish whether the firm was founded with or transformed to the hybrid equity arrangements.

The created explanatory variable $EquityNetwork_{it}$ distinguishes the private firms in the domestic ownership only, coded as [**1**] and labelled "POEs", from the hybrid firms with state participation in equity or the "dyadic equity structure", coded as [**3**] and labelled as "SOEs" for shortness, and the firms extending their boundaries within the extra-state networks. The latter group of the foreign-invested Russian firms (FIEs) was carefully examined for the "dyadic equity" networking among the domestic private and foreign investors, coded as [**2**] and labelled "FI-POEs", and the "triad equity networks" complementing the state and foreign capital in the firm's equity, which were coded as [**4**] with a "FI-SOEs" label.

The sets of other explanatory variables were relatively straightforward to create from the raw Orbis data. The age of the firms, the variable $FirmAge_{it}$, was computed as a number of full years in operation since the incorporation date obtained from the Orbis database, which was also used to assign the relevant foundation group and institutional experience categories following the classification introduced in *Table 3* and create the $FoundationGroup_{it}$ variable. The former Soviet enterprises, grouped under the category [**1**], which had experienced and survived both critical junctures of 1991 and 2001, and are presumed to carry the most onerous burden of the institutional reforms and radical changes in the state-business relations. The foundation category [**2**] combines the firms newly created during the initial period of liberalisation reforms and organisational founding, unleashed from the state control; while category [**3**] includes the firms never directly experienced the institutional transformation at the neo-liberal era in the 1990s and were created under the tight statist regime instituted by Putin's government and state-building ambitions after his accession to power in 2000.

The accumulated tangible and human resources of the individual firms were approximated by creating three firm's size variables. The changing values of total assets extracted from the *Orbis* dataset for all the time-points were cleaned of mistaken negative values and utilised to create the time-varying $FirmSizeTA_{it}$ variable. The creation of the proxy for human resources, $FirmSizeEmp_{it}$, required additional cleaning of the Orbis data on the number of employees for mistaken negative and zero values – for each year in the research period. As an alternative measure of the firm's size,

the values of operating revenue were transformed into the $Revenue_{it}$ variable, following the cleaning of the negative values.

The next crucial variable to be created serves as a proxy for the technological capabilities developed by the individual firms. Being multifaceted in nature, the firm's technological level should ideally be analysed from the both input and output sides, i.e., the internal R&D expenditures depicting the firm's inputs into the product or process innovation, and the resulting registered patents – as an approximation for innovation effectiveness. The *Orbis* data on the R&D expenses and the number of registered patents were utilised to create the $R\&Dintensity_{it}$ and $Patents_{it}$ variables. The innovation measures were complemented with the categorical construct $PatentClass_{it}$, which indicates the quality and potential usage of the registered inventions in foreign markets: with the assigned categories for the patents registered domestically only by the Russian patent agency, coded as [**1**], and the patents recognised in the international technological market and registered by the International patent agencies, coded as [**2**]; the firms without a patent output were grouped under the category [**0**].

The intangible assets accumulated by the firms of the same age and industry affiliation, is indicative of the speed and intensity of their learning path and the purposeful investment into knowledge creation. The raw *Orbis* data from the annual reports of the firms proved to be informative on the asset composition and allowed to extract the values of intangible assets, varying across all years in the research period. The two created time-varying variables: $Intangibles_{it}$ – indicating the absolute value or stock of intangible assets, and $Intangibility_{it}$ – for the share of the intangible assets in the total asset composition of the firm, enable to test the direct effect of the accumulated knowledge and learning on the investment strategy of the firms with the diverse equity structures and serve as a mediator for testing the indirect effect of the networking strategies within the hybrid structures.

The next set of explanatory variables accounts for the heterogeneity of the firms in the labour productivity, $LProductivity_{it}$, calculated as the ratio of operating revenue to the number of employees, in the asset efficiency, ROA_{it} – the ratio of the operating revenue to the total assets of the firm retrieved from the *Orbis* financial reports, as well as the profitability, $ProfitMargin_{it}$, computed as the ratio of the gross profit to the total revenue – all obtained from the *Orbis* database. The created efficiency measures allow formally checking the validity of the recent arguments on the self-selection of more efficient and profitable firms for FDI.

The vast territory with the distinct regions in terms of financial flows, resource endowments, infrastructure, and organisational founding and also the diverse industrial structure of the Russian economy are inherently reflected in the investment strategies of the Russian firms and necessitate the inclusion of the $Region_{ij}$ and $Sector_{ij}$ variables in the foreign investment probability model. The created variables will allow yielding and testing further insights on the industrial affiliation and spatial heterogeneity in the foreign investment strategies, pursued by the Russian firms. All the firms in the sample were clustered into eight federal regions, basing on the headquarter city name, and into three traditional sectors, categorised as: the natural resource and utility, coded as [**1**], manufacturing, coded as [**2**], and services, coded as [**3**]. Both matching and merging tasks were performed with the computation algorithm automatized by the author in the Excel package. The complete set of the dependent and explanatory variables introduced into the FDI probability transition models (*Chapter 4*) and their hypothesised effects are described in *Table 9* of the next section.

5.4 The definition of the dependent and explanatory variables in FDI transition models

The two non-linear models $Prob(\text{FDIstatus}_{it} = 1|\boldsymbol{x}_{it})$ and $Prob(\text{ForSubNetwork}_{it} = \boldsymbol{y}_{it}|\boldsymbol{x}_{it})$, specified in the preceding *Chapter 4.1* and *4.3* accordingly, will be tested with the ML estimation on the long panel of individual firms with observed transition times and FDI states. Therefore, the major advantages of the constructed large panel dataset over conventional cross-sectional or time-series datasets will be utilised to capture the variation over time and across the individual firms, allowing to control for the firm's heterogeneity and state dependency.

The large number of data points satisfies the "10 observations per parameter" rule suggested in the literature on covariance models (Long, 1997), which increases degrees of freedom and reduces the collinearity among the firm's attributes, herewith, improving the efficiency of the model. The utilised inter-firm differences in $[\boldsymbol{x}_{it}]$ allow dropping the *ad hoc* conventional approach of constraining the lag coefficients, and control in a more natural way for the missing data. The availability of the large number of multiple observations will reduce the issues with ill-conditioned data, and, more importantly, with the observed low variation in the over-dispersed dependent variable $FDIstatus_{it}$ with a greater proportion of [**0**] outcomes, yielding more efficient estimates. The desirable

properties of ML estimates being consistent, asymptotically normal, and asymptotically efficient have been also proven to hold for large samples sizes (Long, 1997).

The dependent variable $FDIstatus_{it}$ (model Equation **1**, *Chapter 4.1*)**:** the time-varying (yearly) two-state variable that takes the value **[1]** if the firm transits to multinationality (i.e., establishes any capital participation in a foreign company) during a particular year or previous years within the research period, or if the firm had established a foreign subsidiary before 2002, and takes the value **[0]** otherwise. This approach is, hence, able to detect whether a randomly drawn firm changes its status from a "Non-Investor" to "Foreign Investor" over the research time span. Since all the foreign subsidiaries established by the Russian firms are recorded as active in the *Orbis* database, it can be assumed that none of the firms exists the foreign market and changes its status the other way round, i.e., from being a foreign investor to a domestic firm without a foreign subsidiary.

The dependent variable $ForSubNetwork_{it}$ (model Equation **2**, *Chapter 4.3*)**:** the time-varying (yearly) multiple state count variable that takes the value **[0]** if the firm does not transits to multinationality within the research period and had not established a foreign subsidiary before 2002, and any value beyond **[0]** to reflect the expansion of the network of foreign subsidiaries of the firm over the ten years.

Among the right-side variables of the specified models are the determinants of FDI transition; all regressors are the firm-level factors, such as the structural characteristics of the firms, their experience and technological level, the equity structure, their sector and region. When the explanatory variables, which are suggested by theories, cannot be directly observed due to the latent nature or not observed for reasons of the data availability, the proxies have been created and introduced into the model.

For instance, the networking strategies deployed by the firms are approximated by the equity structure. The technological level and innovative efficiency of the firm is approximated by the number of registered patents and the patent's class. The scaled intangible assets are used as a proxy for the learning strategy; and the ratio of intangible assets to total assets is used to evaluate the knowledge-intensity. The profitability variable is introduced into the model as a measure of the firm's ability to finance investment from the internal funds; the labour productivity and the return on asset – in order to control for the firm's efficiency. The firm's institutional experience is approximated by the firm's foundation group.

In the non-linear probability models, in contrast to ordinary linear models, it is important to include any regressors that affect the dependent variable, regardless of whether they are correlated with the employed vector of covariates; therefore, additional control variables are introduced into the FDI transition probability model. To investigate how the industry structure conditions the likelihood of FDI transition, three sector categories are included in the model equations. The seven region dummies are introduced as the control variable and interpreted as an exogenous determinant of the FDI incidence.

To avoid the endogeneity problem, all FDI probability models will be re-tested using the explanatory variables measured with one year lag to the dependent variables. The full set of the variables, used in the transition probability equation and the count models, as well as their hypothesised effects are defined in *Table 9*.

Table 9:
The definitions of the variables, the hypothesised effects and tested sample means.
[the data time span: 2002–2011]

Variable name	Definition of the variable	Variance over time [a]	Hypothesised effect [b]	Sample mean [SD] [c]
FDIstatus	= the two-state variable, set equal to: "1" if the firm has a foreign subsidiary in a given year, and "0" if otherwise.	T-V	DV [model equation 1]	–
ForSubNetwork	= the count variable, calculated as a changing number of the established foreign subsidiaries over the research period.	T-V	DV [model equation 2]	–
EquityNetwork	= the categorical variable, set equal to: "1" if the firm has only private domestic shareholders [*the reference category*], "2" if the private firm has a foreign shareholder, "3" if the firm is state-owned, and "4" if the state-owned firm has a foreign shareholder.	Const.	H1a-c, H5a-b [categories 2, 3, and 4 are hypothesised to positively differ from the reference category]	–
FirmAge	= the continuous variable of firm's age, calculated as a number of years since the date of corporate establishment, as available from the Orbis database.	T-V	H2a-b [+]	7.54 [6.76]
FirmAgeSqr	= the squared term of *FirmAge*.	T-V	H2a-b [–]	–
FoundationGroup	= the categorical variable, set equal to: "1" if the firm had been established during the Soviet state-control period: before 1991 [*the reference category*], "2" if the firm had been established during the rapid liberalisation period: between 1991-2001, "3" if the firm was established during the statist period: after 2001.	Const.	H6a-b [category 2 is hypothesised to be negatively and 3 – positively different from the reference category]	–

Table 9:
Continued.

Variable name	Definition of the variable	Variance over time [a]	Hypothesised effect [b]	Sample mean [SD] [c]
FirmSizeEmp	= the continuous variable, calculated as the number of employees, in thousands.	T-V	H3a-b [+]	67.47 [1,330.54]
FirmSizeEmp_ln	= the natural logarithm of total number of employees of the firm, calculated as: $\ln(FirmSizeEmp+1)$	T-V	H3a-b [+]	
FirmSizeTA	= the continuous variable, calculated as the absolute value of total assets of the firm, in thousands USD.	T-V	H3a-b [+]	25,449.32 [2.74E+07]
FirmSizeTA_ln	= the natural logarithm of total assets of the firm, calculated as: $\ln(FirmSizeTA+1)$	T-V	H3a-b [+]	–
Intangibles	= the variable, calculated as the absolute value of intangible assets of the firm, in thousands USD.	T-V	H2a-b, H4b [+]	116.64 [31,265.46]
Intangibles_ln	= natural logarithm of *Intangibles*, calculated as: $\ln(Intangibles+1)$	T-V	H2a-b, H4b [+]	–
Intangibility	= the ratio variable, calculated by dividing intangible assets with total assets.	T-V	H2a-b, H4b [+]	0.0029 [0.0368]
Patents	= the count variable, calculated as the number of patens registered by the firm.	Const.	H2a-b, H4a [+]	7.54 [6.76]
PatentsSqr	= the squared value of *Patents*.	Const.	H2a-b, H4a [−]	–
PatentClass	= the categorical variable, set equal to: "0" if the firm has no registered patents [*the reference category*], "1" if the firm has patents registered domestically only (in the RF), and "2" if the firm also has patents registered by the international agencies.	Const.	H2a-b, H4a [+]	–
Revenue	= the absolute value of the total revenue reported by the firm in a given year, in thousands USD.	T-V	H3a-b [+]	7,287.07 [1,509,988]
Revenue_ln	= the natural logarithm of *Revenue*, calculated as: $\ln(Revenue+1)$	T-V	H3a-b [+]	–
LProductivity	= the labour productivity of the firm in a given year, calculated as the total revenue (or total sales) over the number of employees.	T-V	H2a-b [+]	9.92 [24.38]
ROA	= the return on assets ratio reported by the firm in a given year, calculated as the total assets over the operating revenue (or total sales).	T-V	H2a-b [+]	9.92 [24.38]
ProfitMargin	= the profitability ratio reported by the firm in a given year, calculated as the pre-tax profit over the operating revenue (or total sales).	T-V	H2a-b [+]	9.92 [24.38]

Table 9:
Continued.

Variable name	Definition of the variable	Variance over time [a]	Hypothesised effect [b]	Sample mean [SD] [c]
Sector	= the categorical variable, set equal to: "1" if the firm operates in the natural resource or utility sector [*the reference category*], "2" if in the manufacturing sector, and "3" if in the service sector.	Const.	Control variable	–
Region	= the categorical variable, set equal to: "1" if the firm operates in the Central region [*the reference category*], "2" if in the North-West region, "3" if in the Ural region, "4" if in the Volga region, "5" if in the Far-East region, "6" if in the South and Caucasus region (combined), "7" if in the Siberian region.	Const.	Control variable	–

Notes:

[a] **T-V** – denotes the time-variant variable, so that its within variation is not equal to zero.
Const. – denotes the time-invariant variable, which values were kept constant over all years in the research period.

[b] The direction of the hypothesised effect is provided in parentheses.

[c] The value of standard deviation is provided in parentheses.

5.5 The panel summary of time-continuous variables and transitions in FDI status

As a first step towards a thorough exploration of the data, the panel composition of the dataset requires to quantify the relative importance of the within and between variations for the constructed time-variant regressors. Although some of the explanatory variables are subject to quadratic and logarithmic transformations, the means and standard deviations are reported on the raw data for a convenient interpretation. The regressor variables $EquityNetwork_{it}$, $FoundationGroup_{it}$, $Patents_{it}$, $PatentClass_{it}$, $Sector_{it}$, and $Region_{it}$ are time-invariant and, thereby, their within variation is equal to zero. Among the time-variant regressors, included in *Table 10*, four variables $FirmAge_{it}$, $FirmSizeEmp_{it}$, $Intangibles_{it}$, and RAO_{it} reveal most of the variation between the firms, rather than within the individual firms across the years. Therefore, the fixed-effect (FE) estimation may not be efficient for the binary probability choice model, specified and examined in the further sections, because the FE panel estimation relies on the within variation. The variance composition observed in *Table 10* favours a random-effect (RE) regression model, which effectively captures the effects of the difference among the firms onto their foreign investment propensity; however, this preliminary conclusion is yet to be confirmed with the formal specification test carried out in the proceeding *Chapter 7*.

Table 10:
The panel summary of the time-varying regressors.

Explanatory variables [time-variant]		Mean	SD	Min	Max	Observations
FirmAge	overall	7.54	6.76	1	308	N = 4,340,059
	between		5.78	1	303.5	n = 597,569
	within		2.45	3.04	12.04	T-bar = 7.26286
FirmSizeTA	overall	25,449.32	2.74E+07	0	4.65E+10	N = 2,888,437
	between		6,713,948	0	5.17E+09	n = 597,564
	within		2.58E+07	-5.17E+09	4.13E+10	T-bar = 4.83369
FirmSizeEmp	overall	67.47	1,330.54	1	998,655	N = 2,545,479
	between		933.38	1	400,700	n = 597,517
	within		591.39	-169,707.9	827,738	T-bar = 4.26009
Intangibles	overall	116.64	31,265.46	0	3.86E+07	N = 2,887,801
	between		37,267.77	0	2.38E+07	n = 597,474
	within		23,109.39	-4,285,868	3.43E+07	T-bar = 4.83335
Intangibility	overall	0.0029	0.0368	0	4	N = 2,784,680
	between		0.0270	0	1	n = 574,311
	within		0.0275	-0.83	3.166407	T-bar = 4.84873
Revenue	overall	7,287.07	1,509,988	-1,047,059	2.50E+09	N = 2,888,616
	between		422,838.7	0	2.78E+08	n = 597,572
	within		1,401,633	-2.78E+08	2.22E+09	T-bar = 4.83392
LProductivity	overall	118.05	75,994.28	-139.24	1.21e+08	N = 2,545,479
	between		52,280.4	0	4.02e+07	n = 597,517
	within		62,023.4	-4.02e+07	8.05e+07	T-bar = 4.26009
ROA	overall	9.92	24.38	-100	100	N = 2,756,508
	between		18.69	-100	100	n = 590,699
	within		17.81	-140.91	153.38	T-bar = 4.66652
ProfitMargin	overall	3.52	17.49	-100	100	N = 2,637,160
	between		13.77	-100	100	n = 550,846
	within		12.30	-151.63	146.65	T-bar = 4.78747

The similar variance pattern is observed for the dependent variables, $FDIstatus_{it}$ and $ForSubNetwork_{it}$, which reflect the qualitative change in the FDI status over time, highlighting that the within variation and between variation differ significantly in magnitude (*Table 13-a*). For the count variable, $ForSubNetwork_{it}$, the frequency distribution is obtained in *Table 11*, which shows that the distribution has a long right tail (with the largest number of foreign subsidiaries equal to 901) and a high proportion of zeroes. It confirms that the data are considerably overdispersed: the sample variance of $[1.79^2 = 3.22]$ is 189.5 times the sample mean of 0.017. The overdispersion index, calculated as a variance-to-mean ratio, is equal to 189.5, which makes it likely that the standard errors for the pooled and *Poisson* panel estimators may understate the true

standard errors. Once again, this observation emphasises the importance of the alternative count models with negative binominal and zero-inflated specifications, designed to accommodate a significant overdispersion, which will be considered in the data analysis. This property of the data is confirmed with the formal test of overdispersion implemented by an auxiliary OLS regression (Cameron and Trivedi, 1990, 2005), which indicates the presence of the considerable overdispersion (*Table 12*).

Table 11:
The frequency distribution for the count dependent variable.

DV range[a]: *ForSubNetwork*$_{it}$	**Frequency**	**Percent**	**Cumulative**
0	4,340,331	99.80	99.80
1	5,566	0.13	99.93
2	732	0.02	99.95
3	459	0.01	99.96
4	243	0.01	99.96
5	213	0.00	99.97
6	108	0.00	99.97
7	117	0.00	99.97
8	60	0.00	99.98
9	101	0.00	99.98
10	50	0.00	99.98
11 - 20	289	0.01	99.99
21 - 30	125	0.00	99.99
31 - 40	88	0.00	99.99
41 - 50	69	0.00	99.99
51 - 60	38	0.00	99.99
61 - 70	26	0.00	99.99
71 - 80	45	0.00	99.99
81 - 90	36	0.00	100
91 - 100	48	0.00	100
101 - 200	62	0.00	100
201 - 300	70	0.00	100
301 - 400	14	0.00	100
401 - 800	3	0.00	100
801 - 900	6	0.00	100
901	1	0.00	100
Total	**4,348,900**	**100**	

Note:

[a] To reduce the outcome, the counts were grouped in the ranges.

Table 12:
The test of overdispersion for the Poisson count model

Y*	Coef.	SE	t	P>[t]	[95% Conf. Interval]	
μ_hat	1.873038	361.6304	0.01	0.996	-706.9098	710.6559

Note:

The table reports the estimation result of the auxiliary OLS regression (with no constant term) of the generated dependent variable Y*, constructed as {(ForSubNetwork − μ_hat)^2 − ForSubNetwork}/μ_hat, on μ_hat. The regressor μ_hat was estimated by running Poisson regression, and constructing fitted values μ_hat = exp($x_i\beta$).

The transition matrix, computed in the panel (*b*) of *Table 13* depicts the progression of the Russian firms through the binary qualitative states and identifies the total 1,127 changes in the FDI status over the whole research period: from being a domestically-oriented firm ($FDIstatus_{it} = \mathbf{0}$) to the foreign investor or the MNE ($FDIstatus_{it} = \mathbf{1}$). The further inclusion in the transition matrix and cross-tabulation of the $ForSubBefore2002_{it}$ variable, depicting whether the firm had a foreign subsidiary established before 2002, which is the first time-point in the sample, helps to identify that only 527 transitions in the multinationality status have occurred during the ten years of the research interests. While 600 transitions encountered in the previous period of the neo-liberal reforms (before 2002), indicating that the econometric model should account for the change in the FDI status as a rare event.

The year-to-year transitions show a considerable persistence among the foreign investors: 88% of those who had established a foreign subsidiary before 2002, subsequently invested in a new foreign subsidiary during 2002–2011 (*Table 13-b*). To further investigate the patterns of variation in the $ForSubNetwork_{it}$ dependent variable over the research period, all instances of establishing five or more subsidiaries are aggregated in a single category and the transition probabilities for $ForSubNetwork_{it}$ are calculated (*Table 13-c*). The calculus proves the persistence or state-dependence in the choices amid the Russian firms: more than 90% of the firms with zero foreign subsidiaries do not conduct FDI the next year (only 0.02% of the firms, that had not undertaken FDI before 2002, invest in a foreign subsidiary in the subsequent years), and almost 80% of the firms with five or more subsidiaries invest again in a new foreign subsidiary in the next year.

Table 13:
(a) The panel summary of the dependent variables of the FDI probability transition and count models

DV:		Mean	SD	Min	Max	Observations
FDIstatus	overall	0.0016	0.0401	0	1	N = 4,348,900
	between		0.0345	0	1	n = 598,453
	within		0.0065	-0.8984	0. 9016	T-bar = 7.2669
ForSubNetwork	overall	0. 0186	1.9089	0	901	N = 4,348,900
	between		1.6226	0	901	n = 598,453
	within		0.1576	-86.9814	59.0186	T-bar = 7.2669

Table 13:

(b) Year-to-year transitions in FDI status: whether the firm establishes a foreign subsidiary
[DV: FDIstatus$_{it}$ **= 1]**

FDIstatus =	FDIstatus = 0	1	Total
Non-Investor **0**	597,326	556	598,453
Foreign Investor **1**	0	571	
Total		1,127	

FDIstatusBefore2002$_{it}$	FDIstatus = 0	1	Total
Firms without a foreign subsidiary before 2002 **[FDIstatusBefore2002**$_{it}$ **= 0]**	597,247	527	597,774
Firms with a foreign subsidiary established before 2002 **[FDIstatusBefore2002**$_{it}$ **= 1]**	79	600	679
Total		1,127	

(c) Year-to-year transitions in the number of foreign subsidiaries
[DV: ForSubNetwork$_{it}$**]**

ForSubChange$_{it}$	**ForSubChange**$_{it}$ 0	1	2	3	4	>5	**Total**
0	99.98	0.02	0.00	0.00	0.00	0.00	100
1	82.94	8.72	3.36	1.62	0.87	2.49	100
2	41.57	30.12	9.64	6.63	4.22	7.83	100
3	39.39	18.18	16.67	4.55	6.06	15.15	100
4	17.5	22.5	22.5	12.5	2.5	22.5	100
>5	22.57	0.00	0.00	0.00	0.00	77.43	100
Total	76.46	0.02	0.00	0.00	0.00	23.52	100

(d) The patterns of time-series correlations in the dependent variables
[DV: FDIstatus$_{it}$**]**

	FDIstatus	**L.** *FDIstatus*	**L2.** *FDIstatus*	**L3.** *FDIstatus*	**L4.** *FDIstatus*
FDIstatus	1.0000				
L. *FDIstatus*	0.9952	1.0000			
L2. *FDIstatus*	0.9892	0.9939	1.0000		
L3. *FDIstatus*	0.9804	0.9850	0.9911	1.0000	
L4. *FDIstatus*	0.9689	0.9736	0.9796	0.9883	1.0000

[DV: ForSubNetwork$_{it}$**]**

	ForSubNetwork	**L.** *ForSubNetwork*	**L2.** *ForSubNetwork*	**L3.** *ForSubNetwork*	**L4.** *ForSubNetwork*
ForSubNetwork	1.0000				
L. *ForSubNetwork*	0.9998	1.0000			
L2. *ForSubNetwork*	0.9993	0.9997	1.0000		
L3. *ForSubNetwork*	0.9986	0.9993	0.9997	1.0000	
L4. *ForSubNetwork*	0.9977	0.9985	0.9992	0.9997	1.0000

The correlations in the both dependent variables, $FDIstatus_{it}$ and $ForSubNetwork_{it}$, vary little with lag length (*Table 13-d*), and for $ForSubNetwork_{it}$ are nearly identical regardless of how many years apart observations are, indicating the *equicorrelation* property of the data. The high and positive lagged correlations in the dependent variables are also indicative of the persistence in the time series and, therefore, in the FDI decisions of the Russian firms taken over the research period: the future investment decisions of the firms are dependent on the current and past investment strategies, and the likelihood of subsequent investment in a new subsidiary might be higher for the firms with the previous experience in entering the foreign markets via establishing a subsidiary.

5.6 The missingness of the data and the data analysis strategy

Before a valid and efficient statistical strategy can be selected for the data analysis, the pattern of missing data, – which is an acute issue for the *Orbis* data on the Russian firms, – should be established. This will help to estimate how missingness of a given regressor is associated with the other variables in the sample. As evident from *Table 14*, the availability of the data varies by the year and a particular variable, with the missing values following a monotone pattern (Rubin, 1976; Schafer and Graham, 2002); and for the firm size variables, knowledge intensity and intangibility of the assets, and also profitability indicators more than 50% of observations are missing.

Hence, the traditional approach to working with the missing data, for instance, listwise or case deletion will result in the loss of 41.4% of the data. In result, the reduced sample risks to lose the representativeness of population, if the data are not missing at random. The complete cases strategy may also inflate the standard errors and reduce the level of significance; this issue with the explanatory power of the model might be partially offset, since the large sample of the Russian firms is utilised for modelling their investment choices. If, however, the pattern of missing data is not completely random (not MCAR), the listwise strategy for the missing data might not be optimal and likely to return the biased estimates (von Hippel, 2004; Acock, 2005).

To test the MCAR assumption and accurately describe the potential causes of missingness, the typology of missing data suggested by Rubin (1976) has been incorporated, and the missingness is regarded as a probabilistic phenomenon. To capture the possible relationships between missingness and missing values, first, the matrix of

binary indicators – with the identical dimensions as the data matrix, – has been created for each variable in the sample with elements **[0, 1]** according to whether corresponding values of the variables are observed (coded as **[0]**) or missing (coded as **[1]**).

Table 14:
The rates and patterns of the missing data for the final sample of 598,453 Russian firms.

Variables	Coverage rate[a]: 2002–2011	Number of observations: 2002–2011	Coverage rate per year: 2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
DV:												
FDIstatus	100%	4,348,900	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
ForSubNetwork	100%	4,348,900	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
IV:												
EquityNetwork	100%	4,348,900	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
FirmAge	99.8%	4,340,059	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%
FoundationGroup	99.8%	4,340,059	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%
FirmSizeEmp	58.5%	2,545,479	0.024%	63%	69%	61%	70%	67%	86%	79%	71%	0.12%
FirmSizeTA	66.1%	2,875,670	71%	70%	73%	75%	78%	81%	86%	79%	71%	0.13%
R&Dintensity[b]	0.003%	109	0.003%	0.003%	0.002%	0.002%	0.003%	0.003%	0.002%	0.002%	0.002%	0.004%
Patents	100%	4,348,900	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PatentClass	100%	4,348,900	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Intangibles	66.4%	2,887,801	71%	70%	73%	75%	78%	81%	86%	79%	71%	0.13%
Intangibility	66.1%	2,875,670	71%	67%	71%	72%	74%	78%	85%	78%	67%	0.12%
Revenue	66.4%	2,888,616	71%	70%	73%	75%	78%	81%	86%	79%	71%	0.13%
ExportRevenues[b]	0%	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.0%
Profit	66.4%	2,888,616	71%	70%	73%	75%	78%	81%	86%	79%	71%	0.13%
ProfitMargin	60.6%	2,637,160	65%	63%	73%	69%	70%	75%	81%	75%	59%	0.13%
CashFlow[b]	0.01%	549	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
LProductivity	58.5%	2,545,479	0.024%	63%	69%	61%	70%	67%	86%	79%	71%	0.12%
ROA	63.4%	2,756,508	68%	67%	70%	72%	73%	77%	82%	76%	68%	0.13%
ROCE[b]	11.1%	484,048	9%	10%	12%	13%	13%	14%	15%	14%	12%	10%
Sector	99.8%	4,340,301	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%
Region	99.8%	4,340,595	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%

Notes:

[a] The coverage rate for the data in the sample is calculated as a ratio of the number of available observations for each variable to the total number of observations for all firms.

[b] The *R&Dintensity*, *ExportRevenues*, *CashFlow*, and *ROCE* variables cannot be used in the data analysis, as more than 95% of the values are missing.

To estimate the *probability of missingness* and examine how close the data are to *missing completely at random* (MCAR[77]) or how large the deviation from MCAR is likely to be, the automated estimation algorithm has been programmed in the Stata software.

[77] The data can be considered as MCAR when the probability of a particular value to be missing is completely independent of both the observed and the unobserved data.

First, a set of *xtlogit* models is tested for each created regressor as a dependent variable, which allows concluding whether any of other variables predict missingness of a given regressor. After obtaining the predictions of missingness, the *t-tests* are applied to determine whether the means of other variables significantly vary between the missingness groups [**0**, **1**] of a given regressor.

Table 15:
The test for the probabilities of missingness of the data: *xtlogit* estimations and *t-test* results.

Variables with missing values [a] (**DV**)	Variables, exerting significant effect [b] on the probability of missingness of DV (***xtlogit***)	Variables, with significant mean differences [c] between missingness groups of IV (***t-test***)
FirmSizeEmp	*FDIstatus, EquityNetwork, FirmsAge, FirmSizeEmp, FirmSizeTA, PatentClass, Revenue, ROA, Sector, Region*	*FDIstatus, ForSubNetwork, EquityNetwork, FirmsAge, FirmSizeEmp, FirmSizeTA, PatentClass, Revenue, ROA, Sector, Region*
Intangibles	*FDIstatus, FirmSizeEmp, FirmSizeTA, Sector*	*FDIstatus, ForSubNetwork, FirmSizeEmp, FirmSizeTA, FirmsAge, Patents, PatentClass, Revenue, ROA*
ROA	*FDIstatus, EquityNetwork, FirmsAge, FirmSizeTA, PatentClass, Revenue, ROA, Sector*	*FDIstatus, ForSubNetwork, EquityNetwork, FirmsAge, FirmSizeEmp, FirmSizeTA, Patents, PatentClass, ROA, Sector*
Region	*EquityNetwork, FirmsAge, FirmSizeEmp, FirmSizeTA, PatentClass, ROA, Sector*	*FDIstatus, ForSubNetwork, EquityNetwork, FirmsAge, FirmSizeEmp, FirmSizeTA, Intangibles, Patents, PatentClass, Revenue, ROA, Sector*

Notes:

[a] Coded as the binary indicators of missingness: [0] – if value is observed, and [1] – if value is missing in the sample.

[b] Significant effect at the *p-value*<=0.05.

[c] The two-sample t-test with equal variances. The null hypothesis of zero difference between the sample means rejected at the *p-value*<=0.05.

As became evident from the estimation results of *xtlogit* regressions (*Table 15*), other explanatory variables in the model do predict whether the values in a given regressor are missing. The MCAR assumption is, therefore, not met; and the data are more MAR[78] than MCAR. The probable consequence of non-MCAR pattern of the data would be the bias in the estimates and standards errors. Among traditional strategies to dealing with the MAR data, the complete case analysis might not be efficient, as it may incorrectly estimate the effects, – underestimating some effects or exaggerating others, –

[78] The data are regarded as *missing at random* (MAR) if the probability of a particular value being missing depends only on the observed data.

or even reverse the direction of effect.

The multiple imputation approach may not be a reasonable solution for the present dataset either, because the observed large amount of the missing values would require imputing 41.4% of the sample, which is likely to result in the estimation to be driven with a multiple imputation model rather than the observed data. Therefore, the pair-wise deletion approach will be followed in building up the model and adding the variables in a step-wise order, which will allow for utilising all the information observed for each variable in the data analysis.

5.7 The intercorrelations and multicollinearity in the regressor variables

For a preliminary insight into how the equity structures and attributes of the Russian firms are associated with their FDI propensity, a series of multiple correlations has been accomplished (*Table 16*). The evaluation of the sign and the significance of the retrieved correlation coefficients indicates that the relationships between the FDI transition probability and the subsequent expansion of the network of foreign subsidiaries, as measured with $FDIstatus_{it}$ and $ForSubNetwork_{it}$ correspondingly, and the firms' networking strategies, size, business experience, knowledge intensity, and its ability to innovate are as predicted in the conceptual model. All of the measured firm's attributes are positively and significantly correlated with the dependent variable $FDIstatus_{it}$ throughout all the research period (2002–2011), except for RAO_{it} efficiency measure which relationship with FDI probability proved to be negative and insignificant, contradicting the postulates of the IB literature.

The few peculiarities in the magnitude of the correlation coefficients between the attributes of the firms and its $FDIstatus_{it}$ and $ForSubNetwork_{it}$ are noteworthy. All firm's size measures are stronger correlated with and might have a greater effect on the number of foreign subsidiaries established by the firm, than on its initial decision to invest abroad. However, the association of the firm's business experience, $FirmAge_{it}$, is stronger with the $FDIstatus_{it}$ dependent variable, which may imply that the acquired experience in the market can be a more important determinant of the initial transition abroad (via FDI) than the available resources and size of the firm; while the subsequent decisions to continue FDI and invest in new subsidiaries might be in a greater degree conditioned on the firm's resources.

An interesting difference in the associations of tangible and intangible assets should also be noted, as the accumulated knowledge reveals a stronger relation with the initial transition to multinationality, $FDIstatus_{it}$, than with a subsequent growth in the foreign markets, i.e., $ForSubNetwork_{it}$; while the human resources and tangible assets, on opposite, might be of a greater importance for the expansion of the firm's presence in the foreign locations via establishing new foreign subsidiaries.

The constructed correlation matrix also provides an indication of relative independence of the regressor variables in the context of the fitted regression models for $FDIstatus_{it}$ and $ForSubNetwork_{it}$. The correlation coefficients do not reach the extreme values [> 0.8], and, therefore, the pairs of variables can be evaluated as providing independent information for predicting the dependent variables of both FDI equations, $FDIstatus_{it}$ and $ForSubNetwork_{it}$, given the presence of other variables in the model. The only redundant variable is, as expected, $Revenue_{it}$, which appear to highly and significantly correlate with another firm's size measure of the total assets, $FirmSizeTA_{it}$ (with the correlation coefficient equal to [0.977], as highlighted in *Table 16*). The two size variables are providing the same information and, therefore, will be not entered in the regression equations simultaneously, though transformation into the natural logarithms decreases correlation to [0.762].

Another sign of the multicollinearity issue among the regressors, i.e., the high positive and significant correlation coefficient [$= 0.729$], is observed for the two asset variables, $FirmSizeTA_{it}$ and $Intangibles_{it}$. The strong correlation may result in the over-estimated regression coefficients and standard errors, and also lead to large changes in the coefficients of other regressor when the redundant variable is added into the equation. However, again the logarithmic transformation of both variables resolves the issue by decreasing the coefficient to [0.364]. Nevertheless, to allow for the meaningful interpretation of the modelled effects, the asset variables will be entered in the model and tested separately.

Since the extremely strong associations among the regressors have been detected, the degree of interdependence in the FDI determinants ought to be further examined in the Stata software with the *collin* programme developed by the UCLA Academic Technology Services (*Table 17*). The variance inflation factor analysis returns high VIF values for the two size measures $FirmSizeTA_{ij}$ and $Revenue_{ij}$, both exceeding the "rule of thumb" criteria [VIF < 2] for the individual regressors, and returning the small tolerance values, less than 0.1 (*Table 17-a*). The exclusion of either of the size measures

out of the model improves the average VIF from 1.99 to 1.73 (*Table 17-b*) or 1.72 (*Table 17-c*), as well as the other indicators of collinearity such as the eigenvalues, the condition number – to 13.85, and the determinant of the correlation matrix – from 0.012 to 0.043 (*Table 17-d*), suggesting that multicollinearity does not hamper the validity of the coefficient estimates.

The next chapter proceeds with a more informative analysis of the constructed variables and performs the univariate tests on all sets of the firm's attributes, to explore whether the networking strategies of the firms can be associated with FDI incidence, and also to illustrate the inherent difference in the accumulated resources, knowledge, technological capabilities, and institutional experience across the subsamples of the firms with the classic and hybrid equity structures.

Table 16:
The intercorrelations for the firms' specific attributes as the determinants of FDI propensity.

	Measures	[1]	[2]	[3]	[4]	[4a]	[5]	[6]	[7]	[8]	[8a]	[9]	[10]	[11]	[12]	[12a]	[13]	[14]
FDI propensity and prior FDI experience																		
[1]	FDIstatus	-																
[2]	ForSubNetwork	0.2176* [0.0000]																
[3]	FDIstatusBefore2002	0.1623* [0.0000]	0.9592* [0.0000]															
Firm's network structure																		
	EquityNetwork[a]	-	-															
Firm's size																		
[4]	FirmSizeTA	0.0079* [0.0000]	0.0115* [0.0000]	0.0085* [0.0000]														
[4a]	FirmSizeTA_ln	0.0670* [0.0000]	0.0295* [0.0000]	0.0225* [0.0000]	0.0063* [0.0000]													
[5]	FirmSizeEmp	0.2351* [0.0000]	0.3111* [0.0000]	0.2269* [0.0000]	0.0174* [0.0000]	0.0843* [0.0000]												
Firm's age and business experience																		
[6]	FirmAge	0.0268* [0.0000]	0.0107* [0.0000]	0.0074* [0.0000]	0.0007 [0.2667]	0.1798* [0.0000]	0.0628* [0.0000]											
[7]	FoundationGroup	-0.0157* [0.0000]	-0.0080* [0.0000]	-0.0054* [0.0000]	0.0000 [0.9973]	-0.1257* [0.0000]	-0.0365* [0.0000]	-0.7591* [0.0000]										
Firm's knowledge-intensity and technological level																		
[8]	Intangibles	0.1080* [0.0000]	0.0727* [0.0000]	0.0486* [0.0000]	**0.7289*** [0.0000]	0.0188* [0.0000]	0.0556* [0.0000]	0.0042* [0.0000]	-0.0023* [0.0001]									
[8a]	Intangibles_ln	0.2181* [0.0000]	0.0789* [0.0000]	0.0525* [0.0000]	0.0235* [0.0000]	**0.3642*** [0.0000]	0.1207* [0.0000]	0.1135* [0.0000]	-0.0953* [0.0000]	0.1140* [0.0000]								
[9]	Intangibility	0.0126* [0.0000]	0.0029* [0.0000]	0.0019* [0.0016]	0.0001 [0.9325]	-0.0244* [0.0000]	0.0006 [0.3084]	0.0079* [0.0000]	-0.0087* [0.0000]	0.0239* [0.0000]	0.3356* [0.0000]							
[10]	Patents	0.0005 [0.3321]	0.0003 [0.5100]	0.0002 [0.6103]	0.0000 [0.9769]	0.0183* [0.0000]	0.0049* [0.0000]	0.0159* [0.0000]	-0.0123* [0.0000]	0.0005 [0.3670]	0.0183* [0.0000]	-0.0002 [0.7079]						
[11]	PatentClass	0.0072* [0.0000]	0.0052* [0.0000]	0.0037* [0.0000]	0.0001 [0.8075]	0.1073* [0.0000]	0.0284* [0.0000]	0.1179* [0.0000]	-0.0892* [0.0000]	0.0051* [0.0000]	0.0965* [0.0000]	0.0021* [0.0006]	0.1307* [0.0000]					

Table 16:
Continued.

	Measures	[1]	[2]	[3]	[4]	[4a]	[5]	[6]	[7]	[8]	[8a]	[9]	[10]	[11]	[12]	[12a]	[13]	[14]
Firm's efficiency and productivity																		
[12]	Revenue	0.0465*	0.0599*	0.0406*	**0.9771***	0.0179*	0.1020*	0.0043*	-0.0024*	**0.7375***	0.0454*	0.0007	0.0004	0.0031*				
		[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.2631]	[0.4847]	[0.0000]				
[12a]	Revenue_ln	0.0612*	0.0282*	0.0218*	0.0057*	**0.7621***	0.0878*	0.1227*	-0.0651*	0.0174*	0.2703*	-0.0355*	0.0159*	0.0957*	0.0194*			
		[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]			
[13]	LProductivity	0.0008	0.0001	0.0001	0.0749*	0.0055*	0.0000	-0.0006	0.0006	0.0571*	0.0329*	-0.0001	0.000	0.000	0.1695*	0.0067*		
		[0.1793]	[0.8697]	[0.9036]	[0.0000]	[0.0000]	[0.9814]	[0.3367]	[0.3732]	[0.0000]	[0.0000]	[0.8903]	[0.9752]	[0.9572]	[0.0000]	[0.0000]		
[14]	ROA	-0.0010	0.0002	0.0004	0.0003	-0.1325*	-0.0040*	-0.0178*	0.0167*	0.0000	-0.0439*	-0.0067*	0.0000	-0.0066*	0.0006	0.0365*	-0.0001	
		[0.0861]	[0.6899]	[0.5193]	[0.6320]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.9662]	[0.0000]	[0.0000]	[0.9377]	[0.0000]	0.3168	[0.0000]	[0.8407]	
[15]	ProfitMargin	0.0135*	0.0078*	0.0065*	0.0085*	0.0214*	0.0057*	0.0055*	-0.0048*	0.0041*	0.0352*	0.0006	0.0024*	0.0044*	0.0060*	0.0263*	-0.0013*	0.5274*
		[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.3481]	[0.0001]	[0.0000]	[0.0000]	[0.0000]	[0.0473]	[0.0000]
Firm's sector and region																		
	Sector [a]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Region [a]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sample size																		
[number of firms]:		597,568																

Notes:

The diagonal entries are squared multiple correlations. *P-values* are provided in the parentheses.

The descriptions of the variables are provided in *Table 9*.

* Significant correlation at the *p-value* <= 0.05.

[a] Correlation indices for the nominal variables are not provided.

Table 17:

(a) The collinearity diagnostics with variance inflation factor (VIF) and tolerance.
[with all determinants of the FDI state]

Regressor variables	VIF	SQRT VIF	Tolerance	R-Squared
EquityNetwork	1.03	1.01	0.9744	0.0256
FirmSizeTA [a]	**3.72**	1.93	0.2687	0.7313
FirmSizeEmp	1.89	1.37	0.5304	0.4696
FirmAge	2.02	1.42	0.4939	0.5061
FirmAgeSqr	1.95	1.39	0.5141	0.4859
IntangibleFA [a]	1.10	1.05	0.9068	0.0932
Intangibility	1.00	1.00	0.9991	0.0009
Patents	4.13	2.03	0.2422	0.7578
PatentsSqr	4.05	2.01	0.2469	0.7531
PatentClass	1.08	1.04	0.9286	0.0714
Revenue [a]	**3.62**	1.90	0.2759	0.7241
LProductivity	1.41	1.19	0.7113	0.2887
ROA	1.41	1.19	0.7115	0.2885
ProfitMargin	1.39	1.18	0.7180	0.2820
Region	1.01	1.00	0.9905	0.0095
Sector	1.04	1.02	0.9615	0.0385
Mean VIF	**1.99**			

(b) The collinearity diagnostics with variance inflation factor (VIF) and tolerance.
[excluding *Revenue*]

Regressor variables	VIF	SQRT VIF	Tolerance	R-Squared
EquityNetwork	1.03	1.01	0.9744	0.0256
FirmSizeTA [a]	1.89	1.38	0.5287	0.4713
FirmSizeEmp	1.88	1.37	0.5325	0.4675
FirmAge	2.02	1.42	0.4940	0.5060
FirmAgeSqr	1.95	1.39	0.5141	0.4859
IntangibleFA [a]	1.05	1.02	0.9548	0.0452
Intangibility	1.00	1.00	0.9991	0.0009
Patents	4.13	2.03	0.2422	0.7578
PatentsSqr	4.05	2.01	0.2469	0.7531
PatentClass	1.08	1.04	0.9286	0.0714
LProductivity	1.00	1.00	0.9994	0.0006
ROA	1.41	1.19	0.7115	0.2885
ProfitMargin	1.39	1.18	0.7180	0.2820
Region	1.01	1.00	0.9905	0.0095
Sector	1.04	1.02	0.9616	0.0384
Mean VIF	**1.73**			

Table 17:

(c) The collinearity diagnostics with variance inflation factor (VIF) and tolerance.
[excluding *FirmSizeTA*]

Regressor variables	VIF	SQRT VIF	Tolerance	R-Squared
EquityNetwork	1.03	1.01	0.9744	0.0256
FirmSizeEmp	1.53	1.24	0.6521	0.3479
FirmAge	2.02	1.42	0.4941	0.5059
FirmAgeSqr	1.95	1.39	0.5141	0.4859
IntangibleFA [a]	1.10	1.05	0.9120	0.0880
Intangibility	1.00	1.00	0.9991	0.0009
Patents	4.13	2.03	0.2422	0.7578
PatentsSqr	4.05	2.01	0.2469	0.7531
PatentClass	1.08	1.04	0.9287	0.0713
Revenue [a]	1.84	1.36	0.5427	0.4573
LProductivity	1.22	1.11	0.8188	0.1812
ROA	1.41	1.19	0.7115	0.2885
ProfitMargin	1.39	1.18	0.7180	0.2820
Region	1.01	1.00	0.9905	0.0095
Sector	1.04	1.02	0.9616	0.0384
Mean VIF	**1.72**			

(d) The collinearity diagnostics with eigenvalues and condition index.
[excluding *FirmSizeTA*]

	Eigenvalue [b]	Condition Index [b]
1	3.8811	1.0000
2	1.8760	1.4383
3	1.7710	1.4804
4	1.3657	1.6858
5	1.0830	1.8930
6	1.0469	1.9254
7	0.9902	1.9797
8	0.9457	2.0259
9	0.8904	2.0878
10	0.8393	2.1504
11	0.4097	3.0777
12	0.3342	3.4076
13	0.2598	3.8654
14	0.1569	4.9738
15	0.1299	5.4663
16	0.0202	13.8497
Condition Number	13.8497	
Determinant of correlation matrix	0.0434	

Notes:

[a] Measured in absolute values.

[b] Eigenvalues and Condition Index computed from scaled raw sscp (w/ intercept).

CHAPTER 6. THE COMPARISON OF THE NON-INTERNATIONALISING RUSSIAN FIRMS AND THE MNES: THE SOURCES OF HETEROGENEITY IN FOREIGN DIRECT INVESTMENT

As the next step towards a thorough perscrutation of the data in the empirical *Chapters 7-11* which tests the specified transition probability models and presents the estimation results, the current chapter proceeds with a preliminary exploration of distributions in the constructed firm's attributes amid two subsamples of the firms: those with a domestic orientation and foreign direct investors. The detected spatial and industrial patterns would facilitate understanding of how the FDI incidence, accumulated resources, knowledge, and innovation capabilities vary across the regions and industries (*Section 6.1*), and whether the resources and capabilities are asymmetrically distributed among the identified classic and hybrid equity structures (*Section 6.2*), and how those differences evolve over time.

6.1 Detecting the spatial and industrial patterns among the domestic firms and MNEs

Although a small fraction of the firms in the sample, nearly 0.76%, invests abroad and switches to multinationality, the two types of the firms – i.e., those investing in the domestic market and multinational – are featured with a sharp regional and industrial heterogeneity. When depicting the geographic distribution in *Table 18*, a great concentration of the non-FDI firms can be noted in the three federal regions: Central Moscow region (40.62%), Volga region (17.01%), and Siberian region (11.23%). However, when the concentration of the Russian MNEs across the regions is estimated, a different trend can be observed. More than 68% of the firms investing abroad are located in the Moscow region, followed by the North-West region hosting nearly 17% of the parent firms with a foreign subsidiary. Thus, more than 85% of the Russian MNEs are located within a geographical proximity to their main FDI destination, – that is, the continental Europe. Moreover, the Central and North-West regions have been internationalising more rapidly under the statist regime reconstituted by the strong centralised state, compared to the geographically distant federal regions (*Table 19*), which were unable to catch up with the central regions concentrating the power, financial flows, technological resources, the most talented entrepreneurs, and the best educated managers.

Table 18:
The composition of the dataset by the federal regions.
[including the firms with known regional affiliation]

Federal regions:	**Non-Investors** number of observations: firms with domestic orientation [FDIstatus = **0**]	**%**	**Foreign Investors** number of observations: firms with foreign (FDI) activities [FDIstatus = **1**]	**%**	**Total number of observation**
Central	1,761,635	*40.62%*	2,879	*68.38%*	1,764,514
North-West	439,219	*10.13%*	714	*16.96%*	439,933
Ural	287,480	*6.63%*	160	*3.80%*	287,640
Volga	737,582	*17.01%*	198	*4.70%*	737,780
Far-East	172,415	*3.98%*	20	*0.48%*	172,435
South+Caucasus	451,253	*10.41%*	103	*2.45%*	451,356
Siberian	486,801	*11.23%*	136	*3.23%*	486,937
Total	**4,336,385**		**4,210**		**4,340,595**

Table 19:
The distribution of the firms changing their status from "Non-Investor" to "Foreign Investor" over time.
[2003–2011]

Federal regions:	The number of new MNEs and percentage to the total number of the firms with foreign subsidiaries for a given year															
	2011		**2010**		**2009**		**2008**		**2007**		**2006**		**2005**		**2004**		**2003**	
Central	2	*50%*	4	*100%*	2	*50%*	4	*57%*	6	*60%*	7	*58%*	11	*61%*	7	*47%*	8	*80%*
North-West	1	*25%*	0	*0%*	2	*50%*	2	*29%*	3	*30%*	4	*33%*	4	*22%*	3	*20%*	2	*20%*
Ural	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
Volga	0	*0%*	0	*0%*	0	*0%*	0	*0%*	1	*10%*	0	*0%*	1	*6%*	2	*13%*	0	*0%*
Far-East	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
South+Caucasus	1	*25%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*	1	*8%*	0	*0%*	2	*13%*	0	*0%*
Siberian	0	*0%*	0	*0%*	0	*0%*	1	*14%*	0	*0%*	0	*0%*	2	*11%*	1	*7%*	0	*0%*
Total	**4**		**4**		**4**		**7**		**10**		**12**		**18**		**15**		**10**	

Turning to the industrial heterogeneity, the relatively younger industries newly created and rapidly developed during the liberalisation period, clustered under "*Other services*" and "Wholesale and retail trade", prove to be most internationalised, representing more than 37% of the firms that invest abroad. The second significant contributor to the outward foreign investment is the "*Banking*" sector with more than nearly 16%, followed by the wholesale and retail trade with 12% of the investing firms (*Table 20-a*). Interestingly, when the percentages of the foreign investors and non-investors are compared, they show that apart from the "*Banking*" sector, other industries with a small number of firms operating in the market appear to be relatively more internationalised (via FDI): a greater proportion of the firms in the "*Insurance*", "*Metals*", "*Machinery*", "*Chemicals*", the utility and primary sectors transit towards

multinationality and establish foreign subsidiaries. Since the firms in the wood, textile, telecommunication, health and education industries, and also public administration sector are predominantly oriented on the domestic market, and no firms with foreign subsidiaries could be observed, for the modelling purpose all industries will be clustered in the three traditional sectors (*Table 20-b*).

Table 20:

(a) The composition of the dataset by industrial affiliation.

Industry codes: 1 – Primary sector 2 – Manufacturing 3 – Services	**Non-Investors** number of observations firms with domestic orientation [FDIstatus=**0**]	**%**	**Foreign Investors** number of observations: firms with foreign subsidiaries [FDIstatus=**1**]	**%**	**Total number** of observation	**% of Foreign Investors** in the industry
1 – Primary sector	292,037	*6.73%*	182	*6.90%*	354,230	0.06%
2 – Gas, water, electricity	50,380	*1.16%*	53	*2.01%*	68,860	0.11%
2 – Wood, paper	35,669	*0.82%*	0	*0.00%*	47,640	0.00%
2 – Metals & metal products	68,524	*1.58%*	220	*8.34%*	91,960	0.32%
2 – Chemicals, plastics	102,342	*2.36%*	191	*7.24%*	134,320	0.19%
2 – Machinery	183,750	*4.24%*	251	*9.51%*	234,230	0.14%
2 – Textiles	36,323	*0.84%*	0	*0.00%*	44,130	0.00%
2 – Food, beverages, tobacco	82,834	*1.91%*	69	*2.61%*	101,160	0.08%
2 – Construction	483,263	*11.14%*	97	*3.68%*	660,610	0.02%
3 – Transport	182,548	*4.21%*	120	*4.55%*	255,600	0.07%
3 – Banks	54,430	*1.25%*	416	*15.76%*	79,070	0.76%
3 – Wholesale & retail trade	1,715,100	*39.54%*	314	*11.90%*	2,544,300	0.02%
3 – Telecommunications	2,296	*0.05%*	0	*0.00%*	3,260	0.00%
3 – Publishing	60,564	*1.40%*	30	*1.14%*	74,630	0.05%
3 – Hotels & restaurants	96,816	*2.23%*	10	*0.38%*	130,840	0.01%
3 – Education, health	64,013	*1.48%*	0	*0.00%*	74,410	0.00%
3 – Insurance companies	536	*0.01%*	20	*0.76%*	720	3.73%
3 – Public administration	2,901	*0.07%*	0	*0.00%*	3,740	0.00%
3 – Other services	823,336	*18.98%*	666	*25.24%*	1,072,190	0.08%
Total	**4,337,662**		**2 639**		**4 340 301**	
(b) Clustering the dataset by three sectors:						
1 – Primary	292,037	*6.73%*	182	*6.90%*	292,219	
2 – Manufacturing	559,822	*12.91%*	784	*29.71%*	560,606	
3 – Services	3,485,803	*80.36%*	1 673	*63.40%*	3,487,476	
Total	**4 337 662**		**2 639**		**4 340 301**	
(c) Clustering the dataset by the firm's size:						
Small firms [10 – ≤ 50 employees]	2,011,392	*79.05%*	206	*18.41%*	2,011,598	
Medium firms [51 – ≤ 100 employees]	252,719	*9.93%*	48	*4.29%*	252,767	
Large firms						
[101 – ≤ 200 employees]	133,109	*5.23%*	67	*5.99%*	133,176	
[201 – ≤ 500 employees]	113,355	*4.46%*	180	*16.09%*	113,535	
[> 500 employees]	33,773	*1.33%*	618	*55.23%*	34,391	

It is also interesting to observe that among all the firms, those firms investing abroad and establishing foreign subsidiaries ($FDIstatus_{it} = \mathbf{1}$) outperform the non-investors across all the firm's attributes, as depicted in *Table 21*. The firms that change their FDI status and transit to multinationality tend to record: (1) a greater firm's age, (2) significantly larger accumulated assets and human resources, (3) significantly greater knowledge-intensity and technological capabilities, though the difference in the registered patents appears insignificant, (4) significantly higher total revenue, gross profits, and cash flows, (5) higher profitability and a greater efficiency in the capital investment, though surprisingly nearly the same efficiency of assets, in contradiction to the argument dominant in the IB research on the superior efficiency of multinational firms.

Table 21:
The comparison of the domestically-oriented and investing abroad firms across the firm-specific characteristics: the mean values and standard deviations of the variables.

	Non-Investors [FDIstatus=**0**]			**Foreign Investors** [FDIstatus=**1**]			Comparison of firms with and without foreign subsidiaries: ***t-test***	
IVs:	Frequency	**Mean**	SD	Frequency	**Mean**	SD	*differences in means*[b]	*p-values*[c]
FirmAge	4,337,421	**8**	7	2,638	**18**	21	10	*<0.00005*
FirmSizeEmp	2,544,348	**62**	814	1,119	**13,348**	48,297	13,287	*<0.00005*
FirmSizeTA[a]	2,886,551	**20,639**	27,400,000	1,866	**7,463,948**	35,900,000	7,443,309	*<0.00005*
IntangibleFA[a]	2,886,180	**48**	27,950	1,601	**123,349**	583,018	123,300	*<0.00005*
Intangibility	2,783,074	**0.0029**	0.0000	1,591	**0.0214**	0.0015	-0.0185	*<0.00005*
Patents	4,337,961	**0.5**	23	10,939	**0.8**	9	0.3	*0.3321*
Revenue[a]	2,886,730	**5,692**	1,486,975	1,866	**2,472,095**	10,100,000	2,466,404	*<0.00005*
Profit[a]	2,886,730	**4,063**	6,498,441	1,866	**497,010**	2,651,149	492,947	*0.0001*
ProfitMargin	2,635,447	**3.515**	17.487	1,706	**13.827**	21.842	10.312	*<0.00005*
LProductivity	2,544,348	**116**	47.650	1,119	**4,012**	1,193	-3,895	*0.0865*
ROA	2,754,664	**9.924**	24.387	1,825	**9.133**	16.666	-0.791	*0.0861*
ROCE	482,807	**50.221**	122.804	1,241	**24.365**	56.630	-25.856	*<0.00005*
CashFlow[a]	114	**144,955**	275,418	435	**1,738,533**	4,966,737	1,593,578	*0.0007*

Notes:

[a] Measured in absolute values.

[b] The differences in the mean values of the firms' attributes between the two subsamples of the firms: with and without foreign subsidiaries.

[c] The significance of the differences in the mean values is estimated with the two-sample *t-test*.

6.2 The comparison of the hybrid equity networks across firm-specific attributes

The significant heterogeneity can also be noted among the equity type groups (*Table 22*). The shift in the state building agenda was indeed conducive to garnering a greater amount of resources by the firms with the tight equity relations with the state (SOEs), which also tend to have a longer business experience (as measured with the firm's age) and hire a greater number of employees.

Table *22*:

The comparison of the private firms versus the firms with equity ties with the state across firm-specific characteristics: the mean values, standard deviations of variables, and *t-test* of differences in means.

	POEs [EquityNetwork=1+2]			**SOEs** [EquityNetwork=3+4]			Comparison of SOEs vs. POEs: ***t-test***	
IVs:	Frequency	**Mean**	SD	Frequency	**Mean**	SD	*differences in means*[b]	*p-values*[c]
FirmAge	4,226,055	**7**	7	114,004	**13**	10	5.391	*<0.00005*
FirmSizeEmp	2,467,376	**60**	798	78,091	**301**	6,110	241	*<0.00005*
FirmSizeTA[a]	2,798,648	**21,745**	27,800,000	89,769	**140,854**	5,220,464	119,108	*0.1994*
IntangibleFA[a]	2,798,151	**84**	30,005	89,630	**1,129**	58,212	1,045	*<0.00005*
Intangibility	2,695,436	**0.0029**	0.0368	89,229	**0.0027**	0.035	0.0001	*0.1199*
Patents	4,234,676	**0.4**	23	114,224	**1.9**	28	1.5	*<0.00005*
Revenue[a]	2,798,827	**6,219**	1,514,181	89,769	**40,500**	1,372,553	34,280	*<0.00005*
Profit[a]	2,798,827	**4,299**	6,599,750	89,769	**6,948**	361,222	2,649	*0.9043*
ProfitMargin	2,552,504	**3.673**	17.350	84,649	**-1.032**	20.827	-4.705	*<0.00005*
LProductivity	2,467,376	**119.978**	49.139	78,091	**57.248**	3.477	-62.731	*0.8203*
ROA	2,670,522	**10.131**	24.388	85,967	**3.503**	23.330	-6.628	*<0.00005*
ROCE	467,847	**51.600**	123.670	16,201	**8.397**	79.105	-43.203	*<0.00005*
CashFlow[a]	350	**901,398**	2,265,738	199	**2,297,977**	6,706,328	1,396,580	*0.0004*

Notes:

[a] Measured in absolute values.

[b] Differences in the mean values of the firms' attributes between the two subsamples of the firms: POEs and SOEs. Both subgroups include the foreign-invested enterprises belonging to the corresponding category: FI-POEs and FI-SOEs.

[c] Significance of differences in the mean values estimated with the two-sample *t-test*.

It is, however, interesting to note that the Russian SOEs oppose the established opinion on the slack in abilities and motivation for technological advancement and fluid learning among the state-owned firms. The tested evidence on the relative investment in intangible assets and the development of patents reveal that the equity ties with

the strong state, reconstituting the financial and resource capacity, facilitate the accumulation of knowledge stock and the rise in technological innovativeness (as measured with the number of registered patents). The SOEs tend to be more inventive in learning and more knowledge-oriented compared to the firms founded by private entrepreneurs, preliminary supporting the arguments developed in *Chapter 3.2*. Despite the state-owned firms report nearly twice higher average gross profits and generate significantly higher revenue and cash flow available for investment, the private firms tend to outperform the SOEs in profitability. As expected, the private firms appear to be more cost efficient, what, with a lower absolute average profit, results in the higher profit margins. The private firms also seem to be more efficient in deploying the assets and invested capital, and on average report a higher return on assets and capital employed, while the difference in labour productivity was found insignificant.

Once the equity category presenting the ties within the extra-state networks is introduced in *Table 23*, it can be observed that the best performing firms, and as well as the largest, most experienced in coordinating business operation in various institutional environments, and most technologically advanced firms in the both private and state subgroups, do have foreign firms among the shareholders. Although the comparison of the subsamples is not ascertaining the causality, the equity relations with foreign firms, however, seem to yield greater complementarities in the accumulated resource and competencies, enriching the learning strategies of the firms successful in the extra-state networking strategies with new expertise valuable in the foreign markets. The relational benefits or rents, in their turn, might potentially improve the efficiency and orient the investment strategies of the firms with the extra-state equity ties, both private and state, towards the foreign markets and increase the likelihood of their foreign expansion via FDI, – though still a subject to a more rigorous test in the proceeding sections.

When comparing the two hybrid structures with foreign ties (FI-POEs and FI-SOEs), interesting to note that the complementarities of the foreign and state resources and investment incentives within the triad equity networks seem to be most effective in increasing the technological advantages of the firm, which results in a higher number of implemented patents and a greater innovation efficiency. In addition, the hybrid arrangements also change the firm's attitudes towards firm's reputation and marketing programmes, which are traditionally weak among Russian firms, through a more intensive investment in intangible assets. The foreign shareholders, at the same time, tend to select the best performing firms with strongly established competitive advantages in the industries with higher rent-generating opportunities.

Table 23:

The comparison of the classic and hybrid equity structures and networking strategies across the firm-specific characteristics: the mean values, standard deviations of the variables, and the *anova* test of differences in means.

	Classic with or without informal networks: **Private firms (POEs)**			**Dyadic Hybrid** within extra-state equity networks: **POEs with foreign equity ties (FI-POEs)**			Comparison by four network categories: ***anova test***	
IVs:	Frequency	**Mean**	SD	Frequency	**Mean**	SD	*differences in means*[b]	*p-values*[c]
FirmAge	4,112,097	**7**	6	113,958	**8**	11	0.304	*<0.00005*
FirmSizeEmp	2,401,575	**56**	738	65,801	**212**	1,998	156	*<0.00005*
FirmSizeTA[a]	2,720,553	**4,036**	149,349	77,598	**641,844**	167,000,000	637,808	*<0.00005*
IntangibleFA[a]	2,798,151	**55**	17,636	89,630	**1,107**	146,825	1,052	*<0.00005*
Intangibility	2,619,197	**0.0029**	0.0369	76,239	**0.0033**	0.0347	0.0004	*0.008*
Patents	4,120,627	**0.4**	23	114,049	**0.7**	14	0.3	*0.001*
Revenue[a]	2,721,121	**4,305**	215,378	77,706	**73,265**	8,997,357	68,960	*<0.00005*
LProductivity	2,401,575	**111.129**	78,017	65,801	442.985	35,442	331.856	*1.000*
ROA	2,594,924	**10.242**	24.447	75,598	**6.318**	21.907	-3.924	*<0.00005*
Profit[a]	2,721,121	**245**	49,835	77,706	**146,288**	39,607,375	146,043	*<0.00005*
ProfitMargin	2,485,733	**3.651**	17.200	66,771	**4.469**	22.221	0.818	*<0.00005*
Number of Foreign Investors	observations: **9,756** in the subsample of POEs: **0.0024%**			observations: **432** in the subsample of FI-SOEs: **0.0038%**				
	Dyadic Hybrid within intra-state equity networks: **SOEs**			**Triad Hybrid** within extra-state equity networks: **SOEs with foreign equity ties (FI-SOEs)**				
FirmAge	113,004	**13**	10	1,000	**20**	22	7.310	*<0.00005*
FirmSizeEmp	77,423	**186**	2371	668	**13,628**	59,484	13,442	*<0.00005*
FirmSizeTA[a]	88,958	**91,792**	4,140,018	811	**5,522,420**	33,297,515	5,430,628	*<0.00005*
IntangibleFA[a]	88,830	**999**	57,368	800	**15,524**	118,417	14,525	*<0.00005*
Intangibility	88,433	**0.0027**	0.0352	796	**0.0034**	0.0174	0.0007	*1.000*
Patents	113,214	**1.9**	27.7	1,010	**2.2**	11	0.3	*0.064*
Revenue[a]	88,958	**20,446**	480,772	811	**2,240,120**	13,400,000	2,219,673	*<0.00005*
LProductivity	77,423	**56.689**	975.111	668	**122.066**	418.781	65.377	*1.000*
ROA	85,164	**3.458**	23.347	803	**8.272**	20.921	4.815	*<0.00005*
Profit[a]	88,958	**2,413**	93,805	811	**504,436**	3,639,250	502,023	*0.171*
ProfitMargin	83,899	**-1.105**	20.786	750	**7.064**	23.647	8.169	*0.132*
Number of Foreign Investors	observations: **681** in the subsample of SOEs: **0.0061%**			observations: **70** in the subsample of FI-SOEs: **0.0745%**			the total number of observations: **10,939**	

Notes:

[a] Measured in absolute values.

[b] The differences in the firms' attributes means among the four subsamples: the POEs, two dyadic hybrid network categories (FI-POEs and SOEs), and one triad network (FI-SOEs).

[c] The significance of the differences in the mean values between all combinations of the four equity categories is evaluated with the *Bonferroni* test, after the analysis of variance with the *anova* command.

With this in mind, the two financial ratios, ROA and profit margins, particularly arouse interest. The state-owned firms, on average, appeared to have the significantly lower asset efficiency and profitability, when compared to the private firms. The equity ties with foreign firms, however, seem to enhance the firm's efficiency and profitability to the level significantly above the average in the SOEs category and even above the best performing private firms, which may also indicate that the foreign investors might be greatly experienced in selecting the most efficient firms with the strongest market potential. With the only exception for labour productivity, the resource and capability exchange within the triad hybrid equity networks yields the greatest potential for the shared investment in foreign markets, which will be rigorously tested in the subsequent chapter.

CHAPTER 7. THE EFFECT OF THE NETWORKING STRATEGIES AND FIRM-SPECIFIC ATTRIBUTES ON THE FDI TRANSITION PROBABILITY OF THE RUSSIAN FIRMS

To enhance understanding of the decision of the EM firms to switch to multinationality and assess the underlying casual effects exerted by the firm's networking strategies and specific attributes, the data analysis ultimately attains to the rigorous econometric estimation of the FDI transition probability and count models, which theoretical setup was motivated in *Chapters 2* and *3*, and formulated mathematically in the preceding *Chapter 4*.

The present and all consequent empirical chapters follow a twofold approach in: (1) striving to accomplish a comprehensive cycle of model-building to rigorously and unbiasedly test the developed time-continuous models of the FDI transition (*Section 7.1*), and (2) developing the implications for the IB theories basing on the obtained empirical evidence (*Section 7.2*).

Section 7.1 constitutes a starting point for the data analysis, endeavoured in the current research, and implements the crucial steps of model-building strategy, which were developed in *Chapter 4.4*. The developed algorithms are implemented to test the model on the initial decision of the Russian firms to undertake a strategic change and switch to multinationality, and with this to address the hypotheses **H1a** and **H5a-b**. A series of distinctive modelling methods, designed in *Chapter 4.1*, is applied to control for the rare event bias in predicted probabilities of the FDI transition event, as well as to yield an unbiased interpretation of non-constant marginal effects.

On the basis of the obtained empirical evidence, *Section 7.2* of the present chapter attempts to clarify the omissions and strengths of the conventional IB approaches in relation to the initial decisions of the Russian firms to establish a foreign subsidiary, connecting and enriching those with the arguments from the political science and the literature on inter-organisational relations. The discussion contributes to the IB literature with constructing a more complete portfolio of advantages exploited by the EM firms in the foreign markets, which is emphasised in the conclusion.

7.1 The estimation of FDI transition probability models and the interpretation of results

The present section starts the data analysis with building the initial model of the firm's decision to transit to multinationality, scrutinised against the sample of the Russian firms. Having designed the crucial steps of modelling strategy (*Chapter 4.4*), the developed algorithms are implemented to obtain the estimation results for the initial FDI transition probability model in *Section 7.1.1*.

In order to verify the validity of obtained initial probability of the Russian firms to switch in their FDI status, the initial *logit* specification of the FDI transition model is contrasted against the alternative functional links, designed to correct for the rare event bias in predicted probabilities of the FDI transition event (*Section 7.1.2*). The computation and interpretation of predicted probabilities and marginal effects, presented in *Section 7.1.3*, are corrected for non-constant effects frequently overlooked in the IB studies, which improves the interpretation of estimated effects and facilitates an unbiased judgement on the hypotheses **H1a** and **H5a-b**.

7.1.1 The estimation of the time-continuous FDI transition probability model: the effects of networking strategies when controlling for firm-specific attributes

The formal modelling effort commences with an estimation of the initial FDI transition probability model, specified in the preceding *Chapter 4.1*, on the whole sample of the Russian firms that comprises 4,348,900 firm-year observations. This model is designed with the time-variant dependent variable, $FDIstatus_{it}[\mathbf{0} \rightarrow \mathbf{1}]$, denoting the two-state FDI status of the individual firms at a particular point of time and its change over time period. The modelling process follows the comprehensive cycle of the parameter estimations, the diagnostics and the selection of the final model among the alternative specifications, as was explained in *Chapter 4.4*.

The complete outcome of the first step of the modelling process, – the log-estimates of the *random effect panel logit regressions*, – is provided in *Appendix*. *Table 7.A.1* (panels *a*, *b*, *c*, and *d*) in *Appendix* reports the results of estimating the nested Models (1)–(31), with the depended variable measured in the probability metric, rather than in the odds metric. The equation with the four equity networking categories of

$EquityNetwork_{it}$ was considered as the initial model (M1), estimated without covariates. Other theory-determined firm-specific attributes were sequentially selected and introduced into the FDI transition probability model, basing on descending order of the available (non-missing) values, in order to minimise the loss in observations for each of the tested Models (2)–(31). This approach allows to rigorously compare the estimates across the regressed nested and non-nested models, which facilitates the choice among the alternative firm's size and knowledge-intensity measures and combinations of the variables and helps to identify the most efficient model specification.

The final models are reported in *Table 24* of this subsection. The obtained estimates indicate that the firm-related factors not only significantly affect the propensities of the Russian firms to transit to the FDI state over time, but also that the model estimates are greatly consistent with the predicted direction, though with a few exceptions. All detected relationships are explained accordingly in the following paragraphs, starting with the effects of key variable: i.e., the intra-state and extra-state networking strategies of the Russian firms on their FDI transition probabilities, which constitute the prime interest for the present section (**H1a** and **H5a-b**).

The estimation of the key variable of $EquityNetwork_{it}$.

The coefficients of the key variable, $EquityNetwork_{it}$, have returned the expected signs for all "equity network categories", confirming the overall positive effect of the hybrid networks created by the Russian firms on their probability of switching to the "Foreign Investor" status, which remains consistently significant across all the estimated specifications of Models (1)–(31) (*Table 7.A.1*, Appendix). The comparison of the coefficients for the individual networking categories **[2]**, **[3]**, and **[4]** against the referenced classic solely private equity structure **[1]** reveals that all three hybrid equity modes of networking with the state and foreign capital are favourable for engaging in FDI, though with the differential magnitudes. All estimated models suggest that the effect of the state's participation in the firm's equity (i.e., dyadic state-business equity networks, category **[3]** *"SOEs"*) significantly enhances the probability of the firm's transition to multinationality, herewith, confirming the hypothesis **H1a**.

The positive and significant effect can also be observed within the extra-state networks with participation of foreign capital, though it reveals a different nature for the two network configurations: FI-POEs and FI-SOEs. The dyadic equity networks between the private domestic and foreign owners (category **[2]** *"FI-POEs"*) enhance

the firm's initial transition to multinationality, providing the partial support for the hypothesis **H5a.** Interestingly, the magnitude of the effect of the dyadic networks with the state ("SOEs") and the dyadic networks with foreign firms ("FI-POEs") fluctuates slightly across the alternative model specifications.

For instance, the inclusion of the $FirmAge_{it}$, $FirmSizeEmp_{it}$, and $LProductivity_{it}$ measures decreases the contribution of intra-state networking relatively to dyadic extra-state networking with foreign owners: i.e., the coefficients of the category **[2]** *"FI-POEs"* are lower than the coefficients of the category **[3]** *"SOEs"*. It indicates the potential confounding or indirect effect of the firm's networks on the FDI transition probability, examined in a greater detail and formally tested in the subsequent *Chapter 8.1.*

The creation of more complex hybrid equity structures, which complement the intra-state and extra-state networking strategies within the firm's boundaries (i.e., category **[4]** *"FI-SOEs"*), proved to be most influential explanatory variable. The strong positive effect among the FI-SOEs reveals a significant *supermodality* emerging within the triad hybrid structures, when the equity relations with the state are complemented with the extra-state networking, herewith ultimately confirming the hypothesis **H5a**.

The coefficients of the category **[4]** *"FI-SOEs"* are consistently greater across all estimated Models (1)–(31), when those are contrasted to the coefficients of the category **[2]** *"FI-POEs"*. The superior performance of triad hybrid networks (FI-SOEs) prompts to conclude that the equity ties with foreign firms significantly increase the propensity of both private and state-owned firms to make the first move into a foreign market, though in a greater degree for the firms with state participation (FI-SOEs); therefore, the hypothesis **H5b** is also supported.

The differential effects across the four networking strategies can be potentially caused by a variety of reasons and call for an in-depth investigation of potential confounding: whether the observed differences in the network effects are facilitated via resource- and knowledge-building within hybrid network (i.e., *indirect networking effect*, as conceptualised in *Table 1*), or via direct incentives provided by the state and foreign owners for a prompt transition to the FDI status of the firm (i.e., *direct networking effect*, *ibidem*). The rigorous testing of both networking effects is elucidated in the following *Chapter 8.1.*

The estimation of the control variables.

After the discussion of the effects exerted by the key variable, the attention needs to be returned to other covariates, for their behaviour defines the selection of the final model. For convenience, the effects of the control variables are discussed in the order as they added into Models (1)–(31) (*Table 7.A.1*, Appendix).

Firm's Age:

The significant and positive coefficients across all Models (2)–(31) for the length of the firm's operations, approximated with $FirmAge_{it}$, are consistent with the theoretical predictions that the firm's experience hastens the developments of the routines in the firm's behaviour portfolio, abating the transaction costs and changing the risk attitudes in favour of international expansion. The negative sign for the squared firm's age term, $FirmAgeSqr_{it}$, can be taken as a strong evidence that the accumulation of experience by the firm is non-monotonic (*Table 24-a*).

The Russian firms seem to acquire the knowledge and practices that are crucial for their competitiveness in foreign markets most intensively during the first years of their operations in the domestic market. It might be particularly true for the relatively "young" firms newly established during the initial wave of the organisation founding (1991–2000) and the post-reform period after 2001 (categories **[2]** and **[3]** in $FoundationGroup_{it}$, *Table 37*), which might have been initially founded with the distinct intentionality of undertaking the foreign operations in collusion of the dominant economic and political powers and have been receiving the additional state guarantees and funding to support their expansion strategies. Therefore, the importance of the institutional experience obtained by the firms created during the three distinct political and reformation periods, and its interaction with networking strategies, is more rigorously explored in *Chapter 10.1*.

Firm's Patents:

The panel (*a*) of *Table 24* reveals that the inclusion of the number of patents as a measure of technological capabilities of the firms, $Patents_{it}$, does not significantly improve the fit of Model (4), as evidenced by the LR test [$LR\ chi^2 = -39;\ p > 0.1$]. Neither controlling for non-monotonic ($\cap - shape$) relations between the technological capabilities of the firms and their FDI transition probability, measured with $PatentsSqr_{it}$, improves the explanatory power of Model (5) [$LR\ chi^2 = -70.48;\ p > 0.1$]. The weak performance of the $Patents_{it}$ variable may indicate that it was measured

incorrectly, as the only value available for 2011 was extrapolated back on all the years and, hence, kept constant over the whole period. For this reason, the alternative measure of the firms' technological capabilities, $PatentClass_{it}$, is preferred and retained in the subsequent Models (7)–(28), because its inclusion significantly improves the fit over the constrained Model (6) [$LR\ chi^2 = 512.36;\ p < 0.00005$] and provides very strong evidence for favouring the $PatentClass_{it}$ measure against $Patents_{it}$:

$$[\Delta BIC = BIC_{M(6)} - BIC_{M(5)} = 5{,}567.27 - 6{,}049.18 = -481.91 = |481.91| > 10].$$

However, since the coefficients of the both variables $Patents_{it}$ and $PatentsSqr_{it}$ appear significant in Model (5), the results of the final model will be also verified by inclusion of the $Patents_{it}$ measure and its quadratic term in Models (29)–(31), in order to confirm the positive effect of the innovativeness of the firms onto their FDI propensity.

The effect of the technological level of the firms, as measured with $PatientClass_{it}$, is positively related with the propensity to invest, indicating that the firms, which are most likely to become multinational, are capable to take an advantage of the technological superiority that results from the innovation activities; or the other way round: the innovations developed by the Russian firms or shared within the intra-state or extra-state equity networks confer the firms with a competitive advantage in the foreign markets. Thereby, the most research-oriented and innovative firms choose to diversify and expand in the foreign markets. Interestingly, the effect of the patents registered in the domestic market (category **[2]** of $PatientClass_{it}$) significantly higher than the effect of obtaining the patents registered with the international agencies (category **[3]**) across all Models, expect for Models (15), (16), and (27) where the coefficient of category **[2]** is insignificant.

Firm's Industry and Region:

Interesting to note that the addition of the sector and region variables in Models (7) and (8), have inflated the size of coefficients especially for the triad hybrid networks complementing the state and foreign investment capacities (category **[4]**, "*FI-SOEs*"). Although the null hypothesis of irrelevance of the industrial and regional affiliation for the FDI transition probability model is not rejected with the LR test: [Model (7): $LR\ chi^2 = -81.38;\ p > 0.1$] and [Model (8): $LR\ chi^2 = -182.8;\ p > 0.1$], the $Region_{it}$ and $Sector_{it}$ variables are retained in the model, since both contribute to the explanatory power of Models (7) and (8), as evaluated with the *McKelvey* and *Zavoina's pseudo-*R^2 [0.67 and 0.61 accordingly]. Moreover, it is conceptually important to

control for the industrial and regional heterogeneity in the firm's investment decisions. The direction of the effects across the $Region_{it}$ categories reveals the backwardness of the non-central regions compared to the central Moscow region (reference category [1]), which proved to be significantly more internationalised. The only region outside of the central Moscow authority that has a potential to compete on FDI is the North-West: it returns the positive, though insignificant, coefficients across of Models (13)–(31).

While in neither of the models the industrial affiliation of the firms, $Sector_{it}$, proved to be significant, the negative sign of the coefficients, nonetheless, indicates that the firms from the "young" newly-emerged industries, founded predominantly during the two reformation periods (as conceptualised in *Table 3*), are less prone to transit to multinationality, compared to the firms in the long-developed and mature industries, such as the natural resource and manufacturing sectors. The significant positive coefficients of the manufacturing sector category **[2]**, in Models (16), (21), (29), and (31), can be taken as a partial evidence that the manufacturing firms have been more capable in restructuring and adapting to the new market environment, which might be positively related with the propensity to invest abroad. The negative coefficients of the service sector category **[3]** gained significance only in the specification of Models (9), (15), (18), (27), and (28).

Firm's Intangible Assets:

The panel (*b*) of *Table 24* provides a formal test of the theoretical proposition on the heterogeneity in learning strategies invented by the Russian firms, which prove to be of a great relevance for their FDI decisions. The firms with a steeper learning curve are indeed more likely to transit to multinationality, as confirmed with the positive and significant coefficients of $Intangibles_{it}$ in Models (9) and (11), which retained the significance across all the model specifications. The importance of the knowledge accumulation for the firm's FDI propensity is also confirmed with the positive and significant coefficients of the knowledge-intensity measure, $Intangibility_{it}$, consistently improving the fit of the FDI transition probability Models (10) and (12), and hence enhancing the propensities of the Russian firms to involve in international venturing.

The direction of influences exerted by the firm size (*Table 24-c*), measured with the total assets, the number of employees and the firm's revenue (all log-transformed), is positive and as strong as expected. The consistent effect of all size variables confirms that more skilful firms in garnering the assets, managing human capital, and competing in the market are also endowed with superior investment capacities in undertaking large

ventures and extending firm's boundaries in the foreign markets without undue risks, and thereby more likely to transit to multinationality. The tested effects of the size measures have been verified across the alternative specifications: with $Intangibles_{it}$ in Models (13)–(15) and $Intangibility_{it}$ in Models (16)–(18), all of which remained consistent and returned the positive and significant estimates. The addition of the $FirmSizeTA_{it}$ measure in Models (13) and (16) led to a significant improvement in the model fit, as evident from the significant LR tests: [Model (13): $LR\ chi^2 = 595.74$; $p < 0.00005$] and [Model (16): $LR\ chi^2 = 524.27$; $p < 0.00005$].

This conclusion is also supported by the absolute differences in the Bayesian information criteria across the models:

$$[\Delta BIC = BIC_{M(13)} - BIC_{M(11)} = 3{,}704.02 - 4{,}284.89 = -580.87 = |580.87| > 10],$$
$$[\Delta BIC = BIC_{M(16)} - BIC_{M(12)} = 3{,}760.17 - 4{,}269.59 = -509.42 = |509.42| > 10],$$

and the markedly increased *McKelvey* and *Zavoina's pseudo-R²*: [0.21] and [0.25] for Models (13) and (16) accordingly.

Firm's Size:

In the case of the log-transformed $Revenue_{it}$ variable, the *McKelvey* and *Zavoina's pseudo-R²*, has increasing to [0.21] in Model (15), which indicates a slight efficiency gain over Models (13) and (14) specified with the alternative firm's size measures. The smaller values of the AIC and BIC in both Models (15) and (18) provide the positive and strong evidence to favour the inclusion of the $Revenue_{it}$ variable:

$$[\Delta BIC = BIC_{M(15)} - BIC_{M(11)} = 3{,}651.33 - 4{,}284.89 = -633.56 = |633.56| > 10],$$
$$[\Delta BIC = BIC_{M(18)} - BIC_{M(12)} = 3{,}785.58 - 4{,}269.59 = -484.01 = |484.01| > 10].$$

Although the estimates of the human capital measure, $FirmSizeEmp_{it}$, after applying the logarithmic transformation, confirm the significant and positive relationship between the number of employees of the parent firms and their foreign direct investment propensities in Models (14) and (17), its addition has weakened the explanatory power of the FDI transition probability model, decreasing the *McKelvey* and *Zavoina's pseudo-R²* to [0.11] and [0.14] accordingly. Interestingly, controlling for the effect of human capital changed the relative importance of the equity networking strategies: having a greater number of employees partly confounded the magnitude of the FDI effect of establishing the equity ties with the state (category [**3**] "*SOEs*" of $EquityNetwork_{it}$), which proved to be relatively lower than the effect of the extra-state

networking (category **[2]** "*FI-POEs*" of $EquityNetwork_{it}$) in Models (14) and (17). The models with the $FirmSizeTA_{it}$ and $Revenue_{it}$ measures, contrariwise, reveal a relative superiority of a tighter cooperation with the state for transition in FDI status.

Firm's Efficiency:

The inclusion of the firm's efficiency measures in the panels (*d*) and (*e*) of *Table 24*, however, yielded rather contradictory evidence. Despite the theoretical presumptions in the IB literature regarding the firm's heterogeneity, the effect of the firm's labour productivity, $LProductivity_{it}$, on its FDI propensity is negative in Models (20) and (26), specified with $FirmSizeTA_{it}$ and $Revenue_{it}$ accordingly, and insignificant in Model (23). The LR tests also confirmed irrelevance of the $LProductivity_{it}$ measure for the firm's probabilities of the transition in the FDI status in the specifications of Model (23) [$LR\ chi^2 = -0.01;\ p = 1.000$] and Model (26) [$LR\ chi^2 = -29.78;\ p = 1.000$]. This finding points at the possible confounding effect with the $FirmSizeTA_{it}$ and $Revenue_{it}$ variables, used in the construction of the $LProductivity_{it}$ measure. Neither the comparison of the information criteria favours the specification of Models (23) and (26), for both AIC and BIC values decrease only in the specification of Model (20), which is preliminary retained as the final FDI transition probability model:

$$[\Delta BIC = BIC_{M(20)} - BIC_{M(13)} = 3{,}242.46 - 3{,}704.02 = -461.56 = |461.56| > 10],$$
$$[\Delta BIC = BIC_{M(23)} - BIC_{M(14)} = 3{,}608.85 - 3{,}594.09 = 14.76 \rightarrow increase\ in\ BIC],$$
$$[\Delta BIC = BIC_{M(26)} - BIC_{M(15)} = 3{,}694.85 - 3{,}651.33 = 43.52 \rightarrow increase\ in\ BIC].$$

When measured with the return on assets, the firm's efficiency exerts a statistically significant effect on the firm's FDI probability across all models; however, only in Models (21) and (24), ROA_{it} has predicted a positive sign. Its inclusion into Model (27) (*Table 24-e*) on opposite indicates that the asset efficiency is negatively related to the foreign investment probability and does not add statistical power to the model, as evinced by the weak LR test result [$LR\ ch^2 = 5.61;\ p = 0.0178$] and a sharp increase in the AIC and BIC values:

$$[\Delta AIC = AIC_{M(27)} - AIC_{M(15)} = 3{,}538.91 - 3{,}408.07 = 130.84 \rightarrow increase\ in\ AIC],$$
$$[\Delta BIC = BIC_{M(27)} - BIC_{M(15)} = 3{,}793.99 - 3{,}651.33 = 142.66 \rightarrow increase\ in\ BIC].$$

The only efficiency measure that has exerted a consistently positive and significant effect onto the FDI transition probability of the Russian firms was the firm's cost efficiency, measured as gross profit margin, $ProfitMargin_{it}$. Models (22), (25), and (28) are favoured by all goodness-of fit measures. The LR tests, comparing the models with

$ProfitMargin_{it}$ against the nested Models (13), (14), and (15), reveal the significant contribution of the firm's profitability to explanation of FDI decisions of Russian firms: [Model (22): $LR\ ch^2 = 505.27;\ p < 0.00005$], [Model (25): $LR\ chi^2 = 565.79;\ p < 0.00005$], and [Model (28): $LR\ chi^2 = 298.36;\ p < 0.00005$]. The magnitude of the computed differences in the BIC also confirms that the Models (22), (25), and (28) should be preferred over the constrained specifications:

$$[\Delta BIC = BIC_{M(22)} - BIC_{M(13)} = 3{,}211.80 - 3{,}704.02 = -492.22 = |492.22| > 10],$$
$$[\Delta BIC = BIC_{M(25)} - BIC_{M(14)} = 3{,}041.70 - 3{,}594.09 = -552.39 = |552.39| > 10],$$
$$[\Delta BIC = BIC_{M(28)} - BIC_{M(15)} = 3{,}367.35 - 3{,}651.33 = -283.98 = |283.98| > 10].$$

The selection of the final model.

The selection of the final model is motivated with the greatest value of *McKelvey* and *Zavoina's pseudo-R^2*, the significant LR test and the smallest values of the information criteria. Across models in the final panels (*d*) and (*e*) of *Table 7.A.1*, Model (20) is selected as the most efficient specification with the $LProductivity_{it}$ measure; Model (24) best fits the observed data compared to other Models (21) and (27) with ROA_{it}; while Model (22) proves to be superior to the alternative specifications with the $ProfitMargin_{it}$ measure in Models (25) and (28).

The final specifications of Models (20), (22), and (24) are selected to re-test the effect of $Patents_{it}$ and reported in *Table 24*. This once again verifies the significant and positive effect of the key variable $EquityNetwork_{it}$, providing support for the hypotheses **H1a** and **H5a-b**. The estimate of $LProductivity_{it}$ in Model (29) suggests the significant negative relationship between the firm's labour efficiency and its interest in the international venturing. The coefficient of ROA_{it} is positive, however, insignificant and hardly above zero: [0.000028] in Model (30). Only the size and significance of the profitability measure $ProfitMargin_{it}$ confirms its substantial relevance for the FDI transition probabilities of the Russian firms in Model (31).

Those contradictory results serve as another indication of the strategic heterogeneity and innovativeness observed among Russian firms, and EM MNEs in general. This phenomenon will be further examined in the subsequent *Chapter 8.1*, when estimating the interaction effects between the networking strategies and the firm-specific characteristics, as well as the direct and indirect networking effects.

The robustness checks across alternative link functions.

Having identified the final Model (22) as the most efficient specification (*Table 24*), *Section 7.A.2* in Appendix provides a detailed discussion of its final verification across the alternative link functions designed to correct for the rare event effect. In order to correct for the existing methodological drawback in the IB research and ensure the consistency in the model selection process providing grounds for the ulterior analysis of marginal effects and the calculation of transition probabilities in the following *Section 7.1.2*, the estimates of the final random effect *logit* Model (22), reported in *Table 24*, have been re-analysed for the identical sample of the Russian firms. Particularly, the *logit* Model (22) was contrasted with two alternative families of probability models: the *probit* and, more importantly, the *complementary log-log* functional link, particularly specified for the skewed rare event data under the assumption of binary response with an extreme proportion of non-events (as particularised in *Chapter 4.1* with the mathematical derivation in *Table 4*). *Tables 7.A.2* and *7.A.3* in Appendix confirm that the difference in predictive powers across the alternative model specification is negligible. This reassures the consistency of the estimates across the alternative link functions and motivates a further investigation of the observed effects.

The following *Section 7.1.3* proceeds with an interpretation of the parameters and the in-depth examination of marginal effects and predicted probabilities for the hypothesised firms' categories across the employed networking and learning strategies, garnered resources, and encountered institutional experience. The computed predicted probabilities and marginal effects will assist the interpretation of the yielded results across the estimated models.

Table 24:

The effect of the networking strategies and the firm-specific characteristics on the FDI transition propensities: the panel *logit* regression estimates with the parent firm *random effects* (RE), pursuing the available case analysis.

Final Models	M(20)	M(22)	M(24)
DV: FDIstatus [0 → 1]			
EquityNetwork			
2 = FI-POEs	3.243***	2.712***	3.999***
3 = SOEs	2.659**	3.512***	2.070*
4 = FI-SOEs	12.701***	12.732***	9.361***
FirmAge	0.090*	0.086***	0.102**
FirmAgeSqr	-0.000532	-0.000546**	-0.000738*
PatentClass			
2 = Domestic RU	8.767***	7.49**	7.181*
3 = International	2.295**	1.953***	2.169***
Sector			
2 = Manufacturing	2.312	1.757	0.240
3 = Services	0.811	-0.354	-0.723
Region			
2 = North-West	0.823	0.624	0.320
3 = Ural region	-2.182*	-2.383**	-1.979
4 = Volga	-3.698***	-4.038***	-4.082***
5 = Far-East	-4.799*	-5.680**	-4.480*
6 = South+Caucasus	-2.881**	-3.033***	-3.408***
7 = Siberian	-4.494***	-3.658**	-4.720***
Intangibles	0.748***	0.794***	0.997***
Intangibility			
FirmSizeTA	2.318***	2.746***	
FirmSizeEmp			2.071***
Revenue			
LProductivity	**-0.0000038***		
ROA			**0.0000253*****
ProfitMargin		**0.0236*****	
The comparison of goodness-of-fit across the two-state transition probability models:			
Number of observations	2,544,121	2,635,402	2,422,655
McKelvey & *Zavoina*'s R^2	0.2148	**0.2579**	0.1342
AIC	2,987.47	**2,956.11**	3,024.34
BIC	3,242.46	**3,211.80**	3,278.35
LR test *chi²*:	473.92	505.27	329.51
p-value:	[<0.00005]	[<0.00005]	[<0.00005]
Wald test *chi²*:	1,147.49	977.06	376.88
p-value:	[<0.00005]	[<0.00005]	[<0.00005]
Log Likelihood	-1,473.73	**-1,458.05**	-1,492.17

7.1.2 The predicted probabilities for individual firms and the interpretation of marginal effects

Having accomplished all three stages of the model-building process in the preceding *Section 7.1.1*, followed with the justification of the functional form of the selected final FDI transition probability model for the Russian firms, M(22) in *Table 24*, against the alternative links in *Section 7.A.2* (Appendix), it is fundamental and interesting to understand how the modelled parameters affect the probability that the Russian firms switch in the FDI status and transit to multinationality.

Among a large variety of the approaches available for model interpretation (e.g., Long, 1997, 2001; Cameron and Trivedi, 2009), only the methods that justice to the specificity of the developed non-linear model and relate the parameters of interest to the probability of FDI transition [$FDIstatus_{it} = \mathbf{1}$] have been selected. The designed interpretation strategy proceeds with the following steps of: (1) computing and presenting the predicted probabilities for the key variable $EquityNetwork_{it}$, (2) determining and visualising the extent to which the change in the hypothesised variables affect the FDI transition probability, (3) verifying the significance of differences in levels of predictive margins, (4) inspect the potential divergence in the effect of the networking strategies, $EquityNetwork_{it}$, across the major sources of heterogeneity of the Russian firms, such as their technological level, industrial and regional affiliation.

The most straightforward approach for interpretation of the *logit* model is to examine the within-sample predicted probabilities for the all four categories of the key variable $EquityNetwork_{it}$, and other covariates. Since the range of the FDI transition probability determined for the individual firms from the *logit*, *probit*, and *complementary log-log* models is large, spanning from nearly [0] to nearly [1] (*Table 7.A.3-a* in Appendix), this indicates the apparent nonlinearities that occur at the tails below [0.2] and above [0.8] (Long, 1997). In result, the marginal effects are non-constant at the different levels of the modelled determinants of FDI transition probability.

To account for the shape of the probability curve, the average adjusted probabilities and marginal effects are computed assuming that the random effect for the panel of Russian firms equals to [0], which allows to replace the default linear probability option. To improve on the interpretation of the estimated effects, the calculation of predictive margins in *Table 25* follows the approach developed by Bartus (2005),

computing the average of discrete or partial changes over all observations: average adjusted prediction (AAP) and average marginal effect (AME)[79].

Table 25 reports the computed predictive margins for the whole estimation sample of the Russian firms: the averaged value (AAP) across all the firms (panel *a*), and the individual predictions grouped by the four key $EquityNetwork_{it}$ categories and other firm's attributes such as the innovativeness $PatentClass_{it}$, the $Sector_{it}$ and $Region_{it}$ affiliation (panel *b*). The overall AAP [0.0000179] points at the extremely low probability among the Russian firms, drawn from the large population, to switch to multinationality [$FDIstatus_{it} = 1$]: less than [0.002%], holding all other covariates at the actual values. However, a great extent of variability in the FDI probabilities should be noted among the modelled groups of the firms.

A closer examination of the average adjusted probabilities in the panel (*b*) across the firms' networking categories, $EquityNetwork_{it}$, reveals a strong non-linear effect of the hybrid equity structures: equity ties with the state (category [**3**], "SOEs") increase the probability for the privately-owned firm to transit in the FDI status [$\mathbf{0 \rightarrow 1}$] by 521.95%, while combining the equity ties with the state and the extra-state networking strategy with the foreign partners (category [**4**], "FI-SOEs") enhances the FDI transition probability by an immensely greater extent of 3,775.61%. Cooperating with the foreign firms without state participation in equity proves to be not as effective for enhancing the international venturing among the private firms: the FDI transition probability for the category [**2**], "FI-POEs", improved by a relatively lower proportion of 391.71%, holding other effects constant.

To verify whether the hybrid equity strategies provide a significant improvement in the FDI likelihood, the discrete change in the probabilities among the networking categories have been computed, contrasted, and tested against the baseline category [**1**] "POEs" in the panel (*c*) of *Table 25*. The differences in the probability levels are visualised on *Figure 3*, with separate bars for each $EquityNetwork_{it}$ category. The average marginal effects (AMEs) for all equity structures prove highly significant at 5% level, supporting the previous conclusions on the hypotheses **H1a** and **H5a-b**.

[79] As opposed to the approach of computing the predicted probabilities and marginal effects *at means* (APM and MEM), widely employed in business research. Defining the covariates at their mean values (i.e., *at means*) would lead to unrealistic interpretations and inherently nonsensical cases for the categorical covariates (Bartus, 2005), introduced in the estimated FDI transition probability model.

Among other modelled covariates, the marginal effect of the firm's technological level and innovativeness, approximated with $PatentClass_{it}$, is particularly spotlighting. The significance of the computed average discrete change, reported in the panel (*c*) of *Table 25*, substantiates the importance of the technological capabilities for the FDI transition probability, which is in line with the technological and innovation literature. However, contrary to the conventional IB wisdom, the effect of the patents recognised by the International Patent Agencies [$p < 0.05$] prove to be more than four times lower compared to the patents accredited domestically in Russia [$p < 0.1$].

The average marginal effects of the $Sector_{it}$ categories are not significant; though judging by the AAP values in the panel (*b*), the manufacturing firms (category [**2**]) have a greater probability to transit to multinationality, followed by the primary sector (baseline category [**1**]); while the service sector (category [**3**]), emerging over the reformation path, is apparently the least internationalised.

The spatial effects are also prominent: the firms located at the greatest geographical distance from the central region (baseline category [**1**] of $Region_{it}$) are endowed with the lowest FDI transition probability. By way of example, the Far-East region (category [**5**]) is found to be the least internationalised, despite its border location and proximity to the North America and the Asian countries, as well as to the Siberian region (category [**7**]) conferred with the richest deposits of the natural resources. The only region found to be superior in the international venturing over the Central Moscow is the North-West (category [**2**]), though the positive discrete difference in the FDI probability between the two dominant regions is not significant.

The effect of the knowledge intensity on the firm's propensity to switch to multinationality, approximated with $Intangibles_{it}$, is positive and highly significant [$p < 0.05$], and such is the effect of firm's size measured with the total assets $FirmSizeTA_{it}$. Interesting to note that the comparison of magnitudes of the computed AMEs of both asset-based measures reveals that, in general, the Russian firms are more likely to be less knowledge-driven in their FDI projects and rather tend to rely on the accumulated fixed assets, which prove to be relatively more important for their FDI transition probability. However, the importance of the learning strategies will be shown to differ amid the different foundation groups, $FoundationGroup_{it}$, in *Chapter 10.1*.

The effect of the firm's cost efficiency, $ProfitMargin_{it}$, also proves to be positive and significant [$p < 0.05$], though its contribution to the FDI probability is close to zero. The depicted peculiarities and contradictions of the marginal effects apparently lack a theoretical background, and call for explanations beyond the extant IB theories, which will be attempted in the following discussion *Section 7.2*.

Table 25:
The probabilities of transition in the FDI status for the panel of the Russian firms: the *logit* Model (22) with the parent firm *random effects* (RE).

(a) the average adjusted prediction (AAP) across all the firms:

	Predictive margin	**Delta-method SE**	**z-statistic**	**P>|z|**
DV: FDIstatus [0 → 1]				
AAP	0.0000179	0.0000046	3.88	0.000

(b) the average adjusted predictions (AAPs) for the individual effect:

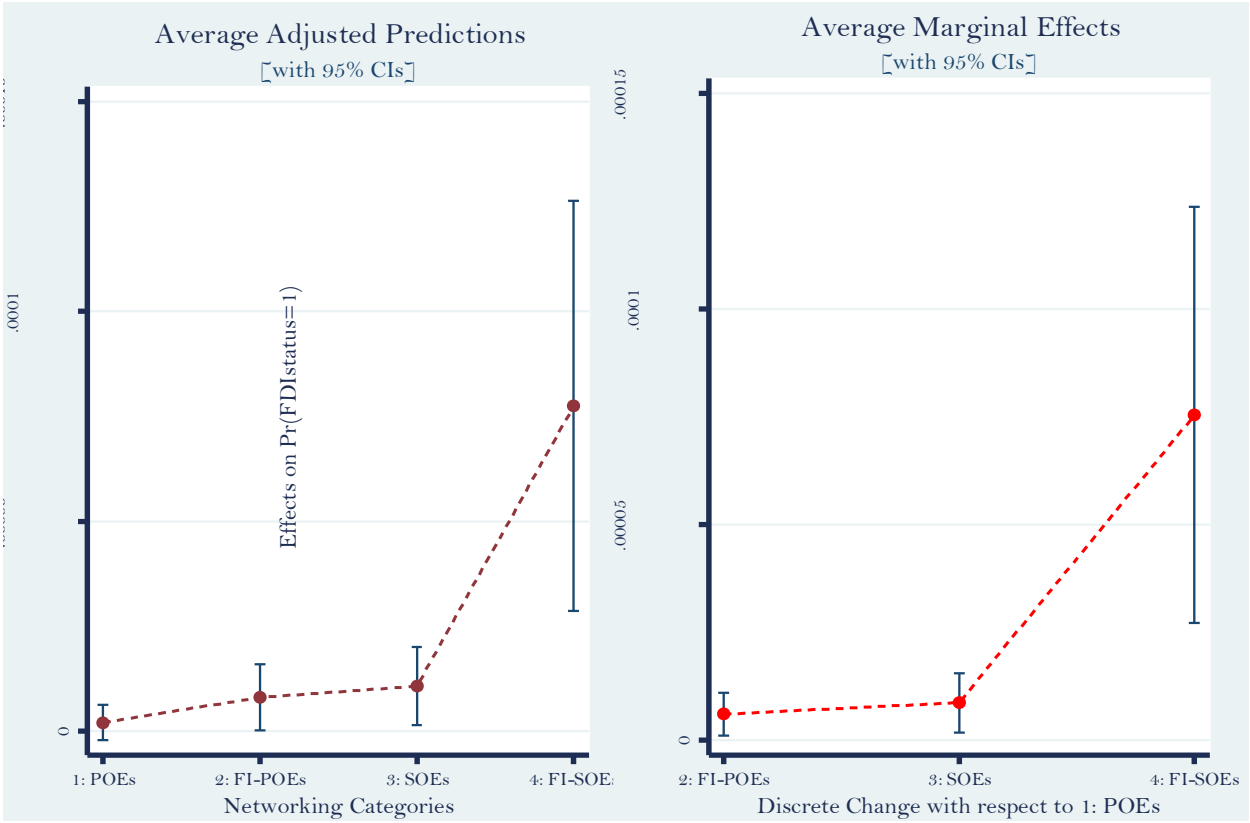
EquityNetwork				
1 = POEs	0.00000205	0.00000212	0.97	0.333
2 = FI-POEs	0.00000803	0.00000403	1.99	0.046
3 = SOEs	0.00001070	0.00000473	2.27	0.023
4 = FI-SOEs	0.00007740	0.00002490	3.11	0.002
PatentClass				
1 = No patent	0.00001360	0.00000472	2.89	0.004
2 = Domestic RU	0.00005240	0.00002230	2.35	0.019
3 = International	0.00002250	0.00000581	3.86	0.000
Sector				
1 = Primary	0.00001460	0.00000626	2.33	0.020
2 = Manufacturing	0.00002130	0.00000449	4.73	0.000
3 = Services	0.00001330	0.00000444	3.00	0.003
Region				
1 = Central	0.00001990	0.00000426	4.68	0.000
2 = North-West	0.00002240	0.00000476	4.70	0.000
3 = Ural region	0.00001210	0.00000461	2.62	0.009
4 = Volga	0.00000834	0.00000310	2.69	0.007
5 = Far-East	0.00000556	0.00000418	1.33	0.183
6 = South+Caucasus	0.00001040	0.00000415	2.52	0.012
7 = Siberian	0.00000909	0.00000423	2.15	0.032

Table 25:
Continued.

(c) the average marginal effects (AMEs) for the modelled firm's attributes:

EquityNetwork				
2 = FI-POEs	0.00000599	0.00000257	2.33	0.020
3 = SOEs	0.00000866	0.00000351	2.47	0.014
4 = FI-SOEs	0.00007540	0.00002460	3.06	0.002
FirmAge	0.00000022	0.00000010	2.21	0.027
PatentClass				
2 = Domestic RU	0.00003880	0.00002170	1.79	0.074
3 = International	0.00000884	0.00000382	2.31	0.021
Sector				
2 = Manufacturing	0.00000672	0.00000524	1.28	0.200
3 = Services	-0.00000125	0.00000499	-0.25	0.803
Region				
2 = North-West	0.00000246	0.00000299	0.82	0.410
3 = Ural region	-0.00000787	0.00000401	-1.96	0.050
4 = Volga	-0.00001160	0.00000311	-3.73	0.000
5 = Far-East	-0.00001440	0.00000431	-3.33	0.001
6 = South+Caucasus	-0.00000950	0.00000325	-2.92	0.003
7 = Siberian	-0.00001090	0.00000359	-3.03	0.002
Intangibles	0.00000328	0.00000098	3.37	0.001
FirmSizeTA	0.00001140	0.00000254	4.47	0.000
ProfitMargin	0.00000010	0.00000004	2.31	0.021

Figure 3:
The predictive margins (AAPs and AMEs) for the firm's $EquityNetwork_{it}$ categories.



The observed skewness prompts for further investigation of possible asymmetrical effects of the firms' equity structures, $EquityNetwork_{it}$, onto the FDI transition probabilities of the Russian firms. To investigate the potential heterogeneity of the Russian firms, the average marginal effects of the $EquityNetwork_{it}$ categories, computed in *Table 25-b*, are contrasted across the technological levels of the firms, as well as their industries and regions. *Table 26* reflects the sharp heterogeneity in the marginal effects of $EquityNetwork_{it}$.

In contrast to the lower effect of possessing the internationally registered patents found in the final *logit* Model (22) (*Table 24*), the benefits of the networking strategies, across all $EquityNetwork_{it}$ categories, are mainly accumulated by the firms with internationally recognised inventions (category **[3]** of $PatenClass_{it}$). The computed average marginal effects of $EquityNetwork_{it}$ in the panel (*a*) of *Table 26* are significant only for the holders of the international patents. *Figure 4-a* depicts that the differences in the discrete change of the $EquityNetwork_{it}$ effect are negligible and statistically insignificant for the firms without registered patens or with innovations recognised only domestically (categories **[1]** and **[2]** of $PatentClass_{it}$). Important to note that the "FI-POEs", which are capable of producing the internationally competitive innovations, are most likely to switch to multinationality among all other $EquityNetwork_{it}$ and $PatentClass_{it}$ groups.

The effect of $EquityNetwork_{it}$ also varies drastically across the industries aggregated in the $Sector_{it}$ categories. The panel (*b*) of *Table 26* depicts an interesting pattern: the average marginal effects for the firms belonging to the "FI-POEs" and "SOEs" categories of $EquityNetwork_{it}$ are highest in the primary sector (category **[1]** of $Sector_{it}$), while the most internationalised firms from the "FI-SOE" group reside in the manufacturing industries (category **[2]** of $Sector_{it}$). Interestingly, the firms from the service sector gain significant improvement in the FDI probabilities only within the category **[4]** of $EquityNetwork_{it}$, which leads to an interesting finding that the triad hybrid networks enhance FDI propensity in the newly-emerged industries. *Figure 4-b* illustrates the discernible and statistically significant advantage of the firms, employing the extra-state networking strategy ("FI-SOEs"), in the FDI transition probability across all the industries.

The average marginal effects of $EquityNetwork_{it}$ gain significance only for the firms located in the Central and North-West regions (categories **[1]** and **[2]** of $Region_{it}$). The contrast of the effect of the firms' networking strategies with their

regional affiliation in the panel (*c*) also points at an interesting fact: the "FI-POEs" firms with the highest FDI transition probability are located in the Central region, while the participation of the state in the firms' equity leads to the improved FDI propensity for the firms located in the North-West region.

As previously observed, the effect of $EquityNetwork_{it}$ is most prominent for the firms belonging to the "FI-SOEs" category across all regions, though yields the greatest value for the North-West region. This phenomenon is clearly visible on *Figure 4-c*: the firms with the triad equity arrangements, "FI-SOEs", and located in the North-West region prove to be most active in the international venturing.

Table 26:
The asymmetrical effects of the equity structure on the FDI transition probabilities of the Russian firms across the firm's attributes: the panel *logit* Model (22) with the parent firm *random effects* (RE).

(a) the average marginal effects (AMEs) of $EquityNetwork_{it}$ across the technological levels of the firms:

	Predictive margin	Delta-method SE	z-statistic	P>|z|
DV: FDIstatus [0 → 1]				
EquityNetwork: 2 = FI-POEs				
PatentClass				
1 = No patent	0.00000242	0.00000172	1.40	0.161
2 = Domestic RU	0.00000000	0.00000000	0.33	0.742
3 = International	**0.00014010**	0.00004470	3.13	0.002
EquityNetwork: 3 = SOEs				
PatentClass				
1 = No patent	0.00000390	0.00000243	1.60	0.109
2 = Domestic RU	0.00000000	0.00000000	0.32	0.746
3 = International	**0.00018760**	0.00005870	3.20	0.001
EquityNetwork: 4 = FI-SOEs				
PatentClass				
1 = No patent	0.00004640	0.00001720	2.70	0.007
2 = Domestic RU	0.00001540	0.00005340	0.29	0.773
3 = International	**0.00116510**	0.00032330	3.60	0.000

Table 26:
Continued.

(b) the average marginal effects (AMEs) of $EquityNetwork_{it}$ across the sectors:

	Predictive margin	Delta-method SE	z-statistic	P>|z|
EquityNetwork: 2 = FI-POEs				
Sector				
1 = Primary	**0.00002860**	0.00000750	3.81	0.000
2 = Manufacturing	0.00002300	0.00001230	1.87	0.062
3 = Services	0.00000084	0.00000087	0.96	0.336
EquityNetwork: 3 = SOEs				
Sector				
1 = Primary	**0.00003650**	0.00000948	3.86	0.000
2 = Manufacturing	0.00003390	0.00001550	2.19	0.029
3 = Services	0.00000156	0.00000140	1.11	0.265
EquityNetwork: 4 = FI-SOEs				
Sector				
1 = Primary	0.00017440	0.00005090	3.43	0.001
2 = Manufacturing	**0.00027000**	0.00009380	2.88	0.004
3 = Services	0.00003160	0.00001110	2.86	0.004

(c) the average marginal effects (AMEs) of $EquityNetwork_{it}$ across the regions:

	Predictive margin	Delta-method SE	z-statistic	P>|z|
EquityNetwork: 2 = FI-POEs				
Region				
1 = Central	**0.00001250**	0.00000546	2.29	0.022
2 = North-West	**0.00000955**	0.00000430	2.22	0.026
3 = Ural region	0.00000003	0.00000005	0.60	0.551
4 = Volga	0.00000008	0.00000014	0.61	0.545
5 = Far-East	0.00000000	0.00000000	0.42	0.676
6 = South+Caucasus	0.00000000	0.00000000	0.64	0.520
7 = Siberian	0.00000000	0.00000000	0.47	0.637
EquityNetwork: 3 = SOEs				
Region				
1 = Central	**0.00001830**	0.00000773	2.36	0.018
2 = North-West	**0.00001300**	0.00000419	3.11	0.002
3 = Ural	0.00000007	0.00000012	0.58	0.561
4 = Volga	0.00000019	0.00000031	0.60	0.548
5 = Far-East	0.00000000	0.00000000	0.41	0.681
6 = South+Caucasus	0.00000000	0.00000000	0.61	0.541
7 = Siberian	0.00000000	0.00000000	0.48	0.632

Table 26:
Continued.

(c) continued:

	Predictive margin	Delta-method SE	z-statistic	P>|z|
EquityNetwork: 4 = FI-SOEs				
Region				
1 = Central	**0.00012660**	0.00003290	3.85	0.000
2 = North-West	**0.00014700**	0.00006330	2.32	0.020
3 = Ural	0.00008370	0.00005280	1.58	0.113
4 = Volga	0.00002220	0.00001280	1.74	0.082
5 = Far-East	0.00000001	0.00000003	0.36	0.720
6 = South+Caucasus	0.00000113	0.00000203	0.56	0.577
7 = Siberian	0.00000446	0.00000726	0.61	0.540

Figure 4:
The heterogeneity in the average marginal effects across the $EquityNetwork_{it}$ categories.

(a) the discrete change in the effect of $EquityNetwork_{it}$ across the firm's $PatenClass_{it}$ categories

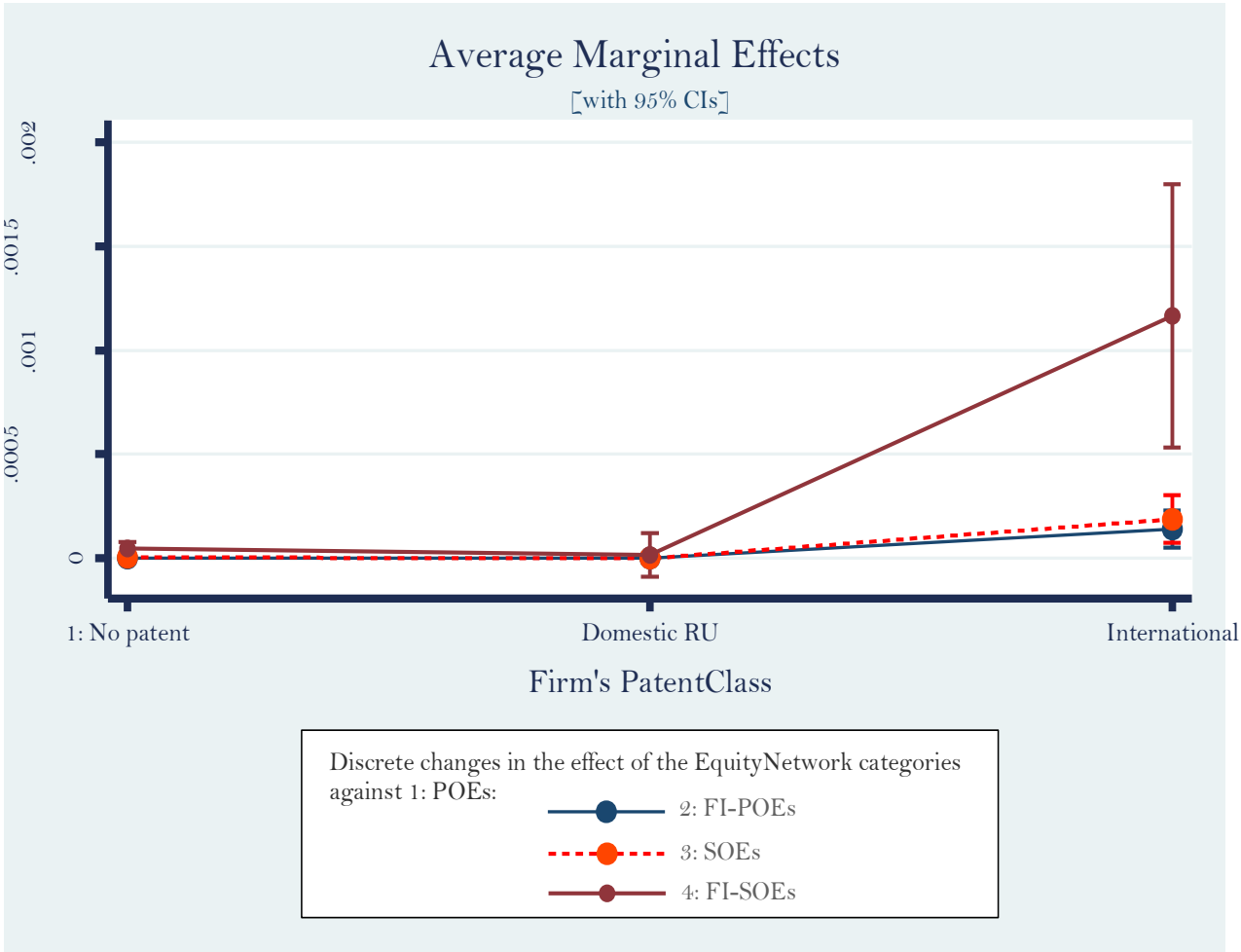
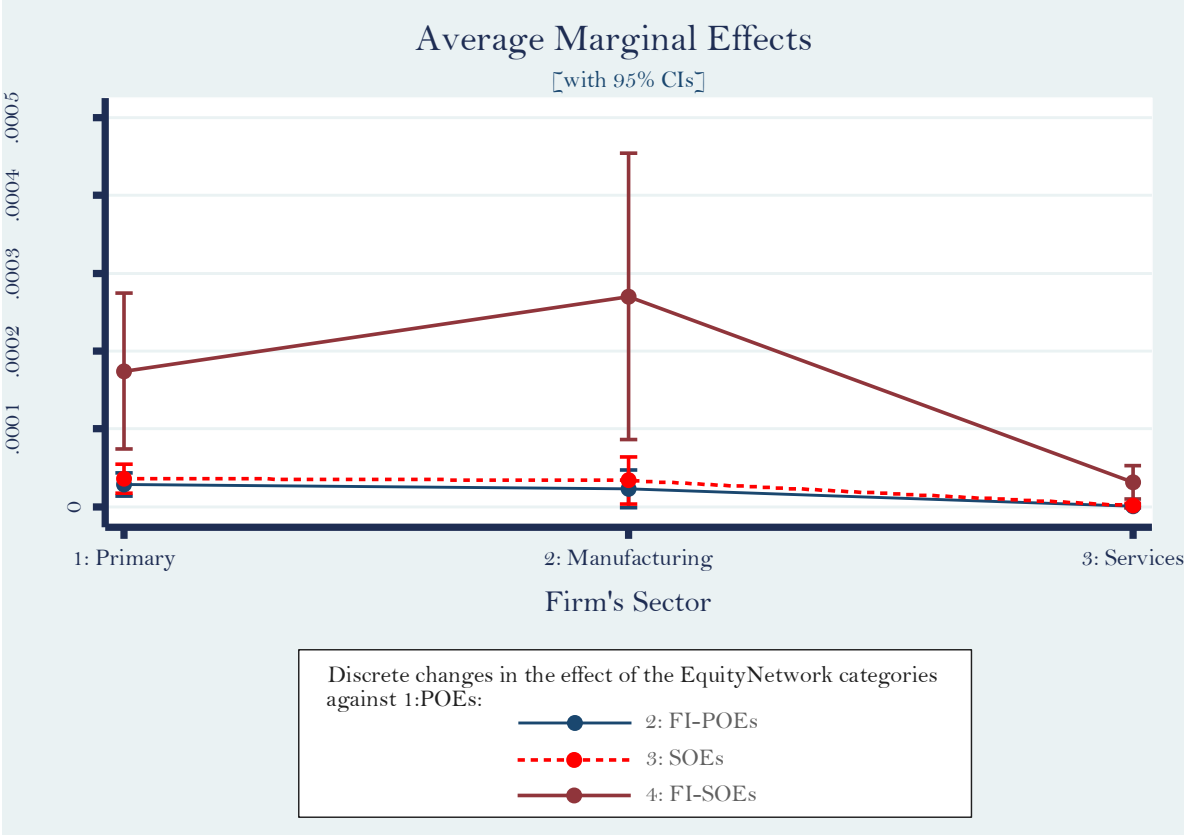
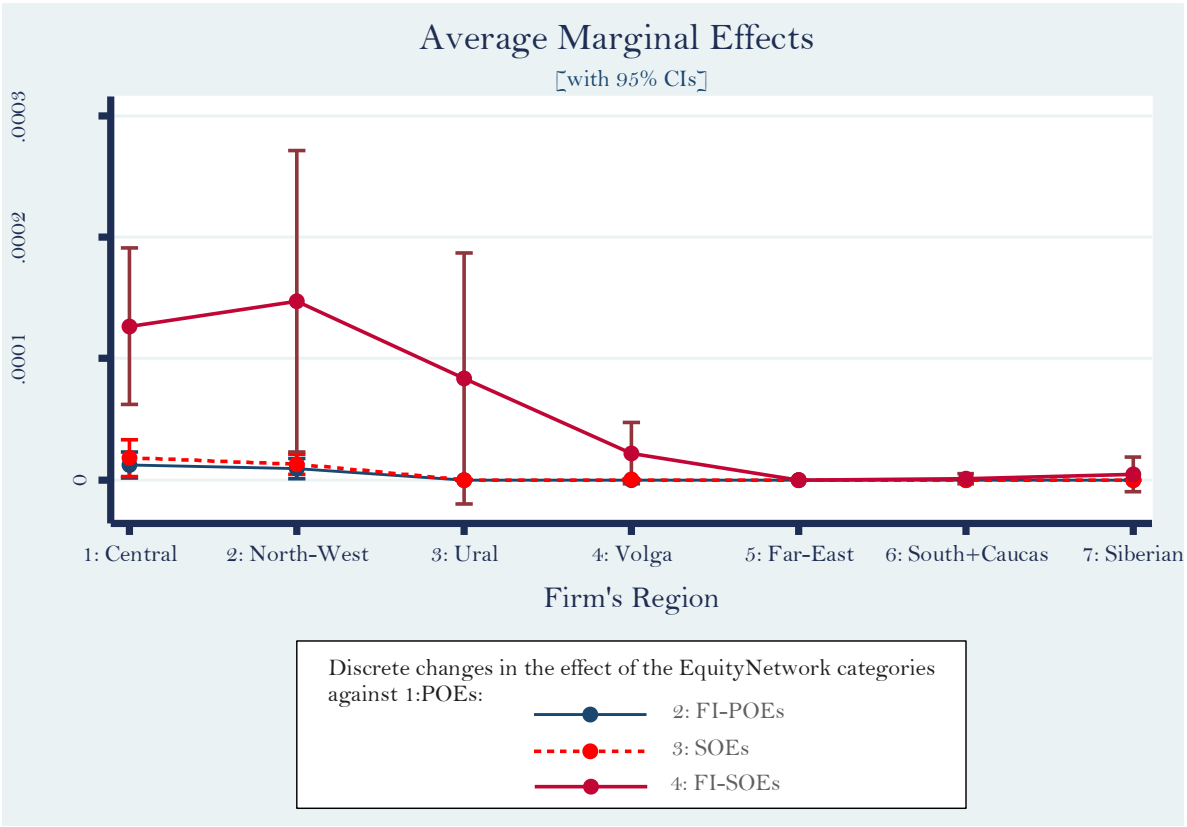


Figure 4:
Continued.

(b) the discrete change in the effect of $EquityNetwork_{it}$ across the firm's $Sector_{it}$ categories



(c) the discrete change in the effect of $EquityNetwork_{it}$ across the firm's $Region_{it}$ categories.



Although the computed average adjusted predictions and the discrete changes for $EquityNetwork_{it}$ prove that the effect of the firms' equity structure and networking strategies is heterogeneous and varies significantly across the firm's technological level, the industrial and regional affiliation, this finding does not provide the conclusive evidence on the underlying reasons behind the observed heterogeneity in the FDI transition probabilities among the Russian firms.

Along with the conventional arguments on the accumulation of the firm-specific advantages or assets (FSAs) transferable to the foreign markets, other forces may come into play within the hybrid equity structures and exchange mechanisms, which are hardly discernable with the probability model specification, tested in *Sections 7.1.1–7.1.2* and interpreted in the present section.

In order to truly comprehend and explain why the hybrid equity structures are consistently superior to the private sole ownership, a fundamentally different modelling approach is required. The subsequent *Chapters 8.1* and *9.1* attempt such a methodological advancement and models the complementarity effects leading to the observed heterogeneity in the FDI transition probabilities among the diverse Russian firms with classic and hybrid governance structures.

The outlined contradictory evidence on the initial transition to multinationality casts the light on the long-standing debate about the distinct internationalisation strategies of the firms from the emerging market countries (EM MNEs) against the established MNEs from the developed countries. The obtained findings present novel implications for the extant theories in the IB literature, which are thoroughly elaborated in the following discussion *Section 7.2*.

7.2 The discussion of the empirical evidence and the implications for theory-building

Section 7.2.1 of the present chapter attempts to clarify the omissions and strengths of the conventional attribute approaches in relation to the initial decisions of the Russian firms to establish a foreign subsidiary, connecting and enriching those with the insights from the political science and the literature on inter-organisational relations. The discussion contributes to the IB literature with constructing a more complete portfolio of advantages exploited by the EM firms in the foreign markets.

7.2.1 The extended portfolio of FDI advantages of EM MNEs: the complementarities of resources and capabilities within hybrid equity networks

The modelling and comparative analysis of the factors prompting the Russian firms for the initial transition into the foreign markets via FDI, carried out in *Section 7.1*, showed that although the impact of the conventional firm's attributes, – emphasised by the resource-based and internalisation perspectives, – remains significant, their relative contribution to the FDI decisions of the EM firms is greatly overstated. Moreover, the precise mechanisms of their formation and impact remained unclear. The rigorously verified findings reveal that the amount of the resources accumulated by the firm or the firm's size, its business experience, labour and cost efficiency, regional location and industrial affiliation are not the sole decisive factors and do not determine the propensities of the firms to switch to multinationality on their own – independently of the interests emerging within the firm's coalitions. The effects of FSAs on the FDI decision-making are not persistent and highly conditional on the nature of the relations and the contributions of the major powers interacting within the firm's hybrid networks – the "*relational architecture*", which constitutes the essence of any organisation.

The striking consistency in the effects of the hybrid equity networks formed by the firms, along with supporting the research hypotheses (**H1a** and **H5a-b**), serves as a key to understanding the FDI strategies of the EM firms. Whether the obtained modelling results can meaningfully describe the FDI behaviour of newcomers depends on the correctly defined major interest groups in the emerging economy, capable to directly or indirectly influence the investment decisions of the firms, along with

profound understanding the historical evolution of their interrelations and the change in the relative power balance in the EM states, which have been giving a rise to the novel organisational forms out of the developmental "melting-pots" (summarised in *Table 2*). The pitfalls and harshness of the development course in the EM countries had been leading the organisational founding towards the hybrid institutional arrangements, which in Russia were particularly embodied in a variety of the hybrid equity structures, blurring the boundaries of the firms-in-creation compared to the rigidly (contractually) defined boundaries of the organisations from the developed economies.

Disentangling the evolving diversity of organisational forms in Russia into the types of hybrid organisational structures on basis of the networks of equity relations among the major interest groups constitutes the first aspect of the contribution to the IB literature suggested by the present research. The created matrix of the network structures helps to identify more precisely how the change in the relations among the power groups has been influencing the foreign investment behaviour of the diverse hybrid firms in Russia, reconstructed and survived through the hectic transition times of the 1990s or newly-emerged in the 2000s. Moreover, the network approach grants an ability to more genuinely explain the heterogeneity in the pursued FDI motives, therewith facilitating more transparent comparisons of the internationalisation strategies across the EM countries.

As a major peculiarity of the organisational patterns in the emerging market countries, and especially in Russia, where the state had purposefully headed towards a model of strong embeddedness into the inter-organisational relations, the equity linkages with the state constitute the first crucial dimension in the matrix of diverse organisational forms and co-evolving business and political networks. The positive significant effect of the intra-state networking onto the propensities of the Russian firms to switch to multinationality has been confirmed across all specifications of the FDI transition probability model (*Tables 7.A.1* and *7.A.2*, Appendix), providing the rigorous evidence for the strong embeddedness of the state into more subtle *structural networking* strategies, merging the geopolitical and business interests in the firm's foreign investment projects, as conceptualised in *Table 1*, *Chapter 2.3*.

Apparently, the intra-state networks developed by the EM firms complement the elements of both networking types – structural and political (*ibidem*) – within the same boundaries. Despite the strong evidence, it would be erroneous to assume that the very fact of participation of the state in the firm's equity does lead to a predetermined

outcome across the EM economies, stimulating or inhibiting the FDI endeavour of the firms linked with the state. The two reasons behind the possible divergence in the effect of the equity ties with the state on the FDI propensities of the EM firms – the nature of the state-business relations and the peculiarities of interactions with foreign forces – are worth a more thorough attention.

The first reason concerns the qualitative characteristics of the established model of state-business relations (SBRs) which dominates the interactions of the privileged and peripheral business groups in the EM countries at a particular period of time, because the configuration of interrelations between the business community and the state elite is not as similar as frequently presumed in the IB literature, even within one group of the BRIC economies. This returns the discussion to *Table 2* (*Chapter 2.4*), which reflects the potential types and evolution of interactions between the privileged and peripheral business groups and the state, and derives the potential outcomes for FDI patterns in the economy. The implications of the state's participation in equity for the FDI decisions of the firms are defined by two crucial characteristics of the state: the resource *capacity of the state* and its *effectiveness* in devising the *growth-oriented* and *collaborative coalitions*. The ideal type of the state-business relations is put forth by the strong, intelligent, and autonomous state, maximising the FDI potential across *all* business groups – and especially at the peripheral segments – via promoting the inclusive institutions, hastening the shared learning and shared investment within the coherent and reciprocal hybrid arrangements, which corresponds to the SBR model in column 4 of *Table 2*.

Although maintaining the effective autonomy is yet unattainable goal for the Russian state, the recent shift in the SBRs towards a stronger embeddedness of the state into the business relations, along with rebuilding its coercive strength and investment capacity after a period of the state capture by the narrow business elite during the 1990s (which corresponds to the shift from column 2 to column 3 in *Table 2*), proved to enhance the FDI propensity of the Russian firms. This finding contradicts the theoretical assumptions in comparative economics and the empirical research on state capitalism, which mostly ignored the evolving role and types of the state in the EM economies, and rather considered the state participation as a social or political burden, constraining the efficient growth of the firms in the domestic and foreign markets.

The change in the state-building agenda strengthened both relational powers of the state – domination and influence, – which enabled the Russian state to transform the *conflict-oriented extractive networks* among the narrow privileged groups, preoccupied

with tunnelling of the state resources and aggressive internal infighting for power across the strategic industries, which featured the period of the initial transition in the early 1990s (corresponds to column 2 in *Table 2*). The second post-reformation period in the Russian economy was also distinguished with a strong fusion of the state and business interests, though of a drastically different nature and quality. The turn to statism in the state-business relations in Russia, which invoked the change in relational powers of the state, created the drastically new relational mechanisms and structures based on the state equity, shifting from the collusive to *growth-oriented coalitions* – at least in a greater extent and a short-term, which altered the implications for the FDI propensity of the Russian firms.

Despite the *state effectiveness* and the inclusive institutions as yet remained weak during the recent reformation period (2001–2011), rebuilding the state scope and strength has been apparently inducing the cross-border growth of the hybrid firms with state participation, compared to the classic firms in sole private ownership. While the estimated FDI transition model (*Table 24*, *Section 7.1.1*) proved the enhancing effect of the intra-state networking on the initial move into the foreign markets, it does not help to describe precisely the nature of the network effects and how those enable the foreign investment: indirectly via building and drawing upon the shared knowledge and the resource base within the networks boundaries (i.e. *domination* mechanism), or providing the direct alteration of incentive structures within the hybrid networks towards international venturing when this serves the geopolitical and economic interests of the state (i.e. *influence* mechanism). Which of the relational powers is utilised by the state in the promotion of international ventures, and what are the comparative effects and composition of the underlying network mechanisms – that is, the indirect resource- and capability-building effects and the direct incentive effects, as conceptualised in *Table 1*, – will be tested and discussed thoroughly in the following *Chapter 8*.

The second point of the divergence in the effects of the hybrid equity arrangements across the EM countries emerges when the extra-state forces are introduced into the analysis. The matrix of the organisational forms created in the EM counties would not be complete without considering the hybrid networks with the foreign capital, recognised as a major force in the EM economies, capable of influencing and shifting the relative bargaining power and the resource distribution in the networks between the major domestic private and state forces. Building upon and further elaborating the idea on the foreign-invested enterprises (FIEs) as a strategically different group in the EM countries (Peng et al., 2004), the private-state dichotomy is further disentangled

into more complex hybrid equity structures with the foreign influence, which prove to form two distinct strategic groups in Russia: the private-foreign coalitions (FI-POEs) and the extra-state triad networks among all three major interest groups (FI-SOEs).

The comparative analysis of the intra-state and extra-state networking strategies, created by the Russian firms, provided the robust evidence that the complex equity networks with the state and foreign participation enhance significantly the FDI transition probabilities of the Russian firms, as reflected in the research hypothesis **H1a** and **H5a-b**. The positive effect of the extra-state networking, scrutinised against the alternative link functions and specifications of the covariates, contributes to the long-standing debate in the IB literature and the developmental economics on the influence of inward foreign investment, confirming the complementary role of the foreign capital in the Russian economy, rather than substitutive to the domestic investment.

Again, this finding can hardly be generalised as a policy recommendation without understanding the underlying relations among the three major forces across the EM states, which vary immensely in the relative power of foreign capital in the domestic industries. *Table 2* illustrates how the contribution of foreign capital to the FDI endeavours of the EM firms may evolve along the continuum of the SBRs models: varying from the supressing effect under the extractive coalitions and dependency from the foreign technologies and financial inflows (corresponds to column 1) to the collaborative extra-state networks (column 4). The resulting configuration of the relational powers (via *domination* and *influence* mechanisms) within hybrid networks will depend on the position of the state, its capacity and effectiveness in promoting the *growth-oriented coalitions*. The asymmetric influence and the extractive interests of foreign capital can be restrained by the strong state, once it gained wisdom and effectiveness to develop the *inclusive institutions*, which confer the diverse domestic business groups with a capability to create the coherently aligned hybrid organisational structures with foreign capital: promoting the reciprocity, the shared investment in new capabilities, the apprenticeship style in knowledge and resource exchanges within the hybrid networks.

The positive effects of the extra-state networking on the FDI propensity, observed among the Russian firms, have been induced by a stronger position of the Russian state, relative to other EM states, in transforming the asymmetric and hectic structure of the relations among the domestic and foreign interest groups, and connecting the forces perceived as conflicting in the political economics into the *growth-oriented coalitions* and

hybrid networks. Interesting to note that the implications of the extra-state networking significantly differ for the private Russian firms and the firms affiliated with the state, confirming the idea of the *fragmentation in the policies* and the *network strategies* pursued by the state in the relations with the private business and foreign capital (SOEs versus FI-SOEs). The similar fragmentation is observed in the network strategies of the foreign shareholders when the state enters the equity network (FI-POEs versus FI-SOEs).

Evidently, the more complex "triad hybrid networks" among the three major powers in the economy – the domestic private investors, the state, and foreign capital (FI-SOEs) – promote stronger relational synergies and complementarities which are more likely to be transferred into the shared investment in the foreign markets, when the extractive intent of the foreign shareholders is confined by the strong state. Despite the predictions of the governance literature on the potential principal-principal conflict exacerbated by the strategic misfit among the distinct shareholders, the complex hybrid structures confine the geopolitical ambitions of the state and the extractive intentions of the foreign shareholders, aligning the strategic orientation of the partners for a benign collaboration and growth in the foreign markets. This finding once again emphasises that the FDI behaviour of the EM firms in a great extent depends on the investment capacity and influence power of the state, which define its evolution across the SBRs models, outlined in *Table 2*.

Another conclusion challenges the studies and the frameworks relating the macro-institutional quality and the strategies of the firms in the emerging markets economies, for the EM firms are capable of devising distinct relational mechanisms with the major powers and institutional constituents, though operating in the same macro-settings. Curiously, the firms that extend their boundaries and create the hybrid structures are capable to reach a more effective stage in the SBRs within their organisational boundaries – compared to the classic firms in the sole ownership, although those face the same institutional environment at the same point of time. The quality of the inclusive institutions, shaping the foreign investment outcomes, is apparently not merely a macro-indicator constant across the equity networks of the firms, as it has been commonly conceptualised in the institutional economics and the empirical research on the influence – which in reality is rather a co-influence – of institutions in the transition and developing countries.

Although the institutional *macro*-order is implicitly important for the strategic change in the investment behaviour, the emerged hybrid equity arrangements drastically

change the way how the macro-rules are internalised within the firm's boundaries, giving a rise to the spontaneously formed rules and distinct *micro*-orders within a larger institutional system, with a potential reverse effect on the macro-settings and policies. The finding on the hybrid networks reveals that the EM firms are capable of devising more effective institutional orders enhancing outward FDI, and do put into the practice the elements of a more intelligent and collaborative SBR model (column 4 of *Table 2*) within the hierarchical dimensions of equity networks. Although overlooked amid the IB studies, the research on the EM firms may yield a better understanding of their strategies if the focus shifts from the modelling the direct effects of macro-institutional indicators on the firm's international strategies towards elucidating the diverse internalisation processes leading to the development of distinct *micro*-orders.

Although the macro-institutions are the inherent components of any economic system, their effects are not exerted at the macro level, – instead reshaping the organisational fields formed by the interactions of the macro-components and the responses of firms at the micro level, which created the macro-micro link. As a contribution to the state policies, a more clear understanding of how macro-institutions internalised within hybrid organisational structures may contribute to the long-term economic advancement, for the transition towards more effective policies and state-business relations might be driven more steadily with amassing such positive changes in the micro-orders within the firm's networks and spreading or transmitting those amidst a wider business community, including the peripheral business groups, rather than the formalistic reformations of the macro-policies.

Before contrasting the underlying theories against the findings, more attention should be devoted to the effects of the proprietary assets, knowledge, and technological competence of the firm, suggested by the resource-based and capability-building perspectives, and widely referred in the IB research as the prerequisites for international venturing. The rigorous comparison of the marginal effects (*Table 25*, *Section 7.1.2*) proves that none of the tested firm's attributes generates an effect on the firm's initial transition to multinationality, comparable to the effect of the networking strategies. The strongest influence is exerted by the generic measure of the firm's proprietary resources, providing the Russian firms possessing larger tangible assets with production advantages over other indigenous firms, – well in accord with the industrial economics perspective (Bain, 1956; Barlow, 1953; Penrose, 1956; Bye, 1958). The firm's size in terms of the number of employees exerts a similar effect, proving that the small firms reveal weaker FDI propensities and are less internationalised compared to the large

firms, which once again confirm their peripheral position and the weakness of inclusive institutions in the Russian state.

The overall positive effects of two knowledge types – codified and tacit – substantiate the arguments from the literature on technological and learning capabilities of organisations. The Russian firms endowed with a superior capability for internal technological advancement, verified across the two measures of technological intensity and possession of innovations registered domestically and internationally, are more effective in launching the foreign start-ups. It is equally true that the firms with a more dynamic learning mode and fluid cognitive abilities are capable to hasten their transition into the international markets, as confirmed with the thorough tests across the two measures of accumulated stock of tacit knowledge and the relative measure of intangibility of the firm's assets. Most curious findings, however, are revealed when the learning strategies and innovation capabilities are contrasted across the strategic groups of the firms. A more interesting and comprehensive model, describing how the effects of capability-building and shared learning diverge across the equity networks formed by the firms, will be tested and discussed in the subsequent *Chapter 8*.

The arguments of the recent trend in the IB thinking on the firms' heterogeneity across the sectors are not supported, when analysed in a conventional comparative way. The comparison across industries leads to interesting conclusions, only when the effect of hybrid networks is added into analysis. Although the firms from the relatively young service industries appear to have lower propensities to become multinational compared to the long-established natural resources and manufacturing industries, the formation of triad hybrid networks seems to compensate for the liability of newness and enhance the FDI propensities of the hybrid firms from the newly-emerged service industries.

The location of the firm, on the contrary, shapes the firm's capacity to launch the new ventures and diversify beyond its geographical boundaries. The Central Moscow region evidently seized and retained the control over the valuable national resources, located in other regions, effectively transferring them into the international ventures. The inferior capabilities of the firms from the non-central regions to switch to multinationality principally reflect the efforts of the coercive Russian state in reconstituting the strongly centralised regional architecture during the recent statist period, as yet ineffective in promoting the growth-oriented strategies among the firms from the regions geographically remote from the central budgets and hierarchical incentives. Hence, the Russian regions remain asymmetrically internationalised,

contingent on the proximity to the politically bestowed benefits. Though again, the effect of regional affiliation is intertwined with the networking strategies of the firms: endowing the private extra-state networks (FI-POEs) with a greater FDI propensity in the Central region, while the triad partnerships are most internationalised in the North-West region (FI-SOEs).

The last dimension of the firm's heterogeneity, suggested by the IB models, has been tested across the measures of the labour, asset, and cost efficiency achieved by the firms. Despite the evidence yielded in the new stream of the empirical research on the firm's productivity (Clerides et al., 1998; Bernard et al., 1999, 2007; Head and Ries, 2003; Melitz, 2003; Helpman, 2004, 2006; Mayer et al., 2007; Tomiura, 2007; Wakasugi, 2008, 2012), the level of the labour efficiency of the firms is negatively associated with their propensities to become multinational, and not consistently significant across the alternative model specifications. The reason behind this contradictory finding might be that the true heterogeneity of the firms, affecting their FDI behaviour, lies in the distinct relational strategies inducing the asymmetrical gains and rents generated within the diverse equity networks.

7.2.2 Conclusion and implications for theory-building

The discussed findings on the propensities of the Russian firms to enter the foreign market and become multinational contrast the several major strands of the firm's behaviour literature. The developed models of the FDI transition probabilities prove that the Russian firms decide to switch to multinationality in the presence of the firm's ownership advantages over the domestic non-investing firms, which is consistent with previous findings in the IB research. Those advantages are first of all reflected in the firm's size – the amount of the garnered assets, the number of employees, or generated revenue, which are strongly and positively related to the foreign investment propensity.

This finding is consistent with the resource-based arguments (RBV) in the IB literature on the MNE formation, supporting the Hymer's prediction that the size of the firm is positively related to the probability of becoming a multinational (Hymer, 1976). The small Russian firms do possess only limited resources and featured with the low FDI propensity, either because of the high fixed costs of obtaining information about foreign markets, higher cost of the capital, the lack of managerial competence, or

the riskiness of undertaking a foreign venture that could be very sizeable in relation to the firm's limited assets.

The findings also support the arguments on the enhancing effect of technological capabilities developed by the firms, well incorporated in the IB research, and add a novel aspect of the innovativeness in learning strategies of the EM firms, bridging the conclusions with the organisational learning literature. The Russian firms that are most likely to become multinational are those characterised with a stronger technological intensity and innovation capabilities as judged by the registered patents, and more steep learning trajectories.

However, the major contradiction emerges when the idea of the firm's heterogeneity, suggested in the IB streams on the firm's productivity, is incorporated in the FDI transition probability model. Neither the firm's efficiency measures, nor the industrial affiliation, serve as a decisive source of the firm's heterogeneity in the investment behaviour. To better understand the observed differences in the FDI strategies among the EM firms arising along distinct development paths and institutional change, the EM firm ought to be conceptualised as a "*political actor*", embedded in the uniquely configured societal hierarchy and orchestrating the network of relations beyond the firm's proprietary boundaries. The modelled interrelationships between the asset and knowledge measures and the probability of the Russian firms to switch to multinationality (*Tables 24*, *ibidem*, and *Table 7.A.1* in *Appendix*) clearly show that the conventional view of the firm as merely a market entity – a "depositary of assets" or "knowledge processor", originating from the resource-based view (RBV), – is deficiently narrow.

The modelling results confirm that the major divergence in the FDI probabilities arises from the structural position of the EM firms within the network of relations with the major economic and political forces in the economy, – commonly overlooked amidst the IB studies, even those that explore the investment implications of the institutional change in the EM economies. The inter-organisational networking does shape the strategic foundation in the EM states and serve as a new source of heterogeneity of investment behaviour of the EM firms with the hybrid equity structures, advising a closer merge with the literature on *inter-organisational relations* and *network economics*.

A better understanding of the reasons behind the asymmetric gains among the equity networks created by the Russian firms, and appropriateness of the generalisations across the EM states, involves another analytical tradition into

the modelling the FDI behaviour of the EM firms, originating from the *political science* and the *network economics*. The established model of the state-business relations – dominated with either the *extractive* or *inclusive institutions* – was found to inevitably contribute to the asymmetrical flows of resources, sharing competences and knowledge, as well as the alteration of incentive structures within the *intra-state* (SOEs) and *extra-state* (FI-POEs and FI-SOEs) equity networks, underlying the initial decision of the Russian firms to invest abroad. Hence, the position of the EM country along the SBR stages, outlined in *Table 2*, may help to map the heterogeneous strategies innovated by the individual firms across the EM countries.

Although the network assets have been, in general terms, included in the institutions-augmented OLI paradigm as a specific advantage for the initial FDI decision (Buckley et al., 2007; Dunning, 2008; Rugman, 2013), the OLI framework does not explain how the relational mechanisms, inherent in a certain model of the SBRs, determine the configuration of resources and capabilities complemented and shared within the network, neither relating those to the FDI outcome. The equity networks formed by the EM firms prove to outstand in the general list of the ownership advantages. The very interpretation of networks as the firm's assets among many others, implemented in the OLI, might be misleading, as it does not take into account the essence of relational powers shaping the exchange mechanisms and network configuration. The "OLI network assets" or hybrid relational arrangements are rather endowed with an "orchestrating" role within firm, hastening or inhibiting the accumulation of conventional firm-specific assets, and altering the cognitive models and the incentives for their leverage in the foreign markets.

The conceptualisation of the firm as a network of relations or "*political system*" or "*coalition*" implies a change in the conventional modelling efforts from the conventional attribute to relational approach. The understanding of FDI effects within hybrid networks requires a more comprehensively constructed FDI models, capable to disentangle the complementarity and direct incentive effects induced by the relational mechanisms (*Table 1*). The subsequent *Chapters 8* and *9* proceed with testing more complex interaction and mediating effects occurring within the hybrid equity networks.

CHAPTER 8. THE MODERATING EFFECT OF EQUITY RELATIONS WITH THE STATE ON FIRM-SPECIFIC ADVANTAGES OF RUSSIAN FIRMS

The present chapter proceeds with a more detailed investigation of equity networks formed by Russian firms, and particularly how equity relations with the state change the importance of conventional firm-level attributes for the transition to multinationality by Russian firms.

Section 8.1 of the current chapter proceeds with the second stage of the data analysis, which implements an innovative approach to computing the interactive effects in the non-linear FDI transition probability models. The next set of hypotheses (**H2a-b**) is tested with a moderation model, which is built by including the interactive terms in the final FDI transition probability model, estimated and selected in the preceding *Chapter 7.1*. This model specification and modelling effort help to explore how hybrid networks change the perceived importance of the conventional firm-level attributes.

Section 8.2 continues the discussion of exchange mechanisms emerging within the distinct equity networks, formed by the Russian firms, and why those lead to a markedly different distribution of the capabilities and FDI propensity among the strategic groups. The discussion first of all aims to complement the IB theories, by casting the light on the very process of formation of the distinct sets of advantages within the formed networks, prompting the firms to involve into the international venturing.

The contribution will also extend to the empirical IB research, by considering the change in the composition of firm-specific advantages over the turbulent times of economic restructuring, and how the transforming relations among the major powers – private, state, or foreign – in the economy divert the significance of a particular firm's attribute for its propensities to become multinational.

8.1 The interactive effects in the non-linear FDI transition probability model: the heterogeneous effects of FDI determinants across equity networks

The present section investigates how the equity relations with the state change the importance of conventional FDI prerequisites on the propensity of Russian firms to initiate an international venture, – which were conceptualised in *Chapter 3.3*.

The following *Sections 8.1.1–8.1.4* proceed with a rigorous test of the hypotheses **H2a** and **H2b** by including the interaction terms with the explanatory variable of key interest, $EquityNetwork_{it}$.

An innovative method is implemented to compute the consistent estimators for interaction effects in the non-linear FDI transition probability models and to visualise the significance of moderation effects of equity relations with the state across the different ranges of values of firm-specific advantages.

8.1.1 The moderation effect of equity networks on the importance of business experience of Russian firms for FDI decisions

The exploration and modelling of the FDI transition probabilities of the Russian firms in the previous *Chapter 7.1* yielded the significant evidence that the firm's equity structure and networking strategies, $EquityNetwork_{it}$, is a decisive factor determining whether or not the firm will switch in its FDI status and transit to multinationality. The thorough exploration of the predictive margins of the tested FDI transition probability model revealed the striking heterogeneity in the predictions and marginal effects, though leaving the question about the underlying mechanism conferring the hybrid firms with a set of superior advantages highly specific for international venturing unanswered.

The first step towards a better understanding of why and how the hybrid equity structures or the intra-state and extra-state networking strategies adopted by the Russian firms may change the importance of the standard internationalisation prerequisites would be to model the interactive effects of the $EquityNetwork_{it}$ categories onto the firm's attributes, formulated in the hypotheses **H2a** and **H2b** (*Chapter 3.3*). The moderation model would allow examining more sophisticated effects: whether the direct effect of the business experiences of the firm, its technological level and knowledge intensity, the size of business, and finally the efficiency of the firm on its propensity to initiate an international venture (modelled in the initial FDI transition probability Model (22) in *Table 24*, *Chapter 7.1.1*) significantly change under the different equity structures.

For reasons of clarity and comprehensibility, the moderating effects of the firm's equity structure, $EquityNetwork_{it}$, on the impact of the firm-specific characteristics are

reported in the separate *Tables 27–30*. The panel (*a*) in each of the tables presents the coefficients for the interaction terms and their significance, which are verified across the alternative functional links: the *logit*, *probit*, and *complementary log-log* functions, following the argument on the probable bias of underestimated probability of the event caused by overdispersion in the rare event data, as explained in *Chapter 7.1.3*.

It is important to note that the interaction effect between the firm's networking strategies and other firm's attributes in the non-linear FDI transition probability model cannot be evaluated merely on the basis of the magnitude, sign, and significance of the coefficient of interaction term (Ali and Norton, 2003; Norton, 2004; Greene, 2010). To improve on the interpretation of the interaction effects and to test the conditional hypotheses **H2a** and **H2b**, the panel (*b*) computes the consistent estimator for interaction effects as a *cross partial derivative* of expected values of the dependent variable, $E[FDIstatus_{it}]$, with respect to changes in the firm's attributes for the change in the $EquityNetwork_{it}$ group. Herewith, the presented approach corrects for the common misinterpretation of the interaction effects in the economic and IB research as the *first derivative* of $E[y]$ the with respect to the interaction term $[x_1 \times x_2]$ (Buis, 2010; Drichoutis, 2011).

The panel (*a*) of *Table 27* depicts the variation in the effect of the firm's experience, measured with $FirmAge_{it}$, across the four strategic groups of $EquityNetwork_{it}$. The obtained coefficients for the interaction term $[EquityNetwork_{it} \times FirmAge_{it}]$ are interpreted as the differences in the slopes between the "POEs" with the classic governance structure (baseline category **[1]** of $EquityNetwork_{it}$) and the three strategic groups of firms with the hybrid structure (categories **[2]**, **[3]**, and **[4]**).

The negative signs of the coefficients for the interaction term indicate that the effect of $FirmAge_{it}$ is consistently lower in magnitude for the firms with hybrid equity structures than for the "POEs" under the logit, *probit*, and *complementary log-log* specifications. The comparison of the observed differences in the coefficients of the interaction term reveals an interesting finding: the importance of business experience accumulated by the firm decreases most with the participation of the state in the firm's equity (categories **[3]** and **[4]**), while networking of "POEs" with the foreign firms (category **[2]**, "FI-POEs") does not seem to offset the liability of newness, incurred by the private firms, by generating the complementary advantages within the hybrid equity structures, or at least not as efficiently as does the networking with the state. Besides, the interaction with the squared term yields the differing shapes of the effect over time,

showing the diminishing importance of the business experience for the "SOEs" and increasing effect on the FDI transition probability for other networking groups.

Although the differences in the slopes between the "POEs" and other networking categories prove insignificant, which is also confirmed with the pairwise contrast of the coefficients and *Bonferroni-adjusted p-values*, the marginal effect of $FirmAge_{it}$, decomposed for each of the $EquityNetwork_{it}$ categories in the panel (*b*) of *Table 27*, attains statistical significance at $[p < 0.05]$ for the "FI-SOEs" (category [**4**]), providing a partial support for the hypothesis **H2a**.

The differences in the marginal effects for the "FI-POEs" and "SOEs" (categories [**2**] and [**3**]) are nearly zero and statistically insignificant. To acknowledge the peculiarity of the non-constant marginal effects in the non-linear FDI probability model, *Figure 5* depicts a more detailed decomposition of the interaction effect: the average marginal effects of $FirmAge_{it}$ by the $EquityNetwork_{it}$ groups are contrasted at the different values of $FirmAge_{it}$, from [1] to [30], covering all three political regimes. Two observations are of a particular interest on the AME plots of *Figure 5*.

The first observation points at a clear variation in the effect of the firm's business experience, $FirmAge_{it}$, across the networking groups at the AME plot (*a*) of *Figure 5*. While the effect of the business experience is markedly stronger for the "FI-SOEs", the predictive margins for the "POEs", "FI-POEs", and "SOEs" are found within a narrow probability band close to zero, which apparently indicates that the importance of the business experience for internationalisation of the Russian firms is not as pronounced as conventionally presumed in the IB literature. A closer look at the shapes of the probability curves reveals that the participation of the state in the firm's equity decreases the importance of the business experience over time: the "SOEs" with more than 20 years of market operations are less able to capitalise on their experience and institutional baggage compared to the younger firms.

An interesting conclusion can be drawn from the comparison of the equity structures for the old Soviet firms – i.e., the firms with market operations over 20 years on the plot. The full privatisation of the Soviet state-controlled enterprises into domestic ownership during the reformation periods (the "POEs" with $FirmAge_{it} > 20\ years$) had been enhancing their international involvement: the blue probability curve for the POEs gains a marginal increase with the firm's age, but, nevertheless, lies below the curve for SOEs. However, the full privatisation with the participation of foreign firms extends

the probability curve for "FI-POEs" above the curve for the "SOEs". This finding explains the contradictory evidence on the relative differences in the FDI transition probabilities between the "FI-POEs" and "SOEs", encountered in *Section 7.1*. The networking with foreign firms endows the "POEs" (i.e., the "FI-POEs" group) with superior advantages for international venturing, compared to the state's participation in the firm's equity within the SOEs group, – though only for the fully-privatised old Soviet enterprises.

For the newly-founded firms during the both reformation periods, the networking with the state yields a superior set of advantages for international venturing, resulting in the greater FDI transition probabilities. The $\cup -shape$ of the probability curve for the firms with the triad hybrid equity structure ("FI-SOEs") reveals that the extra-state networking with foreign firms contributes at the most to the FDI transition probabilities of the youngest firms founded during the most recent statist period (2001–2011), and the oldest partially privatised Soviet enterprises. In other words, the youngest firms do compensate for the lack of experience by aligning within the triad hybrid networks, complementing the investment capac0ities of the state and foreign capital.

The second observation concerns a methodological inconsistency commonly overlooked in IB studies. Although the interaction term $[FirmAge_{it} \times EquityNetwork_{it}]$ obtained in the regression model and presented in the panel (*a*) is not significant, the interaction effect attains significance at the different ranges of the firm's foundation, as evidenced by the CIs at the plot (*b*)[79] of *Figure 5*, confirming the econometric insights on the interaction in the non-linear models by Ai and Norton (2003).

The highlighted areas on the plot (*b*), within which the interaction effects become significant, emphasise the sharp heterogeneity among the networking groups. The main contrast appears between the "SOEs" and "FI-SOEs": the effect of the equity ties with the state enhances the FDI transition probabilities of the firms newly created during the reformation periods, while the extra-state networking with the foreign firms boosts the propensity to involve into international venturing of the firms with a greater business experience.

[79] The actual AME values and *p-values* are not reported for reasons of brevity.

Table 27:

The moderation effect of the firm's equity networks on the impact of the firm-specific characteristics onto the FDI transition probability.

(a) the variation in the effect of the firm's business experience across the $EquityNetwork_{it}$ categories: the coefficients of the interaction term under the panel *logit* and *probit* regressions with the parent firm *random effects* (RE), and the *complementary log-log* estimation

Link:	***Logit* regression** [RE]		***Probit* regression** [RE]		***Clog-log* regression**		**Prediction**
	without control variables	full model	full model	adjusted by factor [×1.86]	full model	adjusted by factor [×1.238]	
DV: FDIstatus [0 → 1]							
Moderator: $EquityNetwork_{it}$							
Firm's attribute:							
FirmAge[a] ×					not estimable		
2 = FI-POEs	0.038	-0.012	-0.014	-0.027	–	–	± [H2]
3 = SOEs	-0.098**	-0.171	-0.031	-0.058	–	–	
4 = FI-SOEs	-0.183*	-0.157	-0.038	-0.070	–	–	
FirmAgeSqr[a] ×					not estimable		
2 = FI-POEs	0.00054	0.00007	0.00005	0.00009	–	–	
3 = SOEs	-0.00011	-0.00104	-0.00076	-0.00141	–	–	
4 = FI-SOEs	-0.18340**	0.00305	0.00075	0.00140	–	–	
Comparison of goodness-of-fit of the two-state transition probability with the interaction effect:							
Number of observations	4,340,059	2,635,402	2,635,402	–	2,635,402	–	
McKelvey & *Zavoina*'s R^2	0.0476	0.2600	0.2510	–	–	–	
AIC	5,821.50	2,988.71	2,962.51	–	–	–	
BIC	5,994.18	3,321.11	3,294.91	–	–	–	
Wald test *chi²*:	1,966.23	1,190.14	1,063.42	–	–	–	
p-value:	[<0.00005]	[<0.00005]	[<0.00005]	–	–	–	
Log Likelihood (*df 23*)	(*df 13*) -2,897.74	-1,468.36	-1,455.26	–	–	–	

The pairwise contrast of the interaction term coefficients for the *logit* specification:

	Δ in coefficients		**Chi²**		**Bonferroni-adjusted p-value**	
FirmAge ×	3 = SOEs	4 = FI-SOEs	3 = SOEs	4 = FI-SOEs	3 = SOEs	4 = FI-SOEs
2 = FI-POEs	0.060	0.145	0.13	0.47	1.000	0.989
3 = SOEs	–	0.085	–	0.11	–	0.738

Table 27:
Continued.

(b) the decomposition of the average marginal effects (AMEs) of $FirmAge_{it}$ by the $EquityNetwork_{it}$ categories: the *logit* specification

	Predictive margin	Delta-method SE	z-statistic	P>|z|
FirmAge ×				
1 = POEs	0.00000004	0.00000003	1.20	0.229
2 = FI-POEs	0.00000048	0.00000040	1.18	0.237
3 = SOEs	-0.00000136	0.00000674	-0.20	0.841
4 = FI-SOEs	**0.00058680**	0.00028040	2.09	0.036

Note:

[a] The interaction effects with $FirmAge_{it}$ was computed by accounting for the squared term of $FirmAge_{it}$, using the factor variable specification in the Stata software.

Figure 5:
The moderation effect of the $EquityNetwork_{it}$ categories on the impact of the firm's business experience onto the FDI transition probability of the Russian firms.

(a) the decomposition of the $FirmAge_{it}$ effect by the $EquityNetwork_{it}$ categories.

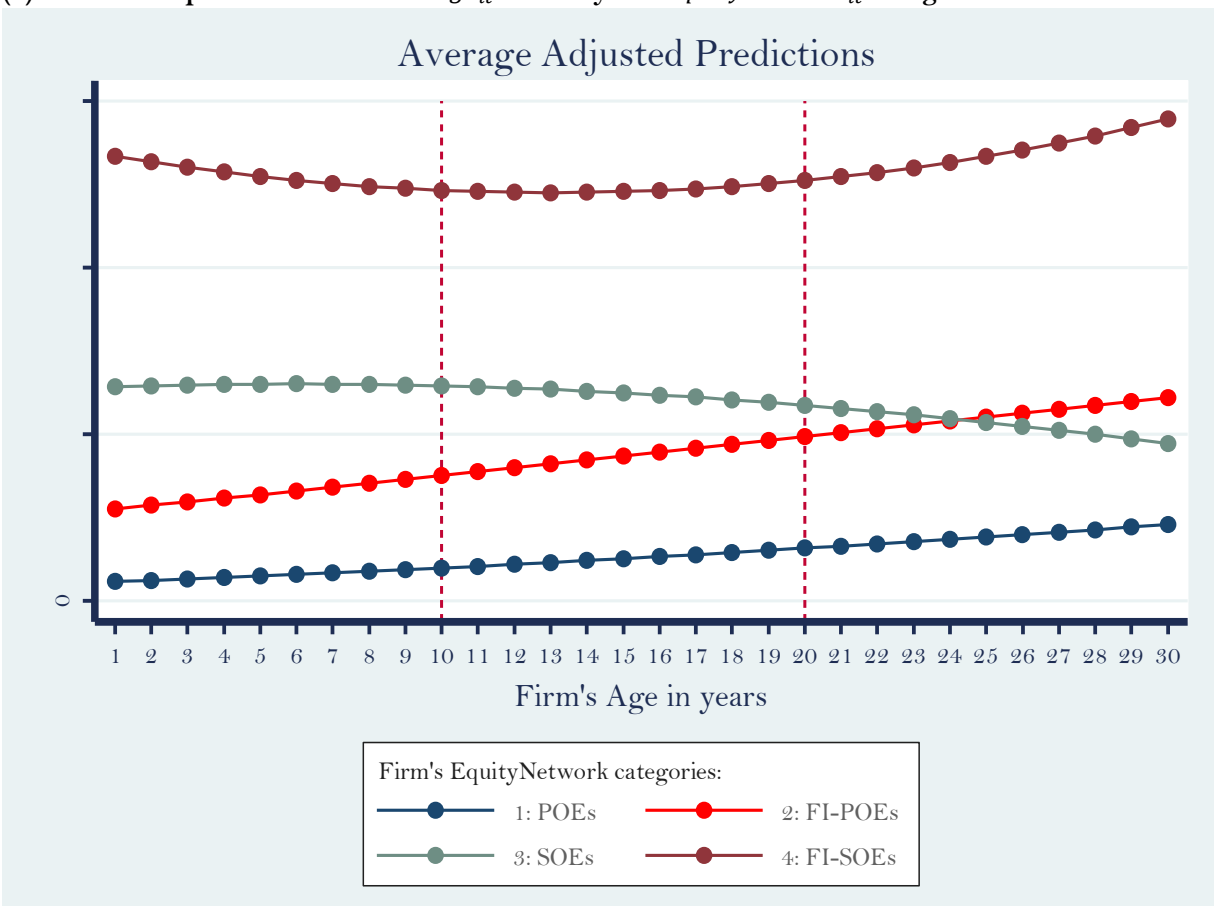
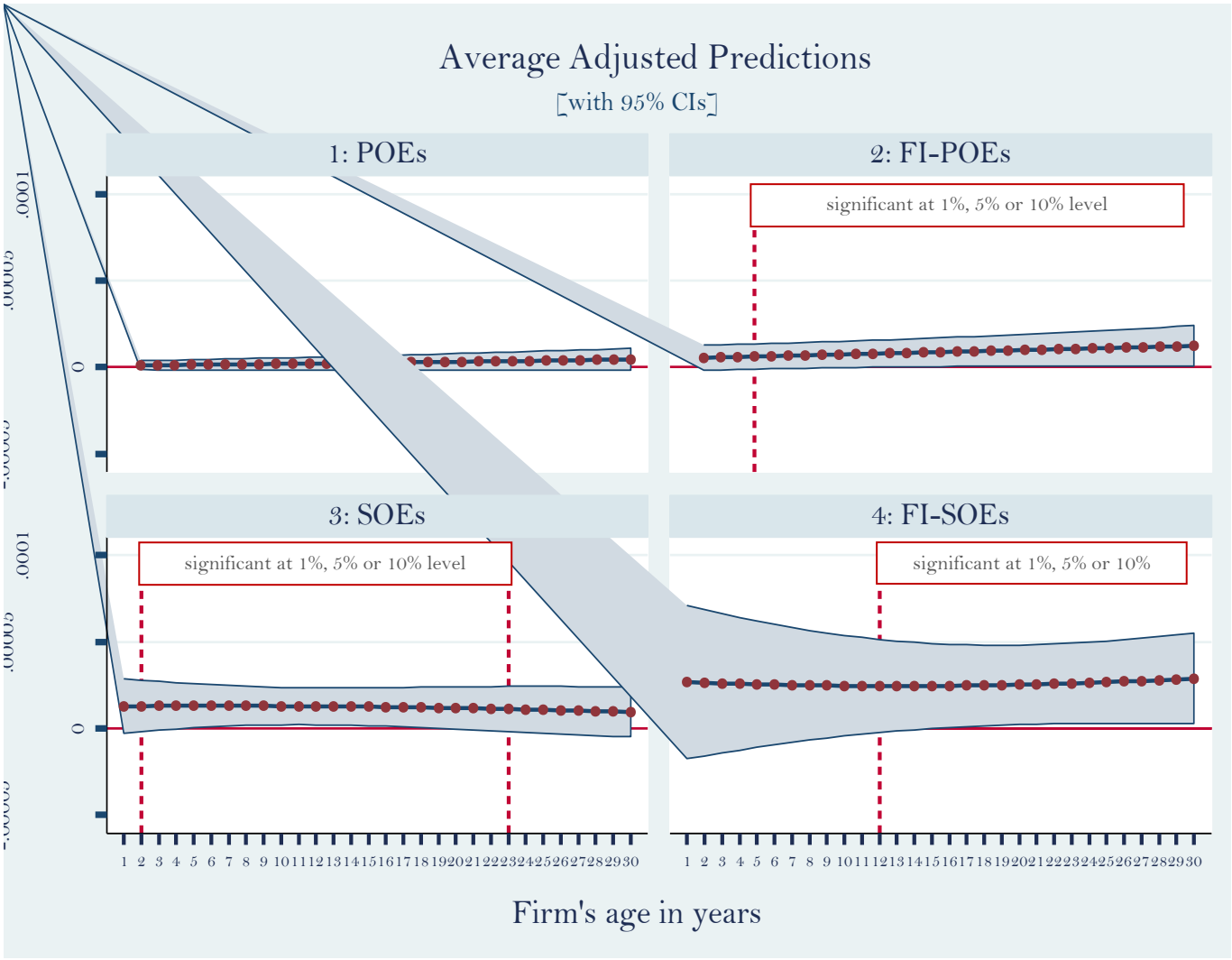


Figure 5:
Continued.

(b) the significance of the moderation effect of $EquityNetwork_{it}$ across the range of the $FirmAge_{it}$ values.



8.1.2 The moderation effect of equity networks on the knowledge-intensity and technological capabilities of Russian firms

The firm's equity structure is also found to moderate the effect of knowledge-intensity and technological capabilities accumulated by the firm on its propensity to switch to multinationality. Although the final FDI transition probability Model (*22*) yielded the overall positive and significant effect of $Intangibles_{it}$ (*Tables 24* and *7.A.2*), the introduction of the interaction term in the modelled equation shows that the importance of knowledge-intensity for the firm's FDI status varies significantly in signs and magnitude across the $EquityNetwork_{it}$ categories (*Table 28-a* and *-b*), yielding further support to the hypothesis **H2a**.

The change in the signs of the interaction term, reported in the panel (*a*) of *Table 28*, particularly encourages attention. The networking with the foreign firms reverses the sign of the effect of $Intangibles_{it}$ for the "FI-POEs" (category **[2]** of $EquityNetwork_{it}$) and yields a significant coefficient for the interaction term at $[p < 0.005]$ under all alternative specifications: the *logit*, *probit*, and *complementary log-log* links. The positive coefficient for the firms with state participation in equity, *per contra*, shows that the "SOEs" and, even in a greater extent, "FI-SOEs" are capable to more effectively utilise the accumulated knowledge in their initial move into the foreign markets, compared to "POEs". Nonetheless, all three estimations with the alternative links return the statistically insignificant interaction terms for the categories **[2]** and **[3]** of $EquityNetwork_{it}$.

The pairwise comparison of the interaction coefficients between the $EquityNetwork_{it}$ groups, prove that the moderating effect of $EquityNetwork_{it}$ is significantly stronger for the firms with state participation ("SOEs" *vs.* "FI-POEs") and the triad hybrid equity structures ("FI-SOEs" *vs.* "POEs"), enhancing the importance of the knowledge-intensity for the FDI transition probabilities. The outlined pairwise differences in the coefficients of the interaction term are statistically significant, rejecting the research proposition (**H2b**) in part of $Intangibles_{it}$. Extending the equity ties beyond the national borders and forming the extra-state networks do not change the importance and effective transfer of intangible assets for the "SOEs", as it does for the privately-owned firms ("POEs"): the coefficients of the interaction terms ("SOEs" *vs.* "FI-SOEs") do not deviate significantly.

The addition of the interaction term with $Patent_{it}$ and $Patentclass_{it}$ into the FDI transition probability model reveals the heterogeneity in the effect of technological intensity and innovation capabilities across the strategic network groups of the firms, $EquityNetwork_{it}$. The technological intensity and possession of international patents prove to exert a relatively lower impact on the FDI probability of the "SOEs" (category [**3**]) compared to the "POEs" (baseline category [**1**]), as evidenced by the negative signs of the interaction term, though not significant for $Patentclass_{it}$. The networking with foreign firms, contrariwise, enhances the importance of internationally recognised patents for the transition in the FDI status – in greater extent for the privately-owned firms (category [**2**], "FI-POEs") than for the firms affiliated with the state (category [**4**], "FI-SOEs").

To improve on the interpretation and presentation of the true interaction effects of networking strategies, the panel (*b*) of *Table 28* computes the cross partial derivatives of $E[FDIstatus_{it}]$, with respect to changes in the firm's knowledge-intensity and innovation capabilities for the change in the $EquityNetwork_{it}$ group. The variation in the average marginal effects of $Intangibles_{it}$ over the $EquityNetwork_{it}$ categories prove significant for all groups, except for the category [**2**], "FI-POEs". The plotted decomposition of the AMEs at *Figure 6-a* depicts the drastic difference in AMEs across the networking groups: the marginal effect of knowledge-intensity is close to zero for the privately-owned firms ("POEs"), while the equity ties with the state enhance significantly the impact of intangible assets on the FDI transition propensities of the Russian firms.

The following section in the panel (*b*) of *Table 28* reports the probabilities (AAPs) of switching to multinationality for every combination of the $EquityNetwork_{it}$ and $Patentclass_{it}$ categories. To tests the significance of the moderation effect of intra-state and extra-state networking strategies, $EquityNetwork_{it}$, the discrete changes in the effect of $Patentclass_{it}$ onto the FDI propensity are computed against the baseline category [**1**] "No patents" of $Patentclass_{it}$ within each $EquityNetwork_{it}$ group. The effects of obtaining an internationally registered patent (category [**3**] of $Patentclass_{it}$), compared to having no patents, prove to vary drastically across the equity network groups; however, it attains significance only for one category of "FI-POEs", yielding only partial support for the hypothesis **H2a**. The superiority of the triad hybrid networks is clearly visualised at the plot (b) of *Figure 6*, which confirms that the "FI-SOEs" are apparently more efficient in capitalising on the accumulated innovation capabilities for their initial move into the foreign markets.

Table 28:

The moderation effect of the firm's equity structure on the impact of the firm-specific characteristics onto the FDI transition probability.

(a) the variation in the effects of knowledge-intensity and innovation capabilities across the $EquityNetwork_{it}$ categories: the coefficients of interaction term under the panel *logit* and *probit* regressions with *random effects* (RE), and *complementary log-log* estimation

Link:	***Logit* regression** [RE]		***Probit* regression** [RE]		***Clog-log* regression**		**Prediction**
	without control variables	full model	full model	adjusted by factor [×1.86]	full model	adjusted by factor [×1.238]	
DV: FDIstatus [0 → 1]							
Moderator: $EquityNetwork_{it}$							
Firm's attribute:							
Intangibles ×							± [H2]
2 = FI-POEs	-0.738***	-0.654***	-0.383***	-0.712***	-0.348***	-0.431***	
3 = SOEs	0.315**	0.081	0.005	0.009	0.076	0.094	
4 = FI-SOEs	0.241	0.286	0.208	0.387	0.307	0.380	
Comparison of goodness-of-fit of the two-state transition probability models with the interaction effect for $Intangibles_{it}$:							
Number of observations	2,887,781	2,635,237	2,635,237	–	–	–	
McKelvey & *Zavoina*'s R^2	0.0319	0.2565	0.2561	–	–	–	
AIC	4,449.29	2,983.82	2,998.75	–	–	–	
BIC	4,565.17	3,277.87	3,292.79	–	–	–	
Wald test *chi²*:	1,166.03	1,288.62	1,395.95	–	–	–	
p-value:	[<0.00005]	[<0.00005]	[<0.00005]	–	–	–	
Log Likelihood (*df 23*)	(*df 9*) -2,215.64	-1,489.35	-1,476.38	–	–	–	
The pairwise contrast of the interaction term coefficients for the *logit* specification:							
	Δ in coefficients		**Chi²**		**Bonferroni-adjusted p-value**		
Intangibles ×	3 = SOEs	4 = FI-SOEs	3 = SOEs	4 = FI-SOEs	3 = SOEs	4 = FI-SOEs	
2 = FI-POEs	-0.736***	-0.941**	7.61	5.95	0.006	0.015	
3 = SOEs	–	-0.205	–	0.23	–	0.631	
Firm's attribute:							
Patents ×							± [H2]
2 = FI-POEs	not estimable	0.070	0.037	0.068	not estimable	not estimable	
3 = SOEs	not estimable	-0.105*	-0.064*	-0.119*	not estimable	not estimable	
4 = FI-SOEs	not estimable	0.053	0.103	0.192	not estimable	not estimable	
PatentClass							± [H2]
2 = FI-POEs							
× 2 = Domestic RU	not estimable	not estimable	not estimable	not estimable	not estimable	not estimable	
× 3 = International	1.624**	1.742	0.834	1.551	not estimable	not estimable	
3 = SOEs							
× 2 = Domestic RU	not estimable	not estimable	not estimable	not estimable	not estimable	not estimable	
× 3 = International	0.250	-2.952	-1.873	-3.484	not estimable	not estimable	
4 = FI-SOEs							
× 2 = Domestic RU	not e0stimable	not estimable	not estimable	not estimable	not estimable	not estimable	
× 3 = International	1.480	0.289	1.648	3.065	not estimable	not estimable	

Table 28:
Continued.

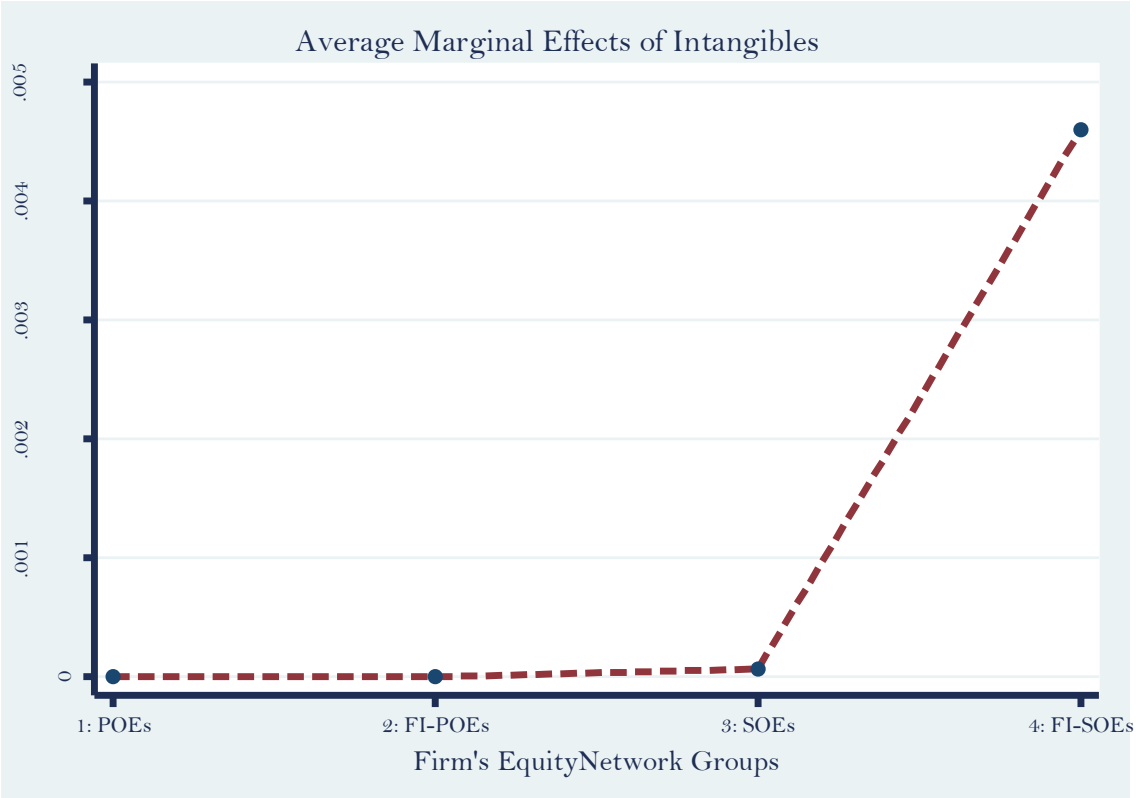
(b) the decomposition of the predictive margins of the knowledge-intensity and innovation capabilities by the $EquityNetwork_{it}$ categories: the *logit* specification

	AMEs	Delta-method SE	z-statistic	P>|z|
Firm's attribute:				
Intangibles ×				
1 = POEs	0.0000014	0.0000003	3.91	0.000
2 = FI-POEs	0.0000005	0.0000012	0.39	0.699
3 = SOEs	0.0000676	0.0000096	7.02	0.000
4 = FI-SOEs	0.0045950	0.0019272	2.38	0.017
	AAPs	**Delta-method SE**	**z-statistic**	**P>|z|**
PatentClass				
1 = POEs				
× 1 = No patent	0.0000009	0.0000008	1.15	0.251
× 2 = Domestic RU	0.000000001	0.0000000	0.36	0.720
× 3 = International	0.0000246	0.0000218	1.12	0.261
2 = FI-POEs				
× 1 = No patent	0.0000159	0.0000064	2.46	0.014
× 2 = Domestic RU	not estimable	–	–	–
× 3 = International	0.0012868	0.0001718	7.49	0.000
3 = SOEs				
× 1 = No patent	0.0001086	0.0000499	2.18	0.030
× 2 = Domestic RU	not estimable	–	–	–
× 3 = International	0.0001583	0.0002359	0.67	0.502
4 = FI-SOEs				
× 1 = No patent	0.0178772	0.0099022	1.81	0.071
× 2 = Domestic RU	not estimable	–	–	–
× 3 = International	0.1197998	0.0827142	1.45	0.148
	Discrete change	**Delta-method SE**	**z-statistic**	**P>|z|**
PatentClass	× 1 = No patent			
1 = POEs				
× 2 = Domestic RU	-0.000000914	0.0000008	-1.15	0.251
× 3 = International	0.0000237	0.0000213	1.11	0.266
2 = FI-POEs				
× 2 = Domestic RU	not estimable	–	–	–
× 3 = International	**0.0012709**	0.0001686	7.54	0.000
3 = SOEs				
× 2 = Domestic RU	not estimable	–	–	–
× 3 = International	0.0000498	0.0002247	0.22	0.825
4 = FI-SOEs				
× 2 = Domestic RU	not estimable	–	–	–
× 3 = International	0.1019226	0.0833665	1.22	0.221

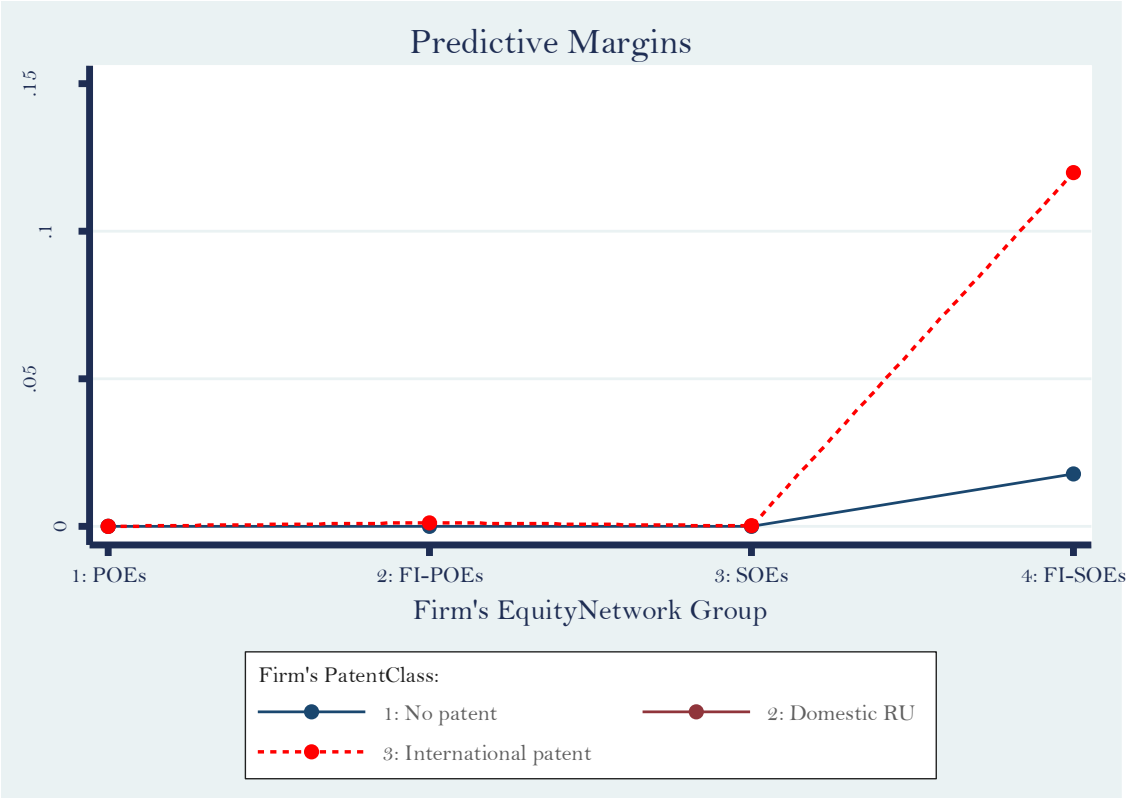
Figure 6:

The moderation effect of the $EquityNetwork_{it}$ categories on the impact of the firm's knowledge-intensity and innovation capabilities onto the FDI transition probability of the Russian firms.

(a) the decomposition of the average marginal effect of the firm's knowledge-intensity, measured with $Intangibles_{it}$, by the $EquityNetwork_{it}$ categories.



(b) the decomposition of the effect of the firm's innovation capabilities, measured with $Patentclass_{it}$, by the $EquityNetwork_{it}$ categories.



8.1.3 The moderation effect of equity networks on the importance of firm's size for FDI transition probability of Russian firms

The effect of the conventional FDI determinant in the IB literature – the firm's size – proves to be not as straightforward and unequivocal, as commonly hypothesised in the FDI research, and reveals a striking heterogeneity in the signs and magnitude when compared across the firms' strategic groups. The coefficients of the interaction term [$EquityNetwork_{it} \times FirmSizeTA_{it}$], reported in the panel (*a*) of *Table 29*, vary significantly with the change in the equity structure and networking strategies of the Russian firms, lending further support for the hypothesis **H2a**. The assets and resources garnered by the firm diminish in their importance for the initial FDI move, when the private firms establish equity ties with foreign firms (category **[2]** of $EquityNetwork_{it}$, "FI-POEs"), though the difference is not statistically significant [$p > 0.1$].

The participation of the state in the firm's equity (category **[3]**, "SOEs") exerts a reverse effect, changing the cognitive models within hybrid networks for a more intensive transfer and leverage of the accumulated resources in the foreign markets. Interestingly, the "FI-SOEs" are standing out amidst other strategic groups in their capabilities to extend the usage of the available assets beyond geographical borders, as featured with the highest interaction term, which is statistically significant [$p < 0.0005$] across all the specifications of the FDI transition probability model. The firms with triad hybrid networks rely most intensively on their accumulated resources when switching to the multinational status.

The contradictory effect of the extra-state networking is striking: extending the equity ties beyond the national state refracts the importance of the firm's resources for its FDI transition probabilities, rejecting the research proposition on importance of accumulated assets for the POEs, formulated in the hypothesis **H2b**. The pairwise contrast of the coefficients of the interaction term proves that the contribution of equity linkages with foreign firms towards a more effective transfer of the firm's resources into the foreign markets significantly greater for the state-owned firms ("FI-SOEs"), compared to the "FI-POEs". The superiority of the triad hybrid networking strategies is reflected in the highest marginal effects of the "FI-SOE" strategic group, which is plotted at *Figure 7*.

Table 29:

The moderation effect of the firm's equity structure on the impact of the firm-specific characteristics onto the FDI transition probability.

(a) the variation in the effects of the firm's size across the $EquityNetwork_{it}$ categories: the coefficients of the interaction term under the panel *logit* and *probit* regressions with the parent firm *random effects* (RE), and *complementary log-log* estimation

Link:	***Logit* regression** [RE]		***Probit* regression** [RE]		***Clog-log* regression**		**Prediction**
	without control variables	full model	full model	adjusted by factor [×1.86]	full model	adjusted by factor [×1.238]	
DV: FDIstatus [0 → 1]							
Moderator: $EquityNetwork_{it}$							
Firm's attribute:							
FirmSizeTA ×							± [H2]
2 = FI-POEs	-0.197	-0.232	-0.056	-0.104	-0.061	-0.076	
3 = SOEs	2.482***	2.260***	1.355***	2.520***	1.593***	1.972***	
4 = FI-SOEs	7.678***	6.652**	5.710*	10.621*	6.236**	7.720**	
Comparison of goodness-of-fit of the two-state transition probability models with the interaction effect:							
Number of observations	2,888,417	2,635,402	2,635,402	–	2,635,402	–	
McKelvey & *Zavoina*'s R^2	0.2330	0.2485	0.2423	–	–	–	
AIC	3,865.18	2,940.61	2,929.83	–	2,978.13	–	
BIC	3,981.06	3,234.66	3,223.87	–	3,272.18	–	
Log Likelihood	-1,923.59	-1,447.31	-1,441.92	–	1,466.07	–	
Wald test chi^2:	1,966.23	1,387.66	1,156.49	–	1,682.15	–	
p-value:	[<0.00005]	[<0.00005]	[<0.00005]	–	[<0.00005]	–	

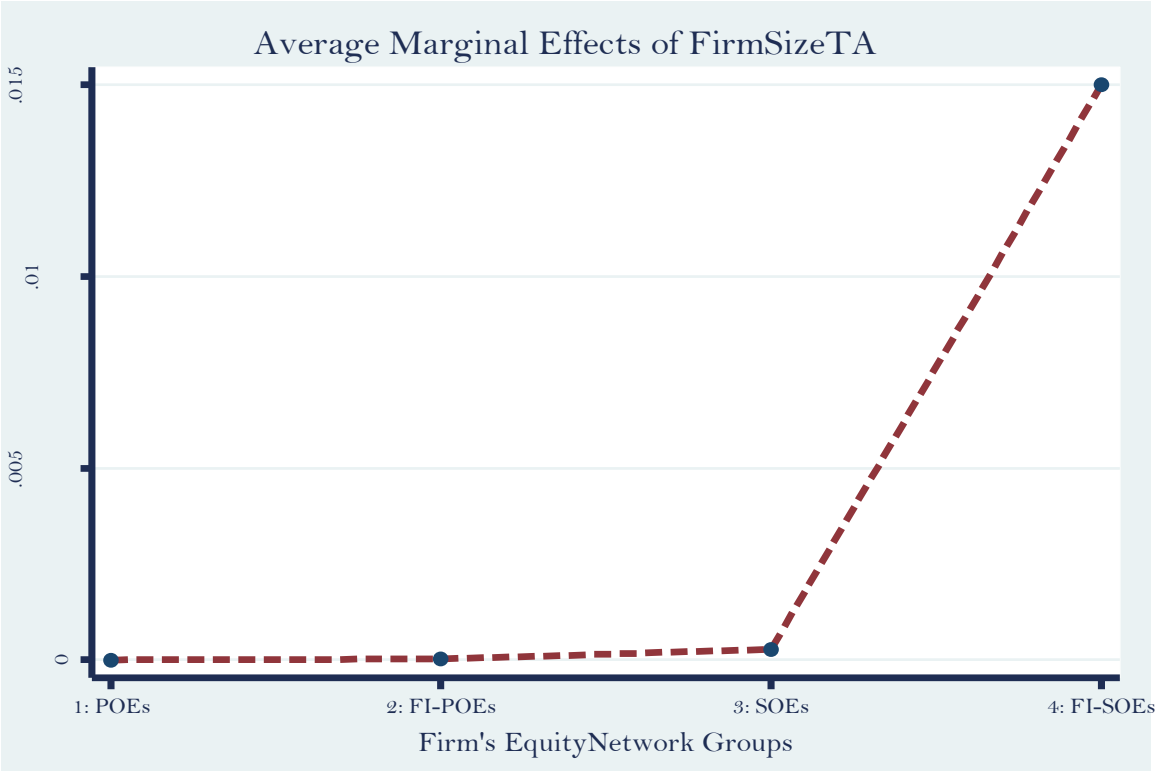
The pairwise contrast of the interaction term coefficients for the *logit* specification:

	Δ in coefficients		**Chi²**		**Bonferroni-adjusted p-value**	
FirmSizeTA ×	3 = SOEs	4 = FI-SOEs	3 = SOEs	4 = FI-SOEs	3 = SOEs	4 = FI-SOEs
2 = FI-POEs	-2.492***	-6.884**	31.83	4.33	0.000	0.037
3 = SOEs	–	-4.392	–	1.75	–	0.186

(b) the decomposition of the average marginal effects (AMEs) of $FirmSizeTA_{it}$ by the $EquityNetwork_{it}$ categories: the *logit* specification

	Predictive margin	**Delta-method SE**	**z-statistic**	**P>|z|**
FirmSizeTA ×				
1 = POEs	0.00000036	0.00000046	0.77	0.442
2 = FI-POEs	0.00002420	0.00001980	1.22	0.222
3 = SOEs	**0.00027780**	0.00003660	7.60	0.000
4 = FI-SOEs	0.01499790	0.01118550	1.34	0.180

Figure 7:
The moderation effect of the $EquityNetwork_{it}$ categories on the impact of the firm's size onto the FDI transition probability of the Russian firms.



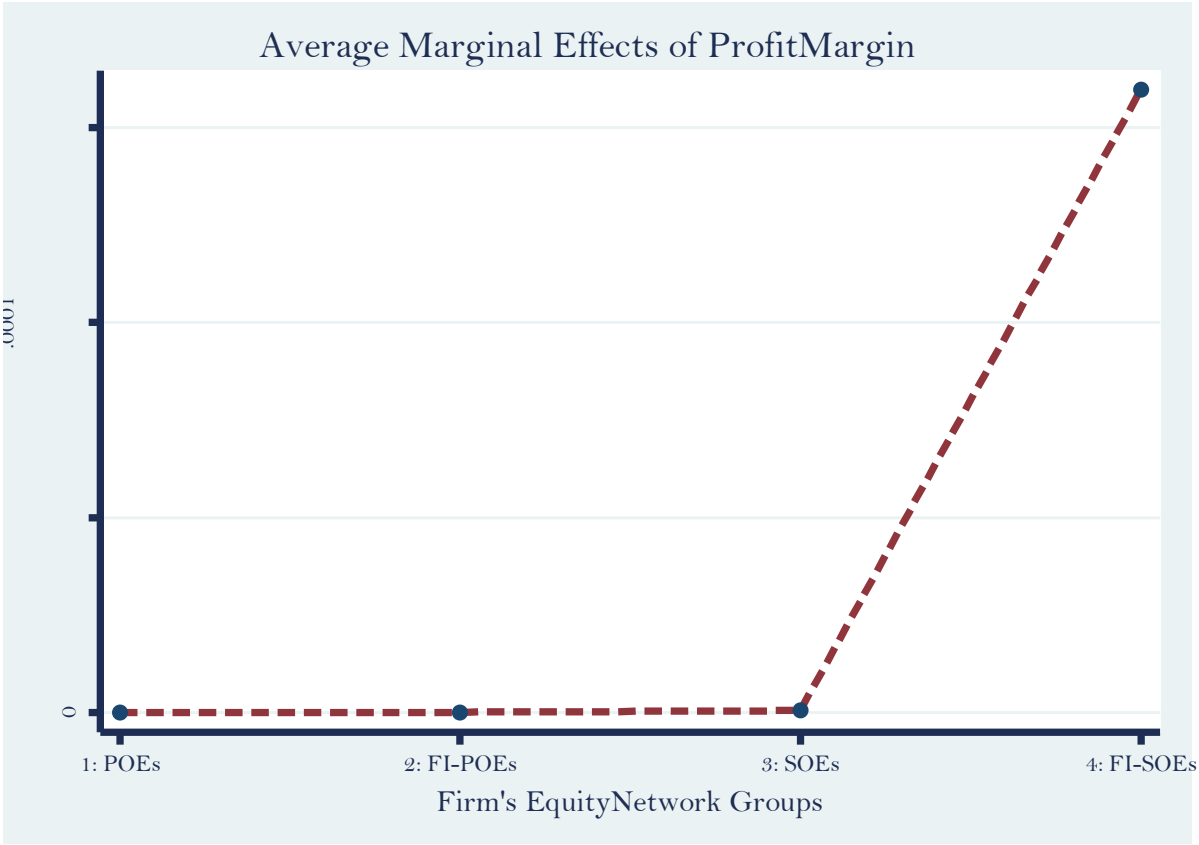
8.1.4 The moderation effect of equity networks on the effect of firm's efficiency for FDI transition of Russian firms

Contrary to the conventional presumptions in the comparative economics literature, the firm's efficiency, – a salient distinction between the private and state-owned enterprises, – does not change its effect among the firm's strategic groups, $EquityNetwork_{it}$. Therefore, no support has been found for the hypothesis **H2a** in part of the firm's efficiency. Although the interaction term of the firm's equity structure and its profitability level, $[EquityNetwork_{it} \times ProfitMargin_{it}]$, decreases in magnitude for the firms with state participation ("SOEs") relatively to the firms in sole private ownership ("POEs"), none of the models, tested in the panel (*a*) of *Table 30*, confirm its significance; – thus, only partly supporting the hypothesis **H2b**.

Moreover, the average marginal effect of the firm's profitability, computed in the panel (*b*), obtains greater values for both strategic groups of the firms, which established the equity ties with the state: the "SOEs" and the "FI-SOEs". The plotted average marginal effects (AMEs) at *Figure 8* once again confirm that the triad hybrid

equity structures of "FI-SOEs" strongly moderate the effect of $ProfitMargin_{it}$ on the probability of the firms to switch in the FDI status. The FI-SOEs are apparently conferred with superior capabilities to exploit the achieved cost efficiency margins for the new strategic moves beyond the domestic operations.

Figure 8:
The moderation effect of the $EquityNetwork_{it}$ categories on the impact of the firm's profitability onto the FDI transition probability of the Russian firms.



The four sets of moderation models, rigorously estimated and visualised in the present section, bring forward the same observation: the effect of the conventional firm's attributes onto the initial foreign investment decisions is highly conditional on the equity structure and networking strategies developed by the firms.

The equity ties with the state and foreign firms, extending the firm's boundary and linkages beyond the national state, change the importance of the firm's specific advantages (i.e., business experience, accumulated resources, knowledge, and patents) for an initial decision to transit to multinationality, though the statistical significance of the results varies across the models. The following *Section 8.2* proceeds with discussion of obtained findings.

Table 30:

The moderation effect of the firm's equity structure on the impact of the firm-specific characteristics onto the FDI transition probability.

(a) the variation in the effects of the firm's efficiency across the $EquityNetwork_{it}$ categories: the coefficients of the interaction term under the panel *logit* and *probit* regressions with the parent firm *random effects* (RE), and *complementary log-log* estimation

Link:	***Logit* regression** [RE]		***Probit* regression** [RE]		***Clog-log* regression**		**Prediction**
	without control variables	full model	full model	adjusted by factor [×1.86]	full model	adjusted by factor [×1.238]	
DV: FDIstatus [0 → 1]							
Moderator: $EquityNetwork_{it}$							
Firm's attribute:							
ProfitMargin ×							± [H2]
2 = FI-POEs	0.002	-0.003	0.001	0.002	0.004	0.005	
3 = SOEs	-0.003	-0.019	-0.009	-0.017	-0.010	-0.012	
4 = FI-SOEs	-0.006	-0.007	-0.003	-0.006	-0.001	-0.001	
Comparison of goodness-of-fit of the two-state transition probability models with the interaction effect:							
Number of observations	2,637,153	2,635,402	2,635,402	–	2,635,402	–	
McKelvey & *Zavoina*'s R^2	0.0427	0.2583	0.2490		–		
AIC	4,871.69	2,976.23	2,969.44	–	3,119.01	–	
BIC	4,986.75	3,270.27	3,263.48	–	3,413.06	–	
Wald test *chi²*:	1,405.90	1,020.44	974.20	–	1,504.39	–	
p-value:	[<0.00005]	[<0.00005]	[<0.00005]	–	[<0.00005]	–	
Log Likelihood (*df* 23)	(*df* 9) -2,426.84	-1,465.11	-1,461.72		-1,536.51		

The pairwise contrast of the interaction term coefficients for the *logit* specification:

	Δ in coefficients		**Chi²**		**Bonferroni-adjusted p-value**	
ProfitMargin ×	3 = SOEs	4 = FI-SOEs	3 = SOEs	4 = FI-SOEs	3 = SOEs	4 = FI-SOEs
2 = FI-POEs	0.016	0.003	0.37	0.00	0.543	0.971
3 = SOEs	–	-0.012	–	0.02	–	0.901

(b) the decomposition of the average marginal effects (AMEs) of $ProfitMargin_{it}$ by the $EquityNetwork_{it}$ categories: the *logit* specification

	Predictive margin	**Delta-method SE**	**z-statistic**	**P>|z|**
ProfitMargin ×				
1 = POEs	0.00000002	0.00000002	0.99	0.321
2 = FI-POEs	0.00000018	0.00000016	1.12	0.264
3 = SOEs	0.00000060	0.00000110	0.54	0.586
4 = FI-SOEs	0.00015970	0.00066210	0.24	0.809

8.2 The heterogeneity in the effects of the firm's attributes on the FDI transition probabilities of the Russian firms across equity networks

The salient heterogeneity in the effects of the firm-specific characteristics, determined in *Sections 8.1.1–8.1.4*, leads to a conclusion that the IB literature is rigidly constrained with the linearity and univocacy of the conventional theoretical assumptions and hypothesised effects, largely understating the importance of the relational powers within the firm's networks indirectly influencing the real whelm of the business decision-making and refracting the importance of the conventional FDI determinants.

The moderation models, estimated in the preceding section, bring forward the conclusion: the effects of the conventional firm's specific advantages onto the initial decision to become multinational are highly conditional on the equity structures and networking strategies employed by the firms. The equity ties with the state and foreign firms, extending the firm's boundary and linkages beyond the national state, change the importance of the firm's business experience and accumulated resources, knowledge-intensity and innovation capabilities for an initial decision of Russian firms to internationalise via FDI.

The obtained evidence calls into question the homogeneity of the effects exerted by the conventional FDI prerequisites on the initial transition of the firm into foreign markets, as their importance may change under the diverse equity networks. Besides, the comparison of the effects across the diverse network configurations may allow revealing how the differing relational mechanisms extend the boundaries of cognition and influence managerial perceptions, which is discussed in the following *Section 8.2.1*.

8.2.1 The change in cognitive models within hybrid networks: the importance for effective utilisation of resources and capabilities in international venturing

The modelling effort yielded a set of the curious findings, presented in *Sections 8.1.1–8.1.4* across *Tables 27–30*. The rigorously tested and contrasted interactive models revealed that the effects of the firm's attributes, conventionally hypothesised in the IB research as the FDI prerequisites, are not as straightforward and unequivocal.

The major points of divergence in the effects across the networking groups, summarised in *Table 31* in the end of this section, clarify the inconsistencies observed in the effects of the firm's attributes in the initial FDI probability model, presented in the previous section. The greatest discrepancy in the effects of FDI prerequisites is observed between the firms under the sole private ownership (POEs) and the triad hybrid equity structures, capable to effectively complement the intra-state and extra-state networking strategies (FI-SOEs). The evident discrepancies in the abilities to transfer and utilise the endowed advantages in the foreign markets draw attention to the importance of managerial perceptions for the strategic change toward international venturing. The cognitive models of the firm managers are inevitably altered under the diverse equity structures and change the effectiveness with which the resources are re-allocated for international projects and the speed with which the FDI decisions are made.

The privately-owned firms (POEs), either newly created during the two reformation periods after 1991, or fully privatised from the former state-controlled Soviet enterprises, are evidently least capable to leverage the garnered resource base, technological capabilities, and knowledge acquired through the direct learning in the turbulent transition environment for the initial strategic move towards the international venturing. Quite contrary to the presumption of the comparative and political economics, the private and fully privatised firms are neither capable to capitalise on the cost efficiency. Along with doubts in the appropriateness of the neo-liberal reforms in the countries without anticipatorily pre-established practice and rules for the inclusiveness of all business groups in the economic and political stakes (the *inclusive institutions*), the weak inclination to exploit the developed advantages in the foreign markets by the private firms questions the effectiveness of the classic equity structures, professed by the governance literature and the agency-principal model, for the cross-border growth-oriented strategies in the EM states.

Amidst the Russian private firms (POEs), – with expectable generalisation across the EM MNEs, – the *risk-aversion* in appearingly dominates the managerial cognitive models and their perceptions of foreign markets, when those contemplate the strategic change towards multinationality. The modelling findings (*Table 28*, *Section 8.1.2*) revealed that the constrained or risk-biased cognitive models prevailing within the private structures supress the potential leverage of the soft innovations, created through fluid learning in the turbulent transition environment, and the generated codifiable knowledge for international venturing, along with the flexibility in engineering the more efficient production chains, conventionally attributed to

the private firms. In sharp contract with the classic governance structures, the hybrid equity structures confer the EM firms with internal mechanisms extending their *boundaries of cognition* and altering the managerial risk perceptions towards a more intensive usage of the resources at the command and generated capabilities for the initial strategic move into the foreign market – across all the internationalisation advantages (*Tables 27–30, ibidem*).

Apparently, the involvement of the Russian firms in the networking strategies drastically changes the interplay of the FSAs. Establishing the *intra-state networks* by the SOEs enhances the importance and initialisation of the business experience accumulated in the domestic market, – though narrowly for the two foundation groups of the newly-established enterprises during the initial reformation period and the recent statist regime, helping the newly-created firms to overcome the liability of newness. The SOEs, founded during the initial reformation period in the 1990s, are capable to capitalise on the sustained equity ties with the state after the turn to statism and the capabilities to effectively align the incentives and resource inflows via the hierarchal structures, – a capability lacked by the newly-created POEs or forfeited by the fully privatised firms. Interestingly, the state support abates the significance of technological capabilities and tacit knowledge, though intensifies the exploitation of the consolidated resource base, which reflects the aggravating outcomes of the short-sighted political strategies that became evident after the recent turn towards the statist SBR model.

The analysis of the *extra-state networking* strategy, pursued by both the private Russian firms and the state-owned enterprises, contributes with the amendments for two strands of the business literature. The strategic group of the FIEs, suggested by the empirical research of the firm's strategies in the emerging market economies (Peng et al., 2004), is not as homogeneous and uniform and, on the contrary, reveals the distinct FDI strategies and outcomes. The effect of the foreign ownership, well explored as one-valued phenomenon in the IB studies and the political economics, in the institutional settings of the EM states diverges significantly for the private and state-owned firms.

The two strategic sub-groups of the foreign-invested enterprises, the FI-POEs and the FI-SOEs, put forth the distinct relational mechanisms and synergies, discussed in a greater detail in the following section. Although the extra-state networking enhances the effect of business experience for the FI-POEs and the FI-SOEs, it contraposes the importance of the technological capabilities, learning strategies, and the size of

the firm. The equity linkages with the foreign firms intensify the transfer of the proprietary innovations in international ventures for the private firms (FI-POEs), apparently mitigating the risks of investing in a foreign environment faced by the private firms in sole ownership (POEs). For the state-owned firms (FI-SOEs), on the contrary, significance and leverage of the developed patents for the initial transition into the foreign markets decreases drastically. The complex hybrid equity structures of the FI-SOEs, fusing the state investment capacity and assets with the foreign capital, markedly accelerate the exploitation of the shared resource base.

The extra-state networking reversed the effect of the stock of tacit knowledge and the reputational assets on the FDI propensities within the classic private and hybrid equity structures. The ties with the foreign firms and governments effectively demolish the normative barriers for the firms with state participation (FI-SOEs) and expedite their adaptation in the foreign markets, combating the liability of foreignness via the reputational and legitimising mechanisms.

Table 31:

The comparison of the heterogeneity in the effects of the firm-specific characteristics onto the FDI transition probability across the firm's equity networks.

Equity Networks	Strategic groups [a]	Business experience	Technological capabilities	Tacit knowledge	Tangible resources	Cost efficiency
Classic: *sole private ownership*	POEs	the insignificant effect across all three foundation groups [b].	not capable of utilising the innovation capabilities in the foreign market.	the negative effect of the stock of tacit knowledge.	weakest and insignificant predictive margins on FDI propensity amidst all groups.	weakest and insignificant predictive margins on FDI propensity amidst all groups.
Dyad hybrid: *intra-state networking*	SOEs	enhances the FDI probabilities of the newly-created firms.	the negative effect of the technological intensity on the FDI probability; the firms without registered patents are more likely to enter the foreign markets.	significant, but weak predictive margins on the FDI propensity.	intensifies transfer and leverage of the assets in foreign markets; strong and significant predictive margins on the FDI propensity.	decreases the importance of the firm's efficiency for the initial transition to multinationality; stronger but insignificant predictive margins on FDI propensity.
Dyad hybrid: *extra-state networking*	FI-POEs	enhances the FDI probabilities of the former Soviet enterprises.	the strong positive effect of internationally registered patents on the FDI propensity.	insignificant and small predictive margins on the FDI propensity.	decreases the importance of the resource-base for the initial transition into the foreign markets.	no significant difference observed in the effect on the FDI probability.
Triad hybrid: *intra-state and extra-state networking*	FI-SOEs	enhances the FDI probabilities of the former Soviet enterprises.	the firms without registered patents are most likely to enter the foreign markets	the greatest in magnitude and significant predictive margins on the firm's FDI propensity.	most intensively capitalise on the garnered resources compared to other strategic groups.	greatest in magnitude, though insignificant predictive margins on FDI propensity.

Source: created by the author.

Notes:

[a] As defined by Peng et al. (2004). The FIE category has been further divided by the author into the FI-POEs and the FI-SOEs, as a more appropriate conceptualisation of the strategically distinct groups in the EM states for the investigation of the heterogeneity of FDI behaviour.

[b] The firms founded during the three distinct SBR and reformation periods, as conceptualised in *Table 3*:
the Soviet enterprises: established before 1991,
the newly-created firms: established during the initial period of neo-liberal reforms, 1991–2001,
the newly-created firms: established during the post-reformation statist period, 2002–2011.

8.2.2 Conclusion and implications for theory-building

The main conclusion crystallising out of the analysis of divergence in the effects of the firm's attributes across the equity networks, formed by the firms, concerns the concept of the firm in the first place. Conceptualising the EM firm as "a centre of network relations", the findings support the view of the firm's network as a distinct micro-order within the larger macro-system of the SBRs. The two important implications for understanding and modelling the foreign investment behaviour of the EM firms arise.

The international venturing endeavour of the EM firms is not merely, and largely not, a matter of the FSAs, but rather the ability to devise and adopt the cognitive models for the innovative leverage of the available resources in the novel settings of the foreign markets. The evidence withstands the onslaught of the neo-liberal argument on the demise of the state structures in the EM economies, showing the potential of the hybrid collaborative arrangements for the growth-oriented coalitions, prompting for a more effective and intensive shared investment. Along with extending the *resource boundaries* of the firms and exchange mechanisms, the hybrid forms of state participation change the properties of the restructured, newly-established, or partially privatised enterprises and as well extend the *boundaries of cognition* (firm's intentionality) and restrain the extractive motives of the foreign capital into the growth-oriented coalitions.

The outlined findings on the diverse indirect effects of the firm's equity linkages prompt a further essential question on the precise mechanisms and outcomes of resource and knowledge transfers within the firm's hybrid equity networks.

Whether the state enhances the FDI prospects of the Russian firms via encouraging, facilitating, and coordinating the formation of physical capital and conferring the firms with knowledge (*indirect* or *domination network effect*), or employs the administrative equity channels to incentivise foreign investment projects favourable for the government in office (*direct* or *influence network effect*)? Whether the hybrid equity structures strengthen the linkages and cooperative relations among the state and foreign capital, hastening the complementarity in the resources and strategic vision, and, herewith, the FDI propensities of the firms?

To tackle the stated questions, a novel model linking the impact of the firm's equity networks on resources and knowledge formation with the firm's FDI transition probabilities is constructed, estimated, and interpreted in the subsequent *Chapter 9*.

CHAPTER 9. THE RESOURCISM, CAPABILITIES, AND INCENTIVE STRUCTURES WITHIN THE HYBRID NETWORKS: THE EFFECTIVENESS OF THE STATE IN RELATIONS WITH DOMESTIC AND FOREIGN CAPITAL

The preceding analysis of the interrelationships between the firms' networking strategies, among other attributes, and their propensities to transit to multinationality revealed the clear divergence from the postulates of the established IB theories. The effects of the conventional FDI determinants are more complex and heterogeneous than previously conceptualised in the IB literature, and highly conditional on the network structures and the relational mechanisms created by the firms. The obtained findings show that a more holistic view is needed to understand how the distinct network-based strategies employed by the firms from the emerging market countries shape their FDI endeavours, – which thereby constitutes the prime target for the present chapter.

Section 9.1 carries on with the third stage of the data modelling and assigns a more challenging task of implementing a further methodological advancement to reveal more sophisticated indirect effects occurring within the hybrid equity structures. The second set (**H1b, H3a-b,** and **H4a-b**) is tested with the novel model derived in *Chapter 4.2*, which unbiasedly decomposes the net indirect networking effects via resource- and capability-building and contrasts those to the direct alteration of incentive structures for shared foreign investment via hybrid mechanisms (*Section 9.1*).

Section 9.2 continues the discussion of exchange mechanisms emerging within the distinct equity networks, formed by the Russian firms, and why those lead to a markedly different distribution of the capabilities and FDI propensity among the strategic groups. The discussion first of all aims to complement the IB theories, by casting the light on the very process of formation of the distinct sets of advantages within the formed networks, prompting the firms to involve into the international venturing.

To explain the findings, and enrich the IB theorising, a more careful consideration will to be given to the nature of relations within the formed networks, which expand the boundaries of the firms, as well as the changing models of the business-state interactions. The IB theories are ought to be complemented with both the network and the peculiarities of the inter-firm relations occurring within the political and economic networks.

9.1 The direct and indirect effects in the non-linear FDI transition probability model: the resource and capability building versus incentive effect within hybrid equity networks

The present section investigates the networking effects, conceptualised in *Chapter 3.3*, within the hybrid equity structures created by the Russian firms. Modelling of the resource- and capability building effects within the hybrid networks required developing and implementing a novel model able to unbiasedly decompose the net indirect effects via resource- and capability- building versus the direct effect of altering the incentive structures within hybrid networks.

To eliminate the potential source of invalidity in comparison of the indirect effects across the hybrid equity networks, a novel mediating model for non-linear effects, mathematically derived in the previous *Chapter 4.2*, is tested with the *khb*-module and reported in *Sections 9.1.1–9.1.3*, verifying the two sets of hypotheses **H3a-b** and **H4a-b**.

9.1.1 The mediating effect of the firm's knowledge-intensity and its impact on the FDI transition probability of Russian firms

The hybrid equity networks established by the Russian firms were found to endow the Russian firms with the superior advantages in their internationalisation endeavours. Though this finding was consistent across all estimated FDI transition probability models in *Chapter 7.1.1* and *7.A.2*, and held true for the decomposition of the marginal effects and discrete changes in *Chapter 7.1.2*, none of the applied modelling techniques allowed to understand the underlying relationship between the created equity networks and the FDI transition probabilities: why the networking strategies sharply increase the propensity of the Russian firms to succeed in the international undertakings.

To provide a more comprehensive insight into underlying mechanisms within the distinct equity networks established by the Russian firms and how those hybrid structures confer the firms with superior advantages specific for international venturing, a series of mediating models needs to be designed and tested unbiasedly. To cast the light on the two set of hypotheses **H3a-b** and **H4a-b**, the mediating models have to decompose the total effect of the four network groups, $EquityNetwork_{it}$, estimated in *Chapter 7.1.1*, into the *direct effect* on the FDI transition probabilities of the Russian firms – for instance, providing the administrative incentives for internationalisation, – and

the *indirect* or *mediating effect* exerted by the state and foreign shareholders on the foreign investment decisions via changing the portfolio of the firm's resource and capabilities, along with attuning the knowledge exchange within the intra-state and extra-state equity networks.

Detecting the mediating effects in the non-linear probability models proves a non-trivial methodological challenge, because the change in the effect of the firm's equity networks after addition of a mediator in the estimated FDI transition probability equation ought to be separated from the rescaling bias, which occurs due to inherent differences in residual variations and error distribution, as revealed in *Chapter 4.2*. To estimate the confounding effect net of the rescaling factor, which can be regarded as the true indirect effect of the equity structures, $EquityNetwork_{it}$, on the FDI transition probabilities of the Russian firms $[Prob_i(\text{FDIstatus}_{it} = 1|\boldsymbol{x}_{it})]$, a novel method is implemented (Karlson et al., 2012; Breen et al., 2013), which allows measuring the direct and indirect effects on the same scale, following the mathematical derivation (*ibidem*).

The examination of the indirect effect of the firm's equity networks starts with the decomposition of the total effect of $EquityNetwork_{it}$ on FDI transition probability of the Russian firms into two paths: the *direct path*, which approximates the direct incentive (or influence) effect of the state and foreign shareholders to move into a foreign market, and the *indirect path*, which reflects the resource and capability building (or domination) effect within hybrid network structures. The panel (*a*) of *Table 32* decomposes the total effect of all $EquityNetwork_{it}$ categories, using $Intangibles_{it}$ as a mediator. Other covariates, defined in the final FDI transition probability Model (22) (*Table 24*, *Chapter 7.1.1*), are added to the mediating model as concomitants, as those may significantly confound the decomposition (Breen et al., 2011).

The coefficient for the *indirect path*, presented in the panel (*a*), is computed as the difference between the two coefficients of the individual $EquityNetwork_{it}$ categories from the original and reparameterized full FDI transition probability models. Such estimation of the indirect path unbiasedly measures the confounding effect attributable to accumulation of the intangible assets, $Intangibles_{it}$, by the firms forming distinct equity networks, $EquityNetwork_{it}$; the mathematical derivation and proof are provided in *Chapter 4.2*. The coefficients of the direct and indirect parts of the total effect prove to be highly significant $[p < 0.0005]$ across all $EquityNetwork_{it}$ categories, which is verified with the *z-test statistics* developed by Karlson et al. (2012), and presented in the panel (*a*) along with the *p-values*. However, the extent to which the effect of $EquityNetwork_{it}$ is

mediated or explained by $Intangibles_{it}$ differ substantially across the firm's strategic groups. This finding is crucial for the FDI decisions of the Russian firms and deserves a more thorough explanation.

Establishing linkages with foreign firms – within the extra-state networks – exerts a remarkable effect on the knowledge-intensity of the firms, hastening the exchange and accumulation of the intangible assets valuable for the foreign investment projects for the private ("FI-POEs") and state-owned firms ("FI-SOEs"), as evidenced with the significant mediation or scale-free confounding percentage computed in the panel (*b*) of *Table 32*. For the "FI-POEs", the true indirect effect of the dyadic private-foreign partnerships on the firm's FDI probabilities via the enhanced knowledge-building accounts for 10.74% of the total effect; while the extension of equity networks beyond the national state by the "FI-SOEs" boosts the indirect effect attributable to $Intangibles_{it}$ to 17.44% from the total effect. The dyadic equity linkages with the state ("SOEs") are, contrariwise, not found as conferring with superior knowledge advantages that contribute to the competitive position of the Russian firms in the foreign markets. The mediation percentage for the "SOEs" remains at the relatively low level of 4.86%, indicating that the participation of the state in the firm's equity apparently exert a stronger direct effect via administrative incentives to prompt the controlled enterprises for international venturing.

The rescaling factor, computed in the panel (*b*), indicates that the conventional method of the "difference in coefficients" for estimating the indirect effect across the $EquityNetwork_{it}$ categories (*Table 5*, *Chapter 4.2*) would significantly underestimate the true amount of mediation caused by the accumulated intangible assets within the hybrid equity networks of the Russian firms. The comparison of direct and indirect effects would be hampered by the difference in the scale parameters between the reduced and full forms of the estimated model (Karlson et al., 2012). The adequately estimated mediation effect of $Intangibles_{it}$ across the $EquityNetwork_{it}$ groups reveals the significant difference in the observed true indirect effect between the privately-owned firms ("POEs") and the enterprises affiliated with the state ("SOEs"), providing preliminary support for the hypothesis **H4b**. A more rigorous test of the hypothesised effects comparing the codified and tacit knowledge components (**H4a** and **H4b**) implies the statistical contrast of the simultaneously added mediators into the FDI transition probability equation: reflecting the effect of the tacit knowledge, $Intangibles_{it}$, and the codified component, $PatentClass_{it}$ and $Patents_{it}$.

Table 32:

The mediating effect of the firm's knowledge-intensity on the relation of the firm's equity structure with the FDI transition probability of the Russian firms.

(a) the decomposition of the total effects of the firm's equity networks, $EquityNetwork_{it}$, into the direct and indirect paths: the *khb*-method under the panel *logit* specification with the cluster robust standard errors (SE), controlling for other covariates

	Coefficient	SE	z-statistic	P>[z]	Prediction
DV: FDIstatus [0 → 1]					
Mediator: $Intangibles_{it}$					
Key-variable:					
EquityNetwork					± [**H3**]
2 = FI-POEs					
Total effect	3.713	0.371	10.01	0.000	
Direct path	3.314	0.355	9.33	0.000	
Indirect path	0.399	0.028	14.05	0.000	
3 = SOEs					
Total effect	2.460	0.389	6.32	0.000	
Direct path	2.340	0.384	6.10	0.000	
Indirect path	0.120	0.025	4.87	0.000	
4 = FI-SOEs					
Total effect	12.583	1.003	12.55	0.000	
Direct path	10.389	1.117	9.30	0.000	
Indirect path	2.194	0.059	37.41	0.000	

(b) the summary of the confounding effect of $Intangibles_{it}$

	Confounding ratio	Confounding percentage	Rescaling factor
EquityNetwork			
2 = FI-POEs	1.120	10.74%	0.511
3 = SOEs	1.051	4.86%	0.390
4 = FI-SOEs	1.211	17.44%	0.972

The both hypotheses **H4a** and **H4b** inquire into the distinct learning modes and strategies employed by the network groups and their contribution to the heterogeneity in the FDI probabilities of the firms with the diverse equity structures. To draw the distinction between the two types of knowledge generated within the hybrid equity structures, both variables: $Intangibles_{it}$, approximating the tacit component and the firms' capabilities for the "soft" non-technological innovations, along with $PatentClass_{it}$ and $Patents_{it}$, measuring the amount of the codified knowledge generated by the firms, introduced into the FDI transition model as mediators for the total effects of $EquityNetwork_{it}$.

The panel (*a*) of *Table 33* reports two mediation models: testing the indirect effect of the firm's equity network via building the codified knowledge and the firm's

capabilities for technical innovations, with $PatentClass_{it}$ and $Patents_{it}$ along with its quadratic term added as an individual mediator. Important to note that both mediation models return the significant coefficients for the direct effect of $EquityNetwork_{it}$. However, the indirect impact via the shared codified within the distinct equity networks gains statistical significance only for the first model with $PatentClass_{it}$; for none of the equity structures, $EquityNetwork_{it}$, found to hasten the number of introduced innovations by the firms, as measured with $Patents_{it}$. This poor performance of $Patents_{it}$ corresponds to the low efficiency of this measure in the initial FDI transition probability model (*Table 7.A.1*, *Appendix*). A preliminary examination of the confounding percentage, computed in the panel (*b*), points at an interesting finding: the mediation percentage via the creation of the codified knowledge is indeed significantly higher for the firms with state participation ("SOEs"), comparative to the privately-owned firms ("POEs" and "FI-POEs"): 3.91% (for "SOEs" versus "POEs") and 1.54% (for "FI-POEs" versus "POEs").

To estimate what proportion of the true mediation effect is contributed by each of the knowledge components – tacit and codified, the panel (*c*) of *Table 33* estimates and disentangles a joint mediation effect of both knowledge elements, $Intangibles_{it}$ and $PatentClass_{it}$, as well as $Intangibles_{it}$ and $Patents_{it}$, simultaneously added as the mediators into the FDI transition probability model. The total difference in the coefficients between the full and reduced models accounts for the relative impact of both pairs of the mediators. The equity networks with the state are found to be more effective for generating and sharing the codified knowledge, as became apparent from the decomposed true confounding percentages: 41.18% of the indirect effect within the hybrid equity networks with the state ("SOEs") is conveyed via developing the internationally recognised innovations (category **[3]** of $PatentClass_{it}$) in contrast to only 8.30% for the "FI-POEs". However, the private firms with dyadic extra-state networks ("FI-POEs") appear to be superior in developing and transferring the tacit knowledge into the foreign markets: 90.84% versus 56.70% for the "SOEs". An interesting observation is noteworthy for the "FI-SOEs", as the triad hybrid networks reverse the positive confounding of developing the domestic patents, showing a slight suppression effect of -0.12% on the firms' FDI transition probabilities. This contradictory effect explains the inconsistency in the coefficients across the initial FDI transition models (*Table 7.A.1*, *Appendix*) and might serve as an indication of the narrow strategic orientation of foreign shareholders predominantly on the domestic market.

Turning to the $Patents_{it}$ measure, a more sharp contrast emerges in the mediation effect of the two knowledge components: within the equity networks with the state ("SOEs") most of the indirect effect is mediated via the codified knowledge component – 86.11%, while for the privately-owned firms the tacit component accounts only for 46.88%, providing the ultimate support for the hypotheses **H4a** and **H4b**.

Table 33:

Comparing the mediating effect of the firm's innovation capabilities on the relation of the firm's equity structure with the FDI transition probability of the Russian firms.

(a) the decomposition of the total effects of the firm's equity networks, $EquityNetwork_{it}$, into the direct and indirect paths: the *khb*-method under the panel *logit* specification with the cluster robust standard errors (SE), controlling for other covariates

	Coefficient	SE	z-statistic	P>[z]	Prediction
DV: FDIstatus [0 → 1]					
Mediator: *PatentClass*$_{it}$					
Key-variable: *EquityNetwork*					± [**H4**]
2 = FI-POEs					
Total effect	0.836	0.189	4.42	0.000	
Direct path	0.823	0.189	4.35	0.000	
Indirect path	0.013	0.005	2.55	0.011	
3 = SOEs					
Total effect	1.219	0.169	7.2	0.000	
Direct path	1.171	0.170	6.9	0.000	
Indirect path	0.048	0.010	4.83	0.000	
4 = FI-SOEs					
Total effect	8.577	0.517	16.59	0.000	
Direct path	8.416	0.519	16.21	0.000	
Indirect path	0.160	0.031	5.19	0.000	
Mediator: *Patents*$_{it}$ and *PatentsSqr*$_{it}$					
Key-variable: *EquityNetwork*					± [**H4**]
2 = FI-POEs					
Total effect	2.721	0.687	3.96	0.000	
Direct path	2.437	0.685	3.56	0.000	
Indirect path	0.283	1.040	0.27	0.785	
3 = SOEs					
Total effect	3.125	0.867	3.61	0.000	
Direct path	2.968	0.879	3.38	0.001	
Indirect path	0.157	1.037	0.15	0.879	
4 = FI-SOEs					
Total effect	11.786	1.999	5.9	0.000	
Direct path	10.942	1.974	5.54	0.000	
Indirect path	0.844	1.084	0.78	0.436	

Table 33:
Continued.

(b) the summary of the confounding effect of $PatentClass_{it}$ and $Patents_{it}$

Mediator: $PatentClass_{it}$	**Confounding ratio**	**Confounding percentage**	**Rescaling factor**
EquityNetwork			
2 = FI-POEs	1.016	1.54%	0.994
3 = SOEs	1.041	3.91%	0.998
4 = FI-SOEs	1.019	1.87%	0.911
Mediator: $Patents_{it}$	**Confounding ratio**	**Confounding percentage**	**Rescaling factor**
EquityNetwork			
2 = FI-POEs	1.116	10.42%	0.964
3 = SOEs	1.053	5.04%	0.874
4 = FI-SOEs	1.077	7.16%	0.962

(c) the components of difference: testing the hypotheses H4a-b

Mediators: $Intangibles_{it}$ $PatentClass_{it}$	**Coefficient**	**SE**	**Confounding percentage**	**P_difference**	**P_reduced**
EquityNetwork					
2 = FI-POEs					
Intangibles	0.37156	0.01487	90.84%	117.57	11.07
PatentClass					
2 = Domestic RU	0.00354	0.00104	0.87%	1.12	0.11
3 = International	0.03394	0.00567	8.30%	10.74	1.01
3 = SOEs					
Intangibles	0.14964	0.00637	56.70%	60.26	5.2
PatentClass					
2 = Domestic RU	0.00561	0.00151	2.12%	2.26	0.19
3 = International	0.10867	0.01771	41.18%	43.76	3.78
4 = FI-SOEs					
Intangibles	1.49852	0.06410	78.72%	108.75	12.95
PatentClass					
2 = Domestic RU	-0.00237	0.00482	-0.12%	-0.17	-0.02
3 = International	0.40734	0.06742	21.40%	29.56	3.52
Mediators: $Intangibles_{it}$ $Patents_{it}$ $PatentsSqr_{it}$	**Coefficient**	**SE**	**Confounding percentage**	**P_difference**	**P_reduced**
EquityNetwork					
2 = FI-POEs					
Intangibles	0.14491	0.01656	46.88%	34.47	5.07
Patents	0.00541	0.00666	1.75%	1.29	0.19
PatentsSqr	0.15882	0.12895	51.37%	37.78	5.56
3 = SOEs					
Intangibles	0.01785	0.00251	13.89%	6.46	0.55
Patents	0.08039	0.02664	62.58%	29.08	2.48
PatentsSqr	0.03023	0.10357	23.53%	10.94	0.93
4 = FI-SOEs					
Intangibles	0.70746	0.08190	59.79%	46.44	5.68
Patents	0.05557	0.06256	4.70%	3.65	0.45
PatentsSqr	0.42014	1.08725	35.51%	27.58	3.37

9.1.2 The mediating effect of the firm's resources and its impact on the FDI transition probability of Russian firms

To rigorously test the hypotheses **H3a** and **H3b**, asserting that the Russian firms are endowed with the heterogeneous capabilities to accumulate the resources and effectively leverage them in the foreign investment projects, all four strategic groups of the Russian firms are scrutinised against the change in the firm's assets, $FirmSizeTA_{it}$, which is included as a mediator in the FDI transition probability model. To pursue this, the panel (*a*) of *Table 34* decomposes the total impact on the FDI probability for each strategic group of $EquityNetwork_{it}$ into the direct path and the indirect effect attributable to the hastened resource accumulation. The identical vector of the control variables, defined as the crucial determinants of FDI decisions in the initial FDI transition probability model (*Chapter 7.1.1*), is included in the mediation model to insure the consistent comparison of the estimates.

The coefficients for the true scale-free direct and indirect paths, presented in the panel (*a*), are highly significant across all networking groups [$p < 0.0005$], once again affirming the previous findings that the firm's equity structure and the resources accumulated within the distinct networks are important contributors to the FDI transition probability of the Russian firms. Moreover, the significance of the indirect effect via $FirmSizeTA_{it}$ proves that the equity networks, the firms are involved in, do continuously form and reshape the resource base of the firms.

The contrast of the mediation percentages among the $EquityNetwork_{it}$ categories, computed in the panel (*b*), reveals, however, an unexpected outcome. Although a significant amount (36.75%) of the total effect exerted by the equity linkages with the state on the FDI probability of the "SOEs" is mediated via the accumulation of the tangible resources within the equity networks, the networking of the private firms with the foreign shareholder almost doubles the capabilities of the "FI-POEs" to leverage the accumulated resources for the international venturing, with the mediation percentage reaching 65.99%. Interestingly, the extra-state networking exerts an opposite effect for the state-owned enterprises ("FI-SOEs"), decreasing the exploitation of the accumulated assets in the foreign markets and, herewith, the mediation percentage to 27.10%, which apparently indicates the distinct motivation for the initial move into the foreign markets among the strategic groups.

Nevertheless, the obtained decomposition of the confounding effect provides

the robust evidence for the hypothesis **H3a**, confirming the significant role of the accumulated assets within the equity networks with the state ("SOEs"), as almost third of its influence is mediated via conferring the firms with the resources valuable in the foreign markets. Although the "SOEs" do seize the resource advantage against the "POEs", and with this confirming the hypothesis **H3b**, the extra-state networks formed by the private firms ("FI-POEs") are found to be more effective channels for building and transferring resources into the foreign investment projects, which can serve as an indication of the stronger extractive interests within the private-foreign coalitions.

Table 34:

The mediating effect of the firm's resources on the relation of the firm's equity structure with the FDI transition probability of the Russian firms.

(a) the decomposition of the total effects of the firm's equity networks, $EquityNetwork_{it}$, into the direct and indirect paths: the *khb*-method under the panel *logit* specification with the cluster robust standard errors (SE), controlling for other covariates

	Coefficient	SE	z-statistic	P>[z]	Prediction
DV: FDIstatus [0 → 1]					
Mediator: $FirmSizeTA_{it}$					
Key-variable:					
EquityNetwork					± [H3]
2 = FI-POEs					
Total effect	7.973	0.719	11.08	0.000	
Direct path	2.712	0.740	3.66	0.000	
Indirect path	5.261	0.369	14.27	0.000	
3 = SOEs					
Total effect	5.553	0.891	6.23	0.000	
Direct path	3.512	0.928	3.78	0.000	
Indirect path	2.041	0.261	7.82	0.000	
4 = FI-SOEs					
Total effect	17.440	2.167	8.05	0.000	
Direct path	12.714	1.895	6.71	0.000	
Indirect path	7.973	0.719	11.08	0.000	

(b) the summary of the confounding effect of $FirmSizeTA_{it}$: testing the hypotheses H3a-b

	Confounding ratio	Confounding percentage	Rescaling factor
EquityNetwork			
2 = FI-POEs	2.940	65.99%	1.999
3 = SOEs	1.581	36.75%	1.821
4 = FI-SOEs	1.372	27.10%	1.522

9.1.3 The incentive effect within hybrid structures on the FDI transition probability of Russian firms

In order to estimate the significance of the direct incentive effect for the initial transition to multinationality across the distinct equity networks, conceptualised in *Table 1* and formulated in the hypothesis **H1b**, all the covariates are included in the *khb*-model as mediators. *Table 35* decomposes the true total indirect effect and the true direct path, which allows disentangling the incentive effect or influence mechanism of relational power conveyed by the state and foreign shareholders via hybrid equity networks.

The direct incentive effects, computed in the panel (*a*), are significant across all strategic groups with [$p < 0.0005$] and reveal the drastic differences in the magnitude. The comparative percentages, reported in the panel (*b*), yield the strongest value within the intra-state networks ("SOEs") and decrease significantly for the extra-state networks ("FI-POEs"), providing the strong support for the hypothesis **H1b**. The observed differences carry important implications for the FDI motives within the hybrid networks, as well as the state policies, explained in a greater detail in the corresponding discussion *Section 9.2*.

The presented findings on the interrelationships between the networks formed by the firms and the accumulated specific advantages lead to an important conclusion that the effects of the conventional FDI prerequisites are more complex and heterogeneous, than those had been conceptualised in the IB literature. The exchange and incentive mechanisms within the established hybrid equity networks confer the Russian firms with the distinct portfolios of specific assets and significantly divert their importance for their involvement into international venturing. The same firm's specific attribute can behave as a mediator or a suppressor for the FDI transition probability.

The direction and magnitudes of the effect of the FSAs highly depend on the nature of relational powers within equity networks and boundaries developed by the firms. The hybrid networks with the state proved to be a more efficient channel for sharing the codified knowledge, in contrast to the privately-owned firms which tend to capitalise on their capability for a more fluid learning and acquiring the tacit knowledge directly in the uncertain world. Moreover, the effect of the extra-state networking with the foreign firms exerts the opposite effects on the private and state-owned firms: immensely increasing the importance of the accumulated resources in the initial move

into a foreign market amidst the former ("FI-POEs") and decreasing for the "FI-SOEs".

Table 35:
The total direct incentive effect conveyed via the firm's equity networks on the FDI transition probability of the Russian firms.

(a) the decomposition of the total effects of the firm's equity networks, $EquityNetwork_{it}$, into the direct and indirect paths: the *khb*-method under the panel *logit* specification with the cluster robust standard errors (SE), controlling for all covariates

	Coefficient	SE	Z	P>[z]	Prediction
DV: FDIstatus [0 → 1]					
Mediators: *all covariates*					
Key-variable:					
EquityNetwork					± [H1b]
2 = FI-POEs					
Total effect	9.540	0.680	14.02	0.000	
Direct path	2.712	0.740	3.66	0.000	
Indirect path	6.828	0.472	14.45	0.000	
3 = SOEs					
Total effect	6.189	0.808	7.66	0.000	
Direct path	3.512	0.929	3.78	0.000	
Indirect path	2.677	0.347	7.72	0.000	
4 = FI-SOEs					
Total effect	23.174	1.639	14.14	0.000	
Direct path	12.733	1.896	6.72	0.000	
Indirect path	10.441	0.698	14.96	0.000	

(b) the comparison of the total indirect and direct effects: testing the hypothesis H1b

	Indirect effect percentage	Direct effect percentage	Confounding ratio	Rescaling factor
EquityNetwork				
2 = FI-POEs	71.58%	**28.42%**	3.518	1.295
3 = SOEs	43.26%	**56.74%**	1.762	0.890
4 = FI-SOEs	45.06%	**54.96%**	1.820	1.324

Apparently, the outlined findings call for a more holistic view on the FDI strategies of the EM firms, capable to account for a range of the indirect effects across the distinct strategic groups, which may add a new angle on the established theoretical propositions, further elaborated in the following discussion *Section 9.2*. Nonetheless, the verified estimation strategy and the obtained final model of the FDI transition probability of the Russian firms is carried forward to the next *Chapter 10.1*, which investigates the hypothesised effects of the distinct institutional experience accumulated by the Russian firms along the turbulent transition path.

9.2 The heterogeneity in the effects of the firm's attributes: the effects of network relations on the capability building and FDI incentives

The merge of the two major analytical traditions, which consider the change in the state-business relations and the benefits arising from inter-organisational relations, suggests a more holistic explanatory model of the FDI intentions of the EM firms, disentangling the total effects of the equity networks into the two relational mechanisms: (1) the resource- and capability-building effect (the *domination* mechanism of relational power) and (2) the incentive effects (the *influence* mechanism), as conceptualised in *Table 1* (*Chapter 2.3.)*. To explore and comprehend the observed divergence in the FDI probabilities across the Russian firms that pursue distinct networking strategies, the analysis of the underlying indirect effects has been carried out in two stages, each tackling a conceptually different question about the FDI behaviour of the firms and implying an original modelling strategy to obtain a meaningful answer.

The first stage was accomplished in the preceding *Chapter 8.1*. The obtained evidenced proved that the effects exerted by the conventional FDI prerequisites on the initial transition of the firm into foreign markets are heterogeneous, and their importance does change under the diverse equity networks.

The second stage is carried out in the following *Section 9.2*, which approached a more fundamental idea of the underlying mechanisms within hybrid equity networks that confer the firms with advantages compared to the classic governance structures. The novel model was developed to investigate and rigorously test whether the FDI probabilities of the firms are indirectly enhanced with the unique strategic capabilities and resources, shared and complemented within the equity network channels, or via the direct incentive effects, – which is elucidated in the subsequent *Section 9.2*.

9.2.1 The comparative effects of the network relations: the state effectiveness in relations with the domestic and foreign capital

Besides altering the cognitive models and risk-aversion in a strategic change towards multinationality, the equity relations with the state and foreign capital have been found to contribute to the asymmetric exchange of resources and accumulation of capabilities under the hybrid structures, indirectly but significantly contributing to the heterogeneous strategies invented by the individual firms operating within the same

institutional macro-order. The interactions with the major power interests within the equity networks evidently reshape the barrier conditions between the firm and its market and political environment – directly changing the resource and knowledge boundaries of the firm.

The decomposition of the impact of the intra-state and extra-state networking into the indirect effect via the resource- and capability-building and the direct incentive effects, conceptualised in *Table 1* and rigorously tested in *Sections 9.1.1–9.1.3*, showed that the relative importance of both networking effects on the FDI transition probabilities varies significantly across the various configurations of equity networks. The state and foreign firms utilise different relational powers in networking with the domestic firms, leading to various and distinct combinations of the domination and influence mechanisms within hybrid networks. This finding points at the evident deficiency of the *attribute approach* prevailing in the IB literature and the empirical studies on EM firms, narrowly focusing the research interest on examining the effects of the firm's specific assets. The ascertained differential effects across the networks established by the firms, and discussed in a greater detail in the following paragraphs, point at the necessity for the research inquiry and modelling efforts to shift towards the *relational approach.*

The first important conclusion, emerging from the series of the estimated network models (*Tables 32–35*, *Sections 9.1.1–9.1.3*), concerns the significant *resourcism* observed in the network relations, accounting for the substantial amount of the total networking effect on the FDI transition probabilities of the Russian firms, varying from 27% to 66% across the strategic groups (*Table 34*, *Section 9.1.2*). Carrying both the positive and negative consequences for the development of business sectors and economy, the networking strategies created by the Russian firms are incoherent and imbalanced in creating the tangible assets and capabilities, severely inclining towards the exchange and exploitation of the garnered resources in the foreign markets.

However again, the equity networks differ substantially in their strategic sagacity to construct and flexibly adjust the resource base in the way enhancing its longer-term potential for the shared investment into the foreign markets. The networking with the state agencies indeed hastens the resource accumulation compared to the firms in the sole private ownership (POEs), which on positive side changes the asset composition of the firms related with the state (SOEs) towards the assets valuable in the foreign

markets. This finding reveals that the state strongly relies on the domination mechanisms in exerting the relational power within the hybrid structures of the SOEs, which in the short term allowed for the more effective utilisation of the garnered asset advantages for the initial strategic move into the foreign markets: 37% of the total intra-state networking effect on the FDI propensities of the firms is conveyed through the exchange of assets.

Perhaps as a positive outcome of the statist model, dominating the current state-business relations in Russia, the exchange of the resources within the equity channels creates preconditions for the very formation of the *growth coalitions*, oriented on the foreign markets, especially when compared to the uncontrolled asset-stripping devastating the material base of the captured state and the economic structure during the initial transition period in the 1990s. Rebuilding the strong state and reconstituting its resource and investment capacity indeed leads to an intensive growth, even though the *inclusive institutions* in Russia remain weak. The rapid growth of outward investment, however, may develop only in the short term, if the state policies do not change towards promoting a greater inclusiveness and reciprocity in the state-business coalitions.

In the longer term, the adverse consequences are likely to turn the scale of the temporary growth and success, if the state persistently blocks the pluralisation of the institutional environment and the spread of political and economic inclusiveness amid the peripheral business groups. To restrain the positive synergies observed within the intra-state networks from deteriorating into the narrow collusive and rent-extracting coalitions, the strong-will input of the state should be directed towards promoting the efficient inclusiveness of intermediate and latent business groups into the innovative creation and the shared investment. The shift from the acute *resourcism*, currently observed in the equity networks and the state interests in Russia, towards a *capability development approach* (Sen, 1979, 1999a, 1999b, 1999c, 2005) would imply and be possible with the transition to a more effective model of state-business relations: from column 3 to column 4 in *Table 2*. Nonetheless, the signs of policy change towards the coherent capability building remain weak and accessory, proliferating in the political and public statements, as discussed a few paragraphs later.

The involvement of the firm into the extra-state networking indeed enhances the probability of the firm to transit to the multinational status, although via the substantially distinct routes. The "dyad coalitions" between the private domestic and

foreign capital (FI-POEs) almost triple the leverage of the firm's assets in the foreign markets, conveying 66% of the network effect via the resource exchange and accumulation channels. Interestingly, the participation of the strong state in the firm's equity restrains the heavy resource extractive motivation observed in the private extra-state networks (FI-POEs), decreasing the indirect effect of the extra-state networking attributable to the asset exploitation from 66% for the FI-POEs to 27% amid the FI-SOEs. The complex hybrid networks seem to hasten the transition to a more effective and benign collaboration, based on the mechanisms mutually constraining the extractive coalitions of the two major forces in the economy – the state and foreign capital.

Interestingly, the dyad partnerships of the two major constituents with the domestic private investors (FI-POEs and SOEs) carry evidently stronger interests in the resource extraction and exploitation in the foreign markets, compared to the triad hybrid networks. Comparing the FDI motives emerging in the two dyadic networks (FI-POEs and SOEs), the reliance on the resource extraction in transition to multinationality is surprisingly lower amid the SOEs, apparently for two reasons: either the state purposefully restricts the access to the consolidated strategic resources for the foreign firms, or the strong state has been moving towards a capability-enhancing policy within triad networks. Which of the reasons holds true, and whether the hybrid collaboration and the shift away from the extractive interests within the triad hybrid equity networks (FI-SOEs) imply the development of more coherent learning strategies and technological capabilities within complex equity networks, or a stronger ability to directly alter the incentive structures of the firms, is the next point to elucidate.

The rigorously tested and contrasted effects of the intra- and extra-state networking on the learning and innovation capabilities of the firms lead to the unfortunate conclusions: the composition of the resources and capabilities of the Russian firms is heavily imbalanced. The richness of the national natural resources and the extensive manufacturing base, inherited from the Soviet era, diverts the firm's networking strategies from the technological advancement and the pursuit of knowledge. The indirect effects of the firm's equity linkages on its FDI propensity via the knowledge building and innovations are incomparably lower, accounting from 2% to 17% of the total networking effect across the strategic groups. This peculiar variation in the observed technological slack is worth a separate discussion, as it might help to reveal

an effective route to hasten the innovativeness of the Russian firms and their abilities to leverage those for the strategic move into a foreign market.

The decomposition and simultaneous comparison of the codified and tacit knowledge components, created by the firms with classic governance structures and within the hybrid networks (*Table 33*, *Sections 9.1.1*), clearly illustrate how, on average, the networking strategies employed by the Russian firms change the foreign investment model. The more intense interactions within the hybrid equity structures and the institutional novelties, induced by the critical junctures, shift the strategic focus of the EM firms away from the western model of internationalisation driven by the direct innovation and technological change towards the *soft innovations* – that is, acquiring and leveraging the innovative learning abilities in the restructuring economic and political environment.

A more careful contrast of the findings revealed that the networking groups rely on the strategically – and conceptually – distinct models of growth and investment. The participation of the strong coercive state in the firm's equity induces the direct technological innovations and the accumulation of the codified knowledge base via the hybrid intra-state networks. The newly-emerged private firms, conversely, capitalise on the more innovative learning strategies or the "soft innovations", when contemplating the strategic change towards multinationality. To convey the effect in the mathematical terms, the intra-state networks indirectly enhance the firm's FDI propensity in a greater extent via the technological innovations (41–86% of the compound indirect networking effect depending on the measure, *Table 33*), compared to the private firms facilitating the transition to multinationality via expediting their direct learning in the outer world accumulating the stock of tacit knowledge (47–91% of the compound indirect networking effect, depending of the model specification, *ibidem*).

The described asymmetric outcome and investment strategies have been brought about by the distinct cognitive models or the learning modes, created across the strategic groups. The wave of the organisational founding after the demise of the Soviet Union, which devastated the technological and industrial base, directed the emerging entrepreneurial talents for creation of the new markets and industries. The fathomless flexibility in setting the institutions and rules, unknown for the modern western firms, stimulated the direct experiential learning in the novel environment and

the development of fluid competencies, contributing to the stock of tacit knowledge and innovative investment decisions, – which the firms bounded with the strong coercive state through hierarchical equity ties evidently lack.

Although the technological and innovation links between the industries and the research institutions have not been as yet restored to their previous capacity of the Soviet era, neither modernised, the networking with the state enriches the firm's learning with the shared mental models: for instance, the international political and economic experiences, as well as a greater certainty and reliable rules devised and delivered via the hierarchical structures. Although shared indirect learning within intra-state networks restricts the flexibility and innovativeness of the investment decisions, it evidently enhances the dissemination of codified knowledge and technologies, and transfer of those in the foreign ventures. Though again, the effectiveness of the alternative soft innovation and indirect learning mode for the firm's cross-border growth depends not as much on the macro-order in the economy but rather on the macro-micro link: that is, not as much on the overall institutional settings, as on how those are internalised in a particular configuration of relational powers within the firm's boundaries, which form the diverse micro-orders across the firms.

Special mention must be made of the firms pursuing the extra-state networking strategies, and especially of those combining both the intra-state and extra-state equity networks within the organisational boundaries. The complex equity structures (FI-SOEs) coherently complement both elements of the firm's learning and innovativeness under the same proprietary boundaries, reducing the asymmetries caused by the intensive resourcism in the network relations. The complementarities arising within the complex hybrid networks are striking. The equity linkages among the major constituents, – the private domestic and foreign investors and the state, – hasten more reciprocal power relations internalised within the firm's boundaries.

A more coherent combination of the domination and influence relational mechanisms turns the firm into a more collaborative coalition, irrespective of the statist position of the state exercising coercive policies at the macro-institutional level and the evident hostility in the international political scene. The effectiveness in fitting the emerging entrepreneurial talents for developing the fluid competences with the capabilities for absorbing and generating technological innovations under the hybrid

structures translates into a swift change in the strategic vision towards multinationality and the shared investment in the foreign ventures. Although prevailed with a positive synergies (supermodality), the modelled collaboration reveals the negative synergies (submodality) changing the strategic orientation towards the domestic market for the FI-SOEs capable of developing the technological innovations recognised domestically.

Although bounding the creativity and innovativeness in the firm's learning, the intra-state networks motivate the firms' transition towards multinationality via directly altering the *incentive structures*. Comparing the two mechanisms of the network effect – the resource- and capability-building versus the incentive component, conceptualised in *Table 2* and scrutinised against the evidence in *Table 35* (*Section 9.1.3*), – the strategic groups reveal the differences in coordinating the foreign investment decisions. As anticipated, the strong coercive state in a greater extent relies on the influence mechanism of relational power in undertaking the foreign investment decisions, directly delivering incentives for launching new ventures in the foreign markets via the firm's hybrid hierarchy. The proportion of the direct incentive effect within the intra-state networks (SOEs) sadly relates to the state policy of the coercively imposing the geopolitical interests, rather than enhancing the firm's capabilities via more subtle developmental strategies and the inter-industrial collaboration. Although hastening the cross-border growth of the SOEs in the short term, the heavy reliance on the coercive strength and immediate interests might serve an unfortunate hindrance for restoring the technological leadership and inter-industrial technological partnerships in the nearest future, and therewith more effective growth strategies of the smaller firms across the peripheral business groups and sectors.

The involvement of the Russian firms in extra-state networking drastically changes the internal relational model and the proportions of domination and influence mechanisms in hybrid networks – i.e., the resource- and capability-building versus the *incentive effect* on the firm's FDI propensities. The merge of the private domestic and foreign capital (FI-POEs) significantly weakens the reliance on the direct incentives in FDI decision-making to 28% of the total networking effect, though expedites the resource extraction in the FDI projects, retaining the leverage of technological capabilities at the lowest level compared to other hybrid equity networks. This finding serves a sharp contradiction to the argument on technological transfers by the foreign firms, widespread in the IB literature and economic policies elaborated by

the international institutions. Even though the equity linkages with foreign capital induce the accumulation and transfer of the tacit knowledge in the foreign ventures, – in presence of the sharp asymmetry in the knowledge components and the sharp resourcism, – the knowledge exchanged within the extra-state networks might be limited by the extractive interests of the foreign partners to the opportunities of the resource exploitation in the foreign markets.

The combination of the extra-state and intra-state networking seems to balance out the sharp asymmetries in the knowledge flows and the resourcism, but also altering the subjective motivation for a more coherent collective action and formulating the joint strategic decisions on the foreign investment. The equity ties evidently align the divergent geopolitical and business interests and put forth more reciprocal and coherent strategic arrangements, markedly enhancing the firm's propensities to transit to multinationality. The potential misfit in the goals and interests within the complex equity structures, conceptualised in the governance literature, does not emerge in the extent to hinder the cross-border growth of the firms. In the emerging market countries, the complexity of the equity networks, on the contrary, serves as a constraint of the extractive interests and geopolitics ambitions of the partners, which otherwise can hardly be corrected or supressed by the weak institutions and the non-transparent corporate practices within the domestic networks.

Table 36:

The configuration of the domination and influence mechanisms of relational power across the hybrid networks: the comparison of the recourse- and capability-building effects on FDI strategies of the Russian firms.

Equity Networks	Strategic groups	Indirect effect on the FDI transition probabilities via:			Direct effect	Resourcism *versus* Capability development approach
		extending resource base	enhancing technological capabilities	accumulating tacit knowledge	altering incentive structures	
Classic: *sole private ownership*	POEs	the weakest abilities to build the resource base valuable in the foreign markets.	least capable to leverage technological capabilities in the foreign markets.	least capable in capitalising on the tacit knowledge acquired via direct learning for international venturing.		least capable of initialising the foreign investment projects; remain at the periphery due to the weak inclusive institutions, and the rents concentrated among the narrow state-business groups.
Dyad hybrid: *intra-state networking*	SOEs	constraining the asset extraction.	more effective in generating and sharing the codified knowledge and direct innovations.	relatively weak leverage of the tacit knowledge in the foreign markets.	56.74% [a] strong direct incentives for international expansion.	the foreign investment decisions are largely driven with the direct incentives via hierarchical equity channels, capitalising on the technological base, though restraining the firm's innovativeness in learning.
Dyad hybrid: *extra-state networking*	FI-POEs	markedly accelerating the asset extraction motive for international expansion.	low abilities for the external sourcing and the absorption of technologies within network structures.	superior in creating and transferring the tacit knowledge in the foreign markets.	28.42% [a] goal alignment for the resource extraction.	the private extra-state networks are featured with the highest resourcism, carrying the burden of the extractive institutions and motives from the previous wave of reformation and the state capture.
Triad hybrid: *intra-state and extra-state networking*	FI-SOEs	the least degree of the asset extraction.	most capable to develop and leverage the technological capabilities within network channels.	most steep learning trajectory within hybrid structures, enriched with the shared mental model.	54.96% [a] most effective in the elaboration of joint strategic arrangements.	a remarkable shift towards a more coherent capability building, decreasing the knowledge asymmetries and inducing the shared investment.
Impact on the shared foreign investment		*the effect of the garnered resources varies drastically amidst the strategic groups.*	*on average, a low effect on FDI propensity, with the positive and negative synergies observed within hybrid networks.*	*the strategic groups vary significantly in their capabilities to capitalise on the acquired knowledge.*	*the strategic groups introduce the sharply different influence and incentive mechanisms.*	

Source: created by the author.

Note:

[a] The proportion of the direct incentive effect relative to the indirect resource or capability-building effect within the firm's equity networks, as presented in *Table 36, Section 8.1.2.*

9.2.3 Conclusion and implications for theory-building

The embeddedness of the EM firms into the network relations not merely brought about the formation of the distinct strategic groups and gave a rise in the hybrid organisational forms, but also translated into the distinct investment strategies. The conventional attribute approach, well elaborated in the IB literature, is evidently not suffice for comprehending a variety of the cross-border growth strategies devised by the EM MNEs, which in a greater extent rely on the network-based mechanisms in making the investment decisions. The complementarities arising within the networks can enhance or supress, or even reverse the effect of the conventional firm-specific attributes (or the FSAs) depending on the particular relational mechanisms devised within the hybrid organisations. The similar firm's resource or knowledge attributes may lead to positive or negative synergies across the distinct strategic groups, which are largely overlooked amid the IB models.

The lack of technological capabilities, the knowledge-seeking or resource-exploiting motivation for foreign investment are not a generic feature of the EM MNEs as a group of firms, but rather relate to particular relational structures, constructed under the influence and domination exerted by the major constituents in the economies. The adequate modelling of the network-dependent effects requires a change in the established IB frameworks, and the attribute OIL paradigm particularly, towards the relational approach, which bridges the elements of the alternative theoretical perspectives of the firm elaborated in the inter-organisational studies and the political science. The merge of the network approach and the political models grants an analytical ability to draw the direct implications of the relations and complementarities emerging within the hybrid networks for the growth and investment strategies of the EM firms.

The first step towards a more holistic FDI framework would imply a recognition of the EM firm as a "political actor", not merely embedded in the macro environment, but more importantly capable of forming the distinct *micro-orders* with peculiar relational mechanisms: the firm as a *political system* or *coalition* itself. The relational micro-system reflects the way in which the firm may internalise the state-business relations formed by the turbulent institutional change, which reshapes the resource and cognitive boundaries of the firms and creates the diverse organisational forms, endowed with distinct properties (of exchange mechanisms and intentionality), – operating under the same institutional macro-settings.

The existing model of the state-business relations in the EM economy – or the institutional configurations from the perspective of the institutional economics and the institutional-based strategies – is internalised differently in the investment decision-making across the firms: and those differences are shaped by the evolving boundaries of the firms. The relational mechanisms of domination and influence internalised within the firm coalitions introduce the different and contradictive elements across the whole continuum of the SBR models, conceptualised in *Table 2* (*Chapter 2.4*) and lead to the distinct FDI strategies.

Therefore, the firms with distinct networking strategies, operating in the same institutional environment, are able to devise the micro-orders corresponding to the different types of SBRs. The private firms (POEs and FI-POEs) were found on the SBR continuum as bounded with the legacy of extractive interests, emerged during the previous transition period (corresponding to column 2 in *Table 2*, *ibidem*) and dramatically accelerated with the participation of foreign capital, - which determine their FDI intentionality and investment model.

The firms with state participation in equity (SOEs) are largely driven with the direct hierarchical incentives for the FDI transition, reflecting the geopolitical ambitions of the state reconstituting its capacity and strength, but lacking the effectiveness and quality in devising the inclusive institutions that could involve the peripheral groups in the reciprocal growth-oriented coalitions and joint investment (column 3, *ibidem*).

However, the triad hybrid networks (FI-SOEs) shift the firm's micro-order towards more effective arrangements, more coherently combining the domination with influence powers and reducing the asymmetries in resource and knowledge exchange and misalignments in the political and business interests (column 4, *ibidem*). The triad hybrid arrangements were proved to facilitate more subtle structures for capturing value from the direct and soft innovations and more fluid transfer of those in the foreign ventures, as opposed to the traditional channels of communicating embodied information via centralised hierarchy in the intra-state networks.

This peculiar variety of the implemented relational mechanisms leads to the distinct FDI outcomes, reflected further in *Table 2* (*ibidem*) and rigorously verified against the empirical evidence in *Sections 9.1.1–9.1.3*. Under such conditions, conceptualising and modelling the generic effects of FSAs across the populations of the EM firms would be greatly misleading. The OLI paradigm has served as a prominent

starting point in integrating the potential prerequisites and attribute effects on the FDI decisions; however, the contemporary IB field would benefit from the shift towards a relational approach in order to more precisely design the models for investigating the particular inter-relations and complementarities arising in the practices of the actual firms, and their implications for international strategies.

CHAPTER 10. THE EFFECT OF THE CHANGE IN THE STATE-BUSINESS RELATIONS AND ORGANISATIONAL FOUNDING ON THE FDI TRANSITION PROBABILITIES OF THE RUSSIAN FIRMS

The present chapter further elaborates the FDI transition probability model and challenges the historical logic of organisational founding and emerging organisations in the Russian context of economic and political transformations. The analysis, accomplished in this section, contributes to the discussion by modelling the effect of institutional experience encountered by the long-established and newly-created Russian firms over the critical junctures, which induced the new eras in the state-business relations, – herewith testing the hypotheses **H6a** and **H6b.**

The verified estimation strategy and the final model of the FDI transition probability of the Russian firms, developed in the preceding *Chapter 7.1*, is carried forward to *Section 10.1*, which investigates the hypothesised effects of institutional experience accumulated by the three distinct foundation groups of the Russian firms along the turbulent transition path.

The meaningful discussion of the diverse organisational forms in the EM countries and the foreign investment decisions of the EM firms cannot be complete without a historical outlook into the organisational founding at the different stages of the state-business relations and reformation efforts. *Section 9.2* compares the investment propensities among the three foundation groups, challenging the assumptions of the firm's evolution established in the organisational literature, and reveals the prominent advantages of the newness and adolescence of the firms for innovative learning, – contrary to associating the firm's newness with a liability in the IB research.

10.1 The estimation of the FDI transition probability model across foundation groups

Having confirmed the most efficient functional specification in *Chapter 7.1*, the third stage of the data analysis, accomplished in the present section, builds upon the final FDI transition probability model to rigorously test the set of the hypotheses on the organisational founding in Russia. The final FDI transition probability model, derived in *Chapter 7.1.1*, is adjusted in *Section 10.1.1* to include the effect of the organisational genesis and the change in the SBRs encountered by the old-

established and newly-created Russian firms along the transition path, formulated in the hypothesis **H6a**. Modelling the FDI transition probabilities across three distinct foundation groups of the Russian firms is complemented with more comprehensive insights into the interactive effects, specified in the hypothesis **H6b** (*Section 10.1.2*). The modelling process is concluded with the thorough examination of predictions and marginal effects, followed with the interpretation and visualisation of the modelled results in *Section 10.1.3*.

10.1.1 The estimation and comparison of the effect of institutional experience and policy change across the long-established and newly-emerged Russian firms

Developing the finding discovered in the preceding discussion, the overall operational experience accumulated by the Russian firms, approximated with $FirmAge_{it}$, appeared to exert the significant and positive, albeit non-monotonic, effect onto the firms' probability to switch to multinationality (Models (2)–(31) in *Table 7.A.1*, *Appendix*), consistent across the alternative functional forms (Models (32)–(33) in *Table Table 7.A.2*, *Appendix*). Though the obtained result is in accord with the conventional theoretical postulates on the resource accumulation in the IB literature, it does not truly reflect the evolution of organisational genesis, which may induce or suppress the FDI intentionality of the Russian firms established at the distinct reformation periods and survived through the drastic changes in the state-business relations over the two critical junctures: in the early 1990s (the state capture) and again in the early 2000s (the move to statism), as elucidated in *Chapter 3.5* and summarised in the matrix of institutional experience and organisational founding (*Table 3*).

To better comprehend how the institutional experience accumulated by the Russian firms shapes their investment decisions, the final FDI transition probability model M(22) estimated in *Table 24* needs to be adjusted to demarcate the enterprises established during the Soviet era and restructured over the initial transition course (1992–2001) from two groups of the firms, newly created during the liberalisation and post-liberalisation periods and conferred with a strategically different sets of resources and capabilities framing their FDI intentionality. To rigorously test the hypothesised effects (**H6a** and **H6b**), the $FirmAge_{it}$ variable has been transformed into a new measure, $FoundationGroups_{it}$, and introduced into the model instead of the time-continuous

variable $FirmAge_{it}$, retaining all other covariates unchanged.

The three introduced groups of the firms build upon the matrix of the institutional experience and organisational founding (*Table 3*): [**1**] the reconstructed Soviet enterprises, established before 1992, which survived through both critical junctures and absorbed the diverse institutional experience under all three models of the state-business relations encountered before the launched reforms (after 1992) and over the entire transition course, [**2**] the firms newly founded during the initial stage of the neo-liberal reforms (1992–2001), carrying the experience of the hectic institutional relations and the collusive state-business model, and survived through the financial default of 1998 and the reconstituted state control after 2001, and [**3**] the firms newly created during the most recent statist period (2002–2011) and, thereby, endowed with the most narrow institutional assets formed under the tightening state control, while lacking the experience of prompt adaptation to changes in the state-business relations and making the daring FDI decisions under uncertainty.

The underlying interest would be to establish, explore, and verify the casual link between the firm's propensities to transit to multinationality and the distinct institutional experience absorbed by the firms of all three foundation categories, $FoundationGroups_{it}$. Interestingly, this finding would also elucidate the qualitative side of the garnered institutional experience. Firstly, the finding will reveal whether the initial liberalisation stage reverses the conventional assumptions in the IB literature, which regards the lack of experience as a disadvantage and the firm's newness as a liability for international venturing, and whether the novel environment of organisational genesis transforms the newly-created and, therewith, resource disadvantaged firms into the innovative learners (category [**2**]: the lack of the resources as a benefit for innovative learning). Secondly, it will also confirm whether the novel networking strategies endow the Russian firms with the complementary relational assets via equity channels and ultimately compensate for the initial lack of resources and experience in international venturing (category [**3**]: the lack of experience as a stimulus for the capability-building via hybrid equity networks).

The resultant modelling effort, reported in *Table 37*, reveals an interesting phenomenon: the relative difference with the baseline category [**1**], clustering the firms established during the Soviet era, contradicts the conventional argument in the IB literature on the superiority of more experienced firms. This finding also challenges the benefits of the neo-liberal reforms for the international involvement of the EM firms,

prolific in the institutional research and comparative economics. The firms newly created during the initial liberalisation period (category **[2]** of $FoundationGroups_{it}$) do not prove to possess an internationalisation advantage over the reconstructed Soviet enterprises (category **[1]**) and the firms established after the turn to the statist policies and SBRs (category **[3]**), controlling for the industrial and regional affiliation, as evidenced by the greater relative difference with the baseline category **[1]**: [−4.672] versus [−4.522], with both coefficients significant at 1% level for the *logit* function M(34).

Interestingly, the firms founded during the post-reformation period in the 2000s (category **[3]**) appear to be less disadvantaged, when compared to the more experienced firms created during the initial spur of organisational founding in Russia (category **[2]**), which is in accord with the formulated proposition (**H6a)**. This difference may indicate the superior ability of the newly-created firms (category **[3]**) to capitalise on the indirect learning strategies and building capabilities though hybrid equity networks with the state and foreign partners, compared to the firms relying on the direct learning in the turbulent institutional environment (category **[2]**). The remarkable FDI performance of the old-established Soviet enterprises, reconstructed during the transition reforms (category **[1]**), will be further contrasted against the extant theories in the discussion *Section 10.2.*

The obtained finding remains consistent over the two alternative models also reported in *Table 37*, estimated with the *probit* and *complementary log-log* specifications on the same sample of the Russian firms, providing the ultimate support for the hypothesis **H6a**. To compare the alternative models, the original parameters obtained with the *probit* and *complementary log-log* functions were adjusted with the factors, following the same estimation and rescaling strategy developed in the preceding *Chapter 7.A.2.*

The *probit* function, Model (35), returns even more similar results, though as previously the difference in the estimates between the *logit* and the *complementary log-log* specification, Model (36), is more striking but not substantial, as all the covariates retain their signs and significance. Important to note, that all three alternative models retain the significant coefficients for all categories of the key variable $EquityNetwork_{it}$, and the effects of other covariates remain identical compared to the final FDI transition probability model, M(22).

Table 37:

The effect of the organisational genesis on the FDI transition probability of the Russian firms: the panel *logit* and *probit* regressions with the parent firm *random effects* (RE), and the *complementary log-log* estimation.

Link[a]**:**	***Logit* regression** [RE]	***Probit* regression** [RE]		***Complementary log-log* regression**		**Prediction**
Model:	**M(34)**	**M(35)**	adjusted by factor [×1.86]	**M(36)**	adjusted by factor [×1.238]	
DV: FDIstatus [0 → 1]						
EquityNetwork						
2 = FI-POEs	2.642***	1.415***	2.632***	1.531***	1.895***	
3 = SOEs	3.248***	1.756***	3.266***	1.383*	1.712*	
4 = FI-SOEs	11.126***	5.775***	10.742***	4.928**	6.101**	
FoundationGroup						[H6a]:
2 = Newly-created firms: 1992-2001	**-4.672*** **	**-2.471*** **	**-4.596*** **	**-2.399*** **	**-2.970*** **	relatively greater difference,
3 = Newly-created firms: 2002-2011	**-4.522*** **	**-2.449*** **	**-4.555*** **	**-2.283*** **	**-2.826*** **	relatively smaller difference with the reference category.
PatentClass						
2 = Domestic RU	8.829***	4.584**	8.526**	4.959*	6.139*	
3 = International	1.804***	0.942**	1.752**	1.016*	1.258*	
Sector						
2 = Manufacturing	1.789	0.784	1.458	1.015	1.257	
3 = Services	0.207	-0.0352	-0.065	0.228	0.282	
Region						
2 = North-West	0.536	0.277	0.515	0.675	0.836	
3 = Ural region	-2.348**	-0.751	-1.397	-1.187	-1.470	
4 = Volga	-3.818***	-2.014***	-3.746***	-1.972***	-2.441***	
5 = Far-East	-5.339***	-2.860*	-5.320*	-2.914*	-3.608*	
6 = South+Caucasus	-2.508**	-1.402*	-2.608*	-1.100	-1.362	
7 = Siberian	-3.566***	-1.907**	-3.547**	-1.830*	-2.266*	
Intangibles	0.762***	0.411***	0.764***	0.472***	0.584***	
FirmSizeTA	2.611***	1.377***	2.561***	1.542***	1.909***	
ProfitMargin	0.024**	0.013**	0.024**	0.016**	0.020**	
Comparison of goodness-of-fit of the two-state transition probability models:						
Number of observations	2,635,402	2,635,402	2,635,402	2,635,402	2,635,402	
McKelvey & *Zavoina*'s R^2	**0.2537**	0.2498	–	n.a.[b]	–	
McFadden's R^2	0. 7534	**0. 7554**	–	0.7450	–	
AIC[c]	**2,963.3**	2,964.9	–	3,083.1	–	
BIC	**2,219.0**	3,220.6	–	3,338.8	–	
LR test *chi²*:	n.a.[d]	n.a.[d]	–	n.a.[d]	–	
p-value:			–		–	
Wald test *chi²*:	1,198.52	1,207.60	–	1,501.02	–	
p-value:	[<0.00005]	[<0.00005]	–	[<0.00005]	–	
Log Likelihood (*df* 22)	**-1,461.64**	-1,462.43	–	-1,521.57	–	

Notes:

[a] The parameters for the categories of *FoundationGroup*$_{it}$ are estimated on the basis of the same sample as for the full *logit*, *probit*, and *complementary log-log* models.

[b] *McKelvey* and *Zavoina's* R^2 is not applicable for diagnostic of the complementary *log-log* models.

[c] The AIC and BIC comparison criteria for the non-nested ML models that estimate the same probability event of transition in the firm's FDI status: the smaller value indicates a more efficient model.

[d] The LR test is not applicable for the comparison of the non-nested models M(34), M(35), and M(36).

The performed tests, additionally reported in *Table 37*, compare the alternative functional links of the FDI transition probability model and again favour the *logit* specification, Model (34), which proves to fit to the overdispersed data most accurately. However, the magnitude of the difference in the Bayesian information criterion between the *logit* and *probit* models is not significant [$\Delta BIC < 2$], which can be interpreted as a weak evidence (Raftery, 1996; Long, 1997, 2001); therefore, the *probit* specification does not significantly improve the efficiency of the model:

$$[\Delta BIC = BIC_{M(34)} - BIC_{M(35)} = 2{,}219.0 - 3{,}220.6 = -1.16 \ = |1.16| \ < 2 \ ],$$
$$[\Delta BIC = BIC_{M(34)} - BIC_{M(36)} = 2{,}219.0 - 3{,}338.8 = -119.8 = |119.8| > 10],$$
$$[\Delta AIC = AIC_{M(34)} - AIC_{M(35)} = 2{,}963.3 - 2{,}964.9 = -1.16 \ < 0],$$
$$[\Delta AIC = AIC_{M(34)} - AIC_{M(36)} = 2{,}963.3 - 3{,}338.8 = -119.8 < 0].$$

Similar to the estimated model M(33) in *Table 7.A.2*, the asymmetrical *complementary log-log* link does not improve the fit of the model, which is demonstrated by the larger AIC and BIC values for M(36) and the significant magnitude in the absolute difference [$\Delta BIC = 119.8 > 10$].

Besides, the log-likelihood change, when the *logit* is contrasted against the *probit* and *complementary log-log* links, confirm that the *logit* model provides the best fitting specification. The Model (34) yields a log-likelihood of [−1,458.05], which is [0.79] higher than the equivalent value for the *probit* and [59.93] higher than for the *complementary log-log* link.

However, the comparison with the [1.92] significance benchmark, explained in the preceding *Chapter 7.1.3*, indicates that the difference in the fit of the alternative models is significant only for the *complementary log-log* link, which provides the least efficient fit to the data:

$$[\Delta Log\text{-}likelihood = LL_{M(34)} - LL_{M(35)} = (-1{,}458.05) - (-1{,}465.16) = \ 0.79 < 1.92],$$
$$[\Delta Log\text{-}likelihood = LL_{M(34)} - LL_{M(36)} = (-1{,}458.05) - (-1{,}526.57) = 59.93 > 1.92].$$

The *McKelvey* and *Zavoina's* and *McFadden's pseudo-R^2* yielded the similar values for all three models: [0.2537 *vs.* 0.2498] and [0.7534 *vs.* 0.7554 *vs.* 0.7450] accordingly, which, nonetheless, indicate that the *logit* model better explains the FDI transition probability of the Russian firms. Therefore, the following section builds upon the obtained best fitting model and further scrutinises the divergence across the long-established and emerging groups in Russia, introducing a set of the interactive models to test the hypothesis **H6b**.

10.1.2 The interactive effects of the firm-specific attributes across foundation groups

To decide on the importance of the fluid learning strategies and knowledge accumulation for the newly-created "young" firms, formulated in the hypothesis **H6b**, the time-continuous *logit* model (*Table 37*) is further elaborated to include the possible interactions of the organisational genesis and the investment strategies of the Russian firms. The series of modelling results, which further disentangle the effects of the firm's characteristics across the foundation groups, $FoundationGroups_{it}$, are presented in *Table 38*.

The interactive effects have been computed as a chain of separate moderation models with the time-continuous *logic* specification, controlling for other firm's attributes: for the firm's equity networks, $EquityNetwork_{it}$, the two knowledge components, $Intangibles_{it}$ and $PatentClass_{it}$, and the firm's industrial affiliation, $Sector_{it}$. The obtained coefficients of the interaction terms return inconsistent results, which nonetheless prove important for the theoretical propositions: the importance of faster learning strategies is significantly higher for the both groups of the newly-created firms compared to the old-established enterprises, – and in a greater extent for the younger firm from the foundation category [**3**], providing the ultimate support for the hypothesis **H6b**.

Another interesting finding concerns the importance of the networking strategies among the foundation groups. Contrary to the neo-liberal policy advice adopted in the comparative economics, the intra-state networking proves to be more important for the newly-created firms; and surprisingly the state support is most crucial for those firms founded during the initial period of the neo-liberal reforms (category [**2**]). This phenomenon is elucidated with the highly significant coefficients for the firms from the foundation category [**2**] and [**3**] [$p < 0.01$], which at the same time established equity ties with the state (the intersection with category [**3**] "SOEs" of $EquityNetwork_{it}$).

Moreover, the extra-state networking, contrary to the practical suggestions of the neo-liberal policies, does not seem to bring the internationalisation advantages for the newly-created young firms. Interestingly, the extra-state equity linkages exert strikingly different effects across the two strategic groups: yielding the negative coefficient for the triad hybrid networks (category [**4**] "FI-SOEs" of $EquityNetwork_{it}$) and remaining insignificant for the dyadic hybrid networks (category [**2**] "FI-POEs").

Table 38:
The variation in the effects of the firm's networking strategies, knowledge-intensity, innovation capabilities, and industrial affiliation across the foundation groups, $FoundationGroup_{it}$: the coefficients of the interaction terms under the panel *logit* specification with the parent firm *random effects* (RE).

Model	***Logit* regression [RE]**			**Prediction**
DV: FDIstatus [0 → 1]				
Moderator: $FoundationGroup_{it}$				
Firm's attribute:				
EquityNetwork ×	**2** = FI-POEs	**3** = SOEs	**4** = FI-SOEs	
2 = Newly-created firms: 1992-2001	2.757	10.477***	-2.338	
3 = Newly-created firms: 2002-2011	2.921	9.599***	not estimable	
Intangibles ×				[**H6b**]: greater effect for younger firms
2 = Newly-created firms: 1992-2001	0.368*			
3 = Newly-created firms: 2002-2011	0.406*			
PatentClass ×	**2** = Domestic RU	**3** = International		
2 = Newly-created firms: 1992-2001	not estimable	-2.585*		
3 = Newly-created firms: 2002-2011	not estimable	-2.353		
Sector ×	**2** = Manufacturing	**3** = Services		
2 = Newly-created firms: 1992-2001	1.126	5.860		
3 = Newly-created firms: 2002-2011	4.776	8.802**		

Similar to the effect of the industrial affiliation noted in *Section 7.1.2* (the panel (*b*) of *Table 28*), the youngest firms, newly created during the recent statist period (category **[4]** "FI-SOEs" of $EquityNetwork_{it}$) and operating in the service sector (category **[3]** of $Sector_{it}$) are most likely to transit to multinationality, yielding a highly significant positive coefficient [$p < 0.01$], which can be explained with the high entry barriers in the long-established manufacturing and natural resource sectors.

The possible reasons behind the observed divergence from the established theories will be explained in the corresponding discussion *Chapter 8.3*; while the following section proceeds with the interpretation of the modelled parameters, construction of predicted probabilities and an in-depth examination of marginal effects across the old-established and newly-created Russian firms.

10.1.3 The predicted probabilities across foundation groups and the interpretation of marginal effects

To better understand the investment behaviour of the Russian firms, reconstructed and newly-founded during the three periods featured with distinct state-business relations and power balance, and, thereby, conferred with the different institutional baggage and ties, the overall FDI probability is contrasted across the three foundation categories, $FoundationGroup_{it}$, in *Table 39*. The observed trend does not adhere to the liberalisation argument, as the neo-liberal reforms do not lead to creation of the internationally competitive firms: the old enterprises established at the Soviet era, before the first critical turn in policies towards the rapid liberalisation in the early 1990s (baseline category [**1**] of $FoundationGroup_{it}$), are most likely to involve into international venturing among all the foundation groups.

The probability to become multinational, measured with the AAPs in the panel (*b*), is three times lower for the firms newly established after the demise of the Soviet Union (categories [**2**] and [**3**]). To all appearances, the launch of the liberalisation reforms had not assisted the formation of the enterprises competitive and active in the foreign markets, as the average marginal effects for both groups of the firms newly-created along the transition path yielded negative and highly significant values against the Soviet enterprises, used as a baseline category. The difference in the probability levels between the firms established during the two reformation periods (category [**2**] versus [**3**]) appears to be marginal and not significant, when the categories are contrasted against each other in the panel (*d*), providing only partial support to the hypothesis **H6a**.

The discernable asymmetry in the FDI activities among the Russian firms becomes more prominent, when the effect of $EquityNetwork_{it}$ is contrasted among the firms founded at the three policy periods in the panel (*e*). The equity ties with the state and the cooperation within extra-state networks ("SOEs" and "FI-POEs") contribute most to the FDI transition probability of the older firms established at the Soviet era, pointing either at the strategic short-sightedness or inability to benefit from the cooperative ties by the management of the newly-created firms, leading to their disadvantaged position against the old Soviet enterprises.

The striking differences among the foundation groups are visualised in *Figure 9*, revealing that the firms, reconstructed on the basis of the old-established Soviet SOEs, are endowed with the pre-eminent FDI advantages relative to the Russian firms formed

during the transition period. The relational benefits, created and exchanged within the equity networks with the state and foreign participation, do not seem to transfer as effectively into the specific assets for the newly-created firms, which could prompt younger firms for more aggressive international venturing. Nevertheless, it is interesting to observe that although the newly-established firms are endowed with a drastically smaller FDI propensity, the only equity structure significantly improving the FDI transition probability of the most young firms [$p < 0.05$], founded during the most recent statist period (category **[3]** of $FoundationGroup_{it}$), is the "triad hybrid equity arrangement" among the state, private investors, and foreign capital (category **[4]** "FI-SOEs" of $EquityNetwork_{it}$).

Figure 10, and especially the average marginal effects in *Figure 11*, clearly depict that the "FI-SOEs" are most prominent in their internationalisation efforts compared to other network groups, especially those founded during the Soviet times: the firms simultaneously belonging to the $EquityNetwork_{it}$ category **[4]** and to the $FoundationGroup_{it}$ category **[1]** were able to accumulate resources and build capabilities, enhancing their FDI transition probability in the most effective manner.

Table 39:
The probabilities of transition in the FDI status and the institutional experience of the Russian firms: the panel *logit* model (33) with the parent firm *random effects* (RE).

(a) the average adjusted prediction (AAP) across all the firms:

	Predictive margin	Delta-method SE	z-statistic	P>|z|
DV: FDIstatus [0 → 1]				
AAP	0.0000179	0.0000046	3.88	0.000

(b) the average adjusted predictions (AAPs) for the foundation groups:

FoundationGroup				
1 = Firms est. before 1992	0.0000322	0.00000646	4.990	0.000
2 = Firms est. at 1992-2001	0.0000113	0.00000424	2.650	0.008
3 = Firms est. after 2001	0.0000118	0.00000464	2.540	0.011

(c) the average marginal effects (AMEs) against the old-established Soviet enterprises [1]:

FoundationGroup				
2 = Firms est. at 1992-2001	-0.0000210	0.00000567	-3.690	0.000
3 = Firms est. after 2001	-0.0000204	0.00000567	-3.600	0.000

Table 39:
Continued.

(d) the average marginal effects (AMEs) against the newly-created firms during the initial reform period [2]:

FoundationGroup				
1 = Firms est. before 1992	0.0000269	0.00000757	3.59	0.000
3 = Firms est. after 2001	0.0000018	0.00000217	0.81	0.418

(e) the average marginal effects (AMEs) of $EquityNetwork_{it}$ by the foundation groups:

EquityNetwork: 2 = FI-POEs

FoundationGroup				
1 = Firms est. before 1992	**0.0003598**	0.0000946	3.80	0.000
2 = Firms est. at 1992-2001	0.0000090	0.0000044	2.05	0.040
3 = Firms est. after 2001	0.0000011	0.0000011	1.05	0.294

EquityNetwork: 3 = SOEs

FoundationGroup				
1 = Firms est. before 1992	**0.0004465**	0.0001258	3.55	0.000
2 = Firms est. at 1992-2001	0.0000121	0.0000058	2.07	0.039
3 = Firms est. after 2001	0.0000017	0.0000016	1.11	0.267

EquityNetwork: 4 = FI-SOEs

FoundationGroup				
1 = Firms est. before 1992	**0.0043993**	0.0016905	2.60	0.009
2 = Firms est. at 1992-2001	0.0000959	0.0000292	3.28	0.001
3 = Firms est. after 2001	0.0000147	0.0000043	3.41	0.001

Figure 9:
The predictive margins (AAPs and AMEs) for the $FoundationGroup_{it}$ categories.

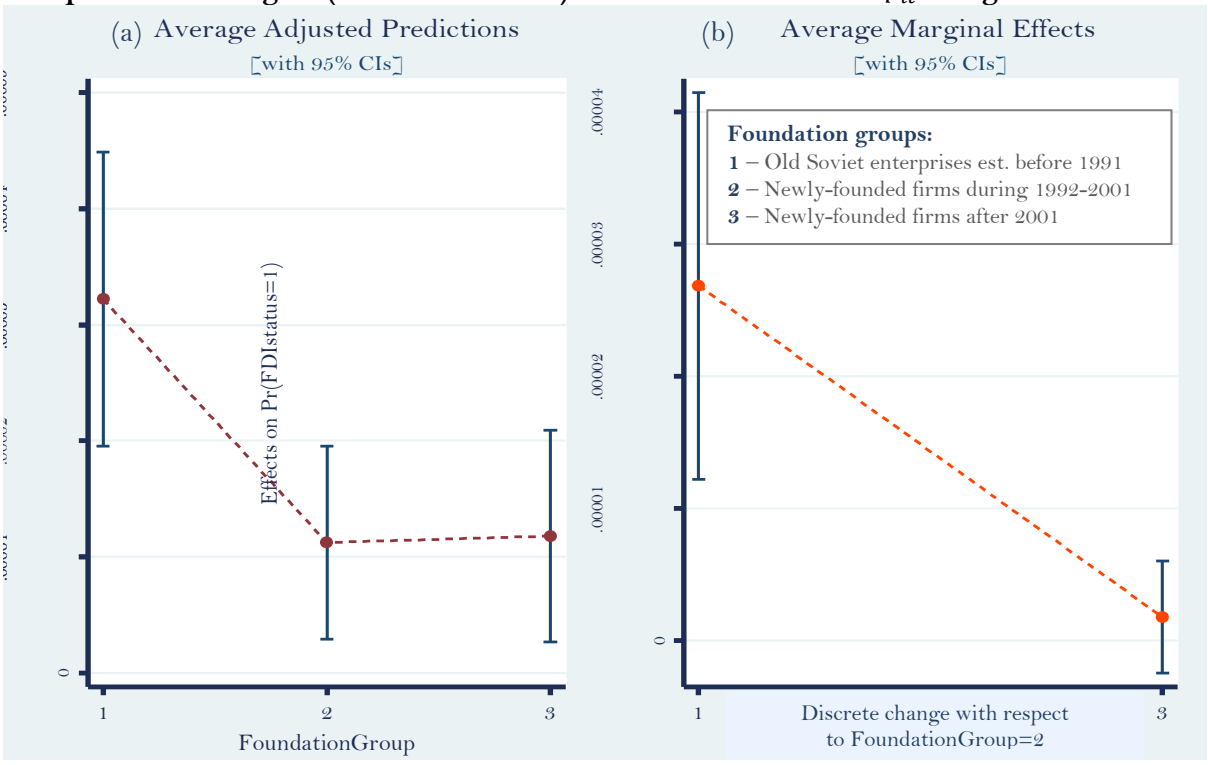


Figure 10:

The average adjusted predictions for (*a*) $EquityNetwork_{it}$ by the $FoundationGroup_{it}$ categories, and (*b*) $FoudationGroup_{it}$ by the $EquityNetwork_{it}$ categories.

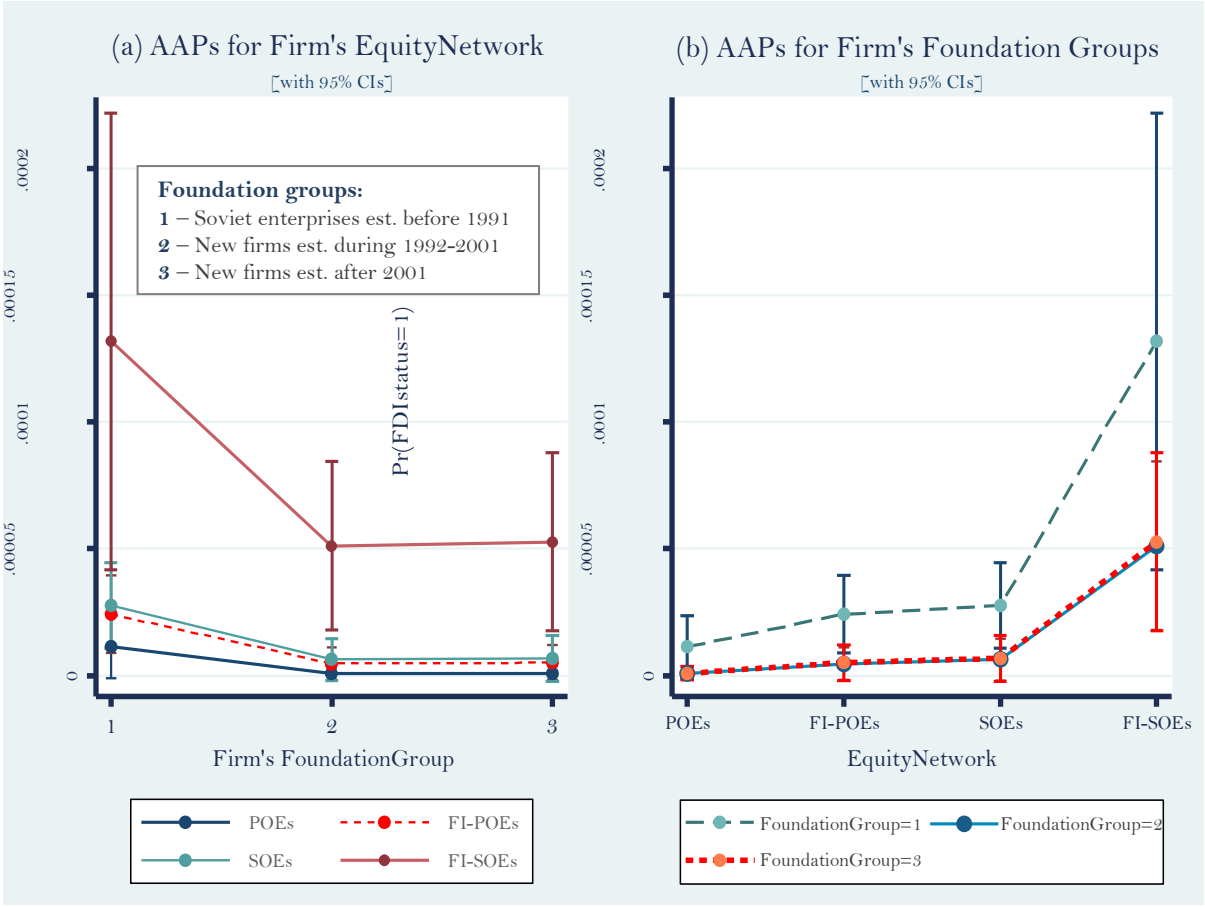
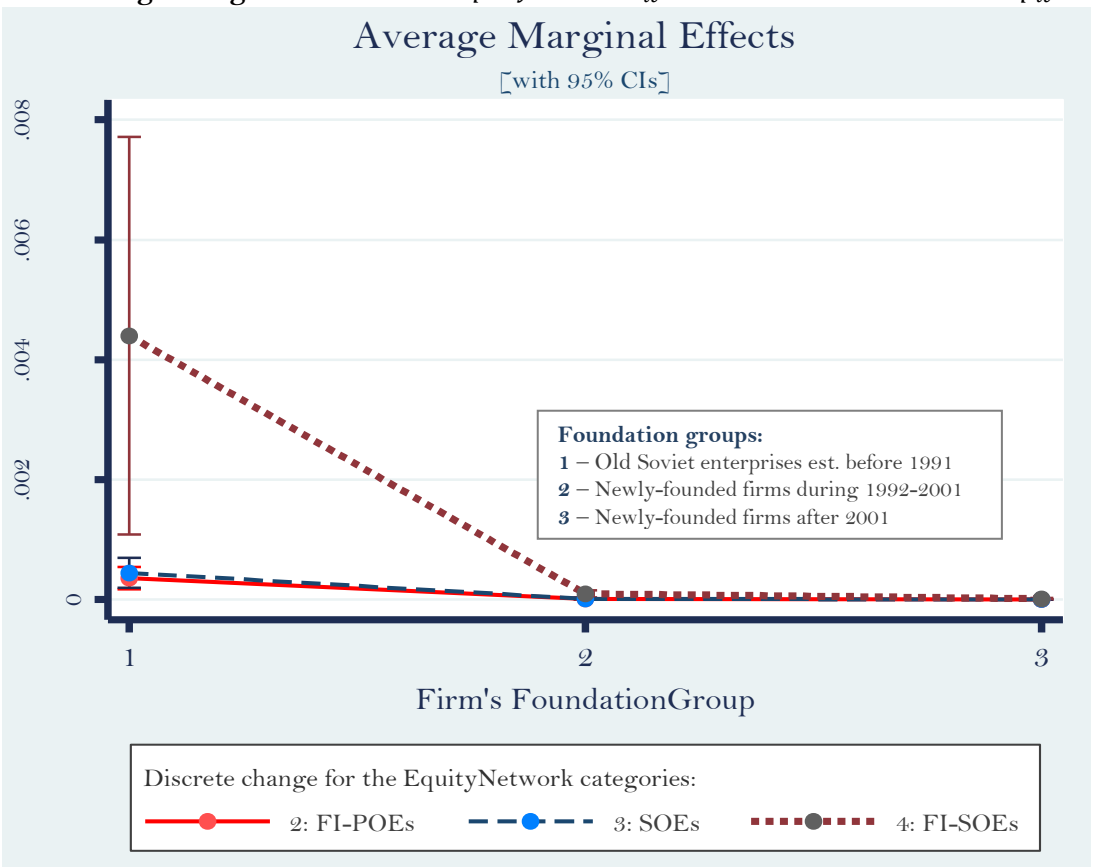


Figure 11:

The average marginal effects for $EquityNetwork_{it}$ across the $FoundationGroup_{it}$ categories.



10.2 The discussion of the empirical evidence and the implications for theory-building

The significant divergence in the investment propensities among the three foundation groups, discovered in the preceding estimation section, and the remarkable FDI activity of the old Soviet enterprises against the young firms, newly-created at the neo-liberal era, is ought to be scrutinised against the extant theories in the IB literature and comparative economics.

Section 10.2.1 reinforces the findings and contrasts the FDI probabilities of the three foundation groups, challenging the assumptions of the firm's evolution established in the organisational literature, and reveals the prominent advantages of the newness and adolescence of the firms for innovative learning, – contrary to considering the firm's newness as a liability in the IB research. *Section 10.2.2* concludes on possible improvements for the IB research on the EM firms.

10.2.1 The spurt of organisational genesis in the EM economies: the liability of newness versus strategic innovativeness in the foreign markets

Another principal contradiction to the assumptions of the IB literature, conventionally attributing the firms having a longer business experience with a greater propensity for internationalisation, arises from the very logic and historical order of organisational founding in the transition economies. The two critical junctures, encountered along the unique transition path in the beginning of 1990s and again in the early 2000s, turned over the political and industrial linkages, and notably the relational mechanisms among and within the organisations in Russia, creating the firms with the distinctive *micro-orders*.

Having wiped out the old organisational types and routines, the radical changes in the state-business relations demarked the three historical periods of the organisational genesis in Russia, conferring the newly-created firms with a strategically distinct set of resources, institutional and cognitive baggage, and relational rents generated within the firm's boundaries – with apparent implications for FDI strategies. The distinct foundation groups of the firms emerging in the economy reveal the differing properties and propensities to involve into international venturing, which contraposes the theoretical approaches of comparative economics and organisational studies: whether the

neo-liberal reforms induce the emergence and internationalisation of the competitive firms or their FDI intentions are constrained with a liability of newness.

The numerous differences featuring the firms, which have been founded and operated under the radically distinct economic and political regimes, rekindle the interest to the concept of the *firm's newness* or *adolescence* and its initial sense, which originated from the organisational studies. Although taken for granted as a liability in the IB field, the firm's newness is distinguished with a great potential for reconditioning the *firm's intentionality* – outlined as one of the properties of emerging and evolving organisations (e.g., Katz and Gartner, 1988), and hence the FDI endeavours. An attempt to conceptualise and relate the stages of organisational founding in Russia with the concrete constraints or stimulus faced by the firms for international venturing has been presented in *Table 3* (*Chapter 3.6*).

The matrix of organisational founding and institutional experience introduces a conceptually different classification of the firms, contraposing the two academic views on the firm's newness and adolescence: as a constraint for the transition and growth in the foreign markets, articulated in the IB field, versus a stimulus for the capability-building and flexibility in designing the innovative learning strategies, elaborated in the organisational literature. The matrix also opposes the IB concept of the advantage of business experience by considering the *liability of obsolescence* of the long-established firms, discussed in a more recent strand of the organisational literature (e.g., Baum and Oliver, 1991; Barron et al., 1994; Baum, 1996; Ingram and Baum, 1997), and calls in question the assumptions dominating amid the institutional studies on the potential burden constraining the growth of the firms created under the distinct institutional settings.

The findings on the transition to multinationality by the three distinct foundation groups, obtained in *Section 10.1*, brought a clear challenge to the conventional IB theorising, confirming that the heterogeneity in investment strategies amid the EM firms is not merely defined by the productivity premiums and other conventional FDI prerequisites. The retrieved findings also contribute to the previous discussion on the firm's networking strategies, incorporating the dimension of time into evolving relational boundaries of the firms.

The three foundation groups of the firms, established during the Soviet era and newly-created during the initial liberalisation period and after the radical turn to statism (*Table 3*), clearly exhibit the distinct FDI strategies. A superior position of the long-

established Soviet enterprises and their more active involvement into international venturing contradicts to a great deal of the institutional and ownership literature, as the former Soviet enterprises were capable to transform their *liability of obsolescence* and the burden of obsolete institutional baggage into the strategic advantage over the younger firms founded under the neo-liberal rules and policies.

The uniqueness of the transition path is again a key to understanding this phenomenon. The combination of the previously constructed manufacturing facilities with the endeavour for a drastic reconstruction of obsolete assets during both transition periods, started and accomplished by the new management, endowed the old firms, which survived through the collapse of the planned economic system in the early 1990s and the default of 1998, with a stronger market position and superior cognitive abilities. The encountered critical junctures put forth the intensive transformation processes within the old-established enterprises and drastically change the properties of organisations, endowing the survivors with a greater flexibility and, to an extent, fluid properties of firms-in-creation.

The reformation efforts apparently allowed the new managers to reconstruct the core rigidities, which otherwise would hinder the innovation and adaptation to the drastically new institutional settings, into the superior competences and investment capacity. The exposure of the old firm to the drastic economic and political disruptions enriched the firm's repertoire with the fluid intelligence and competences, helping to recognise the impairments in its own capabilities formed under the exhausted economic regime and improving the quality of investment decisions under uncertainty peculiar to venturing in the foreign markets. In result, the "survivors" evidently outperform the "newcomers" in launching the new ventures in the foreign markets; for the reconstructed and modernised enterprises were capable to overcome the "lock-in effect" and acquire new capabilities facilitating their diversification beyond the geographical boundaries.

This finding contradicts the established literature on the firm's evolution (Stinchombe, 1965; Nelson and Winter, 1982; Hannan and Freeman, 1984) and a more recent strand of the organisational literature (e.g., Baum and Oliver, 1991; Barron et al., 1994; Baum, 1996; Ingram and Baum, 1997), presuming that the long-established firms draw on the prior-developed routines and become inefficient and unresponsive to the institutional changes. The survived ex-Soviet Russian enterprises had evidently gained mastery in solving the technological and financial problems through incidental and experimentation learning in the environment of neo-liberal reforms, which at that

time was novel to them, converting the institutional burden into a capability of effectively appropriating the business and institutional experience for further growth in the foreign market.

A closer look at the two groups among the newcomers in foreign markets: the firms newly created during the initial spurt of organisational genesis after the demolition of the command system and the industrial linkages (1990s), and the firms newly founded during the recent statist period (2000s), proves another challenge to the concept of the *firm's newness* and *adolescence*, as well as the neo-liberal arguments in the political economics. The firms founded during the initial wave of the neo-liberal reforms do not develop an internationalisation advantage over the old-Soviet enterprises, as an evident probacy against the direct and straightforward link between opening the borders and reaping the benefits of internationalisation by the domestic firms, proclaimed in the IB literature and the political economics. Neither those firms accumulate the advantages with the duration of business operations over the younger group of the firms, founded after the turn to statism in the early 2000s, as the later developed greater propensities to grow into the foreign markets and transit to multinationality. The two explanations come into play, and both challenge the relation among the firm's experience and the change in strategies towards the foreign markets, hypothesised in the IB studies.

The first explanation refers to the evidence on the significantly stronger learning capabilities of both groups of newly-created firms, presented in *Table 38* (*Chapter 10.1.2*), reverting the effect of the firm's newness and adolescence into the advantage allowing the younger firms to overcome the initial lack of resources and capitalise on the steeper learning trajectories at the early stage of formation. The youngest firms, formed during the statist period, appear to be most innovative learners and capable of compensating for the lack of business experience and resources by adopting the innovative strategies of growth into the foreign markets.

Though being the effective learners, the newly-created Russian firms were not established as the effective technological innovators, or with the technological advancement in mind, especially at the chaotic stage of the neo-liberal reforms oriented on capturing the domestic market, which coherently corresponds to the second point. The second explanation concerns a more subtle dimension or property of the emerging organisation – the *firm's intentionality*, largely ignored amid the IB concepts and the comparative economics. The drastic change in the state-business relations evidently

diverted the firm's intentionality from the narrow collusive interests of capturing the domestic market among the small peripheral business or capturing the state among the privileged business groups, towards a growth or escape into the foreign markets.

In addition to innovative learning, the newly-founded firms overcome the feebleness of their newness and adolescence by pursuing the network-based strategies. The abilities of the newly-created firms to effectively and promptly establish network linkages with the major powers in the economy are striking, and in most instances are superior over the old Soviet enterprises with a long history of operations in the Russian environment. The complementarities emerging within the intra-state and extra-state networks evidently compensate for the initial lack of business experience, managerial capabilities, and resources, hastening the transition of the newly-founded firms to multinationality. Interestingly, the relative importance of the intra-state and extra-state networking strategies for international venturing varies across two groups of the newly-created firms and two reformation periods.

The linkages with the state prove to be a decisive factor for the firms established during the initial stage of the neo-liberal reforms and, at the same time, more beneficial compared to the ties with foreign firms, providing with safety during the acute crisis or the legitimised channels for an outrageous escape of capital after financial accounts had been liberalised. The equity ties with the state retain its significance for the youngest firms created at the recent statist period; albeit the effect of the intra-state networking on the firm's FDI propensity slightly decreases, apparently because the relative stabilisation at the macro-level during the 2000s compensated the need for risk-assurance within equity networks with the state. Perhaps, the similar explanation applies to a slight increase in importance of the extra-state networking for the youngest firms newly-created during the statist period, which are surprisingly more capable in establishing the effective linkages with foreign firms, as opposed to the older and more experienced peers from the earlier foundation waves.

10.2.2 Conclusion and implications for theory-building

Such a complexity of the actual interrelations observed among the EM firms first of all serves as a warning against the clear-cut assumptions and unequivocal concepts, straightforwardly relating the firm's attributes with their international strategies. The IB field, and particularly the expanding research stream on the emerging market

firms, may benefit if the research designs and theorising shift towards the relational approach, more widely implemented in other strands of the firm's behaviour literature. The novel relational strategies allow the EM firms, not shackled with the "crystallised" structural assets and not burdened with rigidness in decision-making and incentives systems, to overturn the existing macro-orders within firm's boundaries (Utterback, 1994; Teece, 2000) and create more effective micro-structures, hastening the capability accumulation and growth in the foreign markets.

A more thorough focus on the properties of the emerging organisations or *firms-in-creation* may reveal and explain the inadequacies between the conventional IB assumptions and the new evidence from the EM states, as the peculiar history of organisational founding and the state-business relations are embedded in the properties of organisations and create a variety of the organisational forms, featured with the distinctive investment *intentionality*, relational *boundaries*, and *exchange mechanisms*.

The evolving properties of the firms-in-creation divert the effects of conventional FDI prerequisites and redesign the FDI strategies, similarly to the liability of newness or adolescence that rather appears as a *learning advantage of newness* among the EM firms, conferring the firms with ability for a flexible strategic change. The comprehensive conceptualising of the properties of emerging organisations and their role in shaping the international strategies of EM firms requires a merge of the insights on the firm's intentionality from the cognitively-oriented research (Shapero, 1975; Alderfer, 1997; Weick, 1979), on the evolution of the firm's boundaries from the system theories (Katz and Kahn, 1978), and the inter- and intra-firm relations – from the network and inter-organisational literature, emphasised in the previous sections.

CHAPTER 11. THE EXTENT OF INTERNATIONAL INVOLVEMENT OF THE RUSSIAN FIRMS: THE EXPANSION OF NETWORKS OF FOREIGN SUBSIDIARIES

The present chapter tackles a conceptually different question, which has received only a brief and general acknowledgment in the extant IB theories and the empirical explorations: whether the initial transition into the foreign market is strategically different from the subsequent foreign entries, and what facilitates the further growth of the firms in the foreign markets.

Before developing implications for theory-building, *Section 11.1* proceeds with the final part of the data analysis and question how the impact of the firm's equity networks and specific attributes changes for the subsequent foreign investment decisions of the Russian firms, after they attain the multinationality and contemplate expanding a network of foreign subsidiaries.

To provide a meaningful answer, the modelling effort attains to the estimation of a series of the non-linear count models, derived in the preceding *Chapter 4.3*. Each of the count models is aimed to test the importance of the firm's networking strategies and other attributes, which were included in the initial FDI transition probability model (*Chapter 7.1*), for the subsequent expansion of the network of foreign subsidiaries over time. The estimation strategy is specifically designed to separate and contrast the effects of the initial transition to multinationality and the subsequent FDI decisions, by capturing the change in contribution of the modelled firm's characteristics, which provides a rigorous test of the hypothesis **H1c**.

The findings, discussed in *Section 11.2*, confirm that the firm's reliance on the developed set of the advantages changes significantly, when the firm contemplates to expand the network of foreign subsidiaries. The explanations derived from the conventional IB literature ought to be complemented with a more thorough discussion of the cycle of advantages build by the firms while extending the network of foreign subsidiaries via multiple FDI projects in the foreign markets.

11.1 The estimation of non-linear count FDI models and the interpretation of results

The present section proceeds with the estimation of a series of the non-linear count models, derived in the preceding *Chapter 4.3*. *Section 11.1.1* endeavours to model the change in the effects of networking strategies and other firm-level attributes for the expansion of the network of foreign subsidiaries, after the initial entry into a foreign market. The novelty of the estimation strategy allows to separate the effects of the initial transition to multinationality and the subsequent FDI decisions, and to capture the change in contributions of the networking strategies and modelled characteristics of the firms, providing a rigorous test of the hypothesis **H1c** across the alternative specifications of zero-inflated models.

Following the developed model-building strategy, *Section 11.1.2* accomplishes the data analysis with a thorough comparison and illustration of predicted probabilities and marginal effects across the models, facilitating the ultimate conclusion on the hypothesised effects on the subsequent expansion of the firms in the foreign markets.

11.1.1 The estimation of the count FDI expansion function: modelling the foreign investment decisions of Russian firms as a recurrent event

Once the firm initiates the move into a foreign market via FDI and switches to the multinational status, the subsequent investment decisions might be driven by a distinct set of the specific factors, as the composition of the FSA portfolio and relational powers of the firms may change drastically after their transition to multinationality.

In order to model how the firm's characteristics, – crucial prerequisites for the initial transition to multinationality, – change their effect on the subsequent firm's decisions to extend the network of foreign subsidiaries and involve in the multiple entries in the foreign markets, and investigate whether new factors arise, the dependent variable ought to be transformed to account for the expansion of the networks of subsidiaries established by the individual Russian firms over time. The model building strategy relies on the fundamentally different four structural forms particularly developed for the count panel data, as specified in *Chapter 4.3*.

The inferred dependent variable, $ForSubNetwork_{it}$, constructed in *Section 5.3*, reflects the time-varying number of foreign subsidiaries, established by the Russian firms over ten time units. The change in the number of foreign subsidiaries is traced at the equal (annual) time intervals over the same period that has been employed for estimating the FDI transition probability model: 2002–2011 years. The dependent variable is tested against the identical set of the firm-specific factors, which were hypothesised as the important prerequisites of the initial FDI decision and estimated in the final Model (22), presented in *Tables 24* and *7.A.2* (*Chapters 7.1.1* and *7.A.2*).

Several variables, however, need further attention. The firm's size measure, $FirmSizeTA_{it}$, accounts for the foreign assets together with the domestic assets in the employed total value for each recorded year. The same computation logic applies to the firm's intangible assets, innovation capabilities, and efficiency measures, due to the specificity of data collection in the Orbis dataset. Nonetheless, this peculiarity in the data presentation proves an advantage for the inferred count models, for it allows accounting for specific assets and knowledge acquired in the foreign markets after the initial transition.

Table 40 compares the estimates of four non-linear panel count models developed to test the impact of the firm-related factors onto the firm's intention to continue foreign expansion and increase the number of foreign subsidiaries, $ForSubNetwork_{it}$: the *Poisson* regression, the simple *negative binominal* (NB) regression, and the two *zero-inflated* models for the *Poisson* and NB distributions (ZIP and ZINB accordingly). Following the modelling strategy outlined in *Section 7.A.2* (*Appendix*), the standard *Poisson* maximum likelihood estimation (MLE) is complemented and verified with a *negative binominal* (NB) regression that explicitly models the overdispersion, observed in the data (*Chapter 5.2*). Since the observed zeroes in the data exceed the distributional assumptions of the *Poisson* and *negative binominal* models, and the count dependent variable $ForSubNetwork_{it}$ is featured with a small mean and long right-tail distribution, the findings will be rigorously tested against two alternative zero-modified specifications, which handle the apparent overdispersion in the data: a *zero-inflated Poisson* (ZIP) and *zero-inflated NB* (ZINB) models.

To improve on comparability, all four count models are estimated against the identical sample of the Russian firms, employed in the modelling of the FDI transition probabilities in *Chapters 7.1–10.1*. In order to yield the robust standard errors, the zero-inflated models (ZIP and ZINB) are adjusted by clustering the effect of

id(firm number) and estimated with the variable zero-inflation probability, as the ML standard errors is likely to lead to considerable understatement of true standard errors. In addition, all results are obtained with the random effect (RE) estimator that assumes that the alpha [α] is gamma distributed with a mean of [1] and a variance of [η], which allows avoiding a loss in precision due to using only within variation in the panel data.

The parameter estimates, presented in the top part of *Table 40*, establish a substantial divergence across the inferred count models. The regression coefficients, associated standard errors, and the test statistics markedly differ under the alternative distributional assumptions. The modelled parameters for $NetworkEquity_{it}$, $FirmAge_{it}$, $FirmSizeTA_{it}$, $Regions_{it}$, and $ProfitMargin_{it}$ are consistent across all count models.

It is noteworthy that the relations within the hybrid equity networks formed by the firms, $NetworkEquity_{it}$, remain an important determinant for their subsequent decisions to expand the network of foreign subsidiaries through hastening the knowledge and resource exchange. The extra-state equity networks created by the firms prior their move into a foreign market, both the "FI-POEs" and the "FI-SOEs", facilitate their further expansion via establishing the network of foreign subsidiaries. Interestingly, the complementarities emerging within more complex hybrid equity structures (triad "FI-SOEs") do not offer as strong distinctive advantage for the subsequent foreign investment projects and ventures contemplated by the firms, as for the initial entry into a foreign market via FDI; though the effect of having the state and foreign firms among the firm's shareholders is greatly positive on the number of established subsidiaries, $ForSubNetwork_{it}$, confirming the hypothesis **H1c.**

The effect of business experience, measured with $FirmAge_{it}$, is positive across all estimated models, though not significant for the ZIB specification. Nonetheless, this finding indicates that the Russian firms are capable to overcome the liability of newness and leverage not only the market experience accumulated prior to the initial transition to multinationality, but also to adopt new operational routines from undertaking the foreign investment in the novel settings and transfer the newly-accumulated international experience into the further expansion of the subsidiary network.

The similar trend can be discerned for the firm's resources accumulated in the foreign markets. The positive coefficient of the measure of the firm's assets, $FirmSizeTA_{it}$, implies that along with leveraging the domestic resource base, the Russian firms are capable to capitalise on the newly-acquired or established assets in the foreign markets for the subsequent FDI projects, though apparently not as effectively, because

the coefficient of $FirmSizeTA_{it}$ loses its significance under the *zero-inflated* NB specification. Accounting for the significant overdispersion in the count data by introducing the *zero-inflated* functional forms (ZIP and ZINB), on the contrary, returns the significant estimate for the firm's profitability, $ProfitMargin_{it}$, yielding the nearly identical positive effect on the number of established subsidiaries as for the initial transition to multinational status.

Despite applying the robust variance estimator, the predictors of the both knowledge components $Patentslass_{it}$ and $Intangibles_{it}$, as well as the $Sector_{it}$ categories, demonstrate ambivalent results with respect to both the signs and significance. The *zero-inflated* specifications (both ZIP and ZINB) drastically change the effect of the registered patents. The negative coefficients for the two $Patentslass_{it}$ categories attain statistical significance under the ZINB model and, herewith, prove that the accumulated innovation capabilities of the firms inhibit the extension of the network of foreign subsidiaries, and might be indicative of the knowledge-seeking and technology sourcing intents, along with the initial disadvantaged position of the Russian firms on the technological ladder. The modelled parameter of the tacit component of knowledge, measured with $Intangibles_{it}$, on opposite changes its sign to positive under the ZINB functional form, but nonetheless, remains insignificant and negligible in magnitude across all the models. The estimates for the both knowledge measures provide clear evidence that the Russian firms lack capabilities either to capitalise on the accumulated knowledge in the foreign markets or effectively utilise it for the further expansion, or apparently both.

A series of tests, additionally reported in *Table 40*, allows for evaluation and comparison of the relative fits of the four count models. The Wald test for joint significance of all the covariates in the model returns the highly significant p-values $[p < 0.0005]$ associated with the computed $[chi^2]$-statistics and confirms the acceptable fit of all count models.

The results for the *Poisson* model are obtained with the random-effect (RE) estimator that assumes that the alpha $[\alpha]$ is *gamma* distributed with a mean of [1] and a variance of $[\eta]$, which helps to avoid a loss in precision due to using only within variation in the panel data. The likelihood ratio (LR) test, performed for the *Poisson* model, indeed confirms that the random-effect parameterisation provides a significantly better fit to the data and should be preferred over the standard (pooled) *Poisson* specification with $[p < 0.0005]$.

Table 40:

The effect of the firms-specific characteristics on the decision to extend the network of foreign subsidiaries: the panel *Poisson* and the panel *negative binominal* (NB) with the parent firm random effects (RE), *zero-inflated Poisson* (ZIP) and *zero-inflated negative binominal* (ZINB) estimates with the cluster-robust standard errors.

Model	*Poisson* regression	*NB* regression	*ZIP* regression	*ZINB* regression	Predictions
DV: ForSubNetwork$_{it}$					
EquityNetwork					
2 = FI-POEs	3.603***	2.648***	1.522*	2.019***	
3 = SOEs	4.276***	3.907***	0.807	1.933*	
4 = FI-SOEs	7.340	4.652*	2.048***	3.623***	
FirmAge	0.025***	0.025***	0.024	0.078*	
FirmAgeSqr	0.00013	0.00013	-0.00026	-0.00069*	
PatentClass					
2 = Domestic RU	3.220	2.864	-1.862**	-3.491*	
3 = International	0.012	0.0146	-0.314	-0.826*	
Sector					
2 = Manufacturing	1.627*	1.322*	0.098	0.450	
3 = Services	-0.410	-0.501	-1.199*	0.089	
Region					
2 = North-West	-0.985*	-0.573	-0.212	-0.193	
3 = Ural region	-2.975***	-2.594***	-3.388***	-3.653***	
4 = Volga	-3.372***	-2.919***	-1.783*	-2.033**	
5 = Far-East	-4.403***	-3.943***	-7.281***	-5.443	
6 = South+Caucasus	-1.214**	-0.965*	0.761	2.232	
7 = Siberian	-3.308***	-2.958***	-1.962**	-2.430*	
Intangibles	-0.004	-0.005	-0.027	0.037	
FirmSizeTA	0.037***	0.0364**	0.179*	0.109	
ProfitMargin	0.0006	0.0005	0.010*	0.019***	
Comparison of goodness-of-fit of the count models:					
Number of observations	2,635,402	2,635,402	2,635,402	2,635,402	
Ln(r) *value*:	–	2.738	–	–	
p-value:	–	[<0.00005]	–	–	
Ln(s) *value*:	–	-8.949	–	–	
p-value:	–	[<0.00005]	–	–	
Vuong test *z-statistic*:	–	–	11.50 [a]	9.29 [b]	
p-value:	–	–	[<0.00005]	[<0.00005]	
LR test $[\alpha = 0]$ *chi*^{2}:	1.4e+05	9,082.45	–	4.7e+04	
p-value:	[<0.00005]	[<0.00005]	–	[<0.00005]	
Wald test *chi*^{2}:	399.56	411.62	470.41	289.76	
p-value:	[<0.00005]	[<0.00005]	[<0.00005]	[<0.00005]	
AIC	8,911.43	8,929.24	64,074.57	17,524.58	
BIC	9,167.12	9,197.72	64,560.38	18,023.17	
Log Likelihood (*df* 20)	**-4,435.72**	-4,443.62	-31,999.28	-8,723.29	

Notes:

[a] Vuong test of the ZIP specification versus the standard *Poisson* model.

[b] Vuong test of the ZINB specification versus the standard NB model.

The *negative binominal* (NB) model is also estimated with the random-effect (RE) specification, allowing the dispersion to vary randomly across the firms for unidentified firm-specific reasons, so that the inverse of the dispersion follows a $[\text{Beta}(r, s)]$ distribution. The random-effect estimator introduces two additional parameters for the NB model: $[\ln(r)]$ and $[\ln(s)]$, which refer to the *beta* distribution values and allow accommodating both the overdispersion and within correlation observed in the data. The likelihood ratio (LR) test for the NB model confirms that the random-effects panel specification provides a more efficient fit into the data over the constant dispersion estimator.

The ZIP and ZINB models allow performing the Vuong test, intended to serve as a comparative measure of the predicted fit values for the ZIP and ZINB specifications. The Vuong $[z]$-statistic of $[11.50]$ with the associated p-value $[p < 0.0005]$, computed for the ZIP model, proves a significant difference between the Poisson and ZIP specifications, favouring the zero-inflated alternative. The same conclusion is reached for the ZINB model: the Vuong $[z]$-statistic of $[9.29]$ indicates that the *zero-inflated* NB (ZINB) functional form is preferred over the standard *negative binominal* (NB) specification with the 99% level of confidence $[p < 0.0005]$. The boundary likelihood ratio (LR) test of the log-likelihood of the full ZINB model against the log-likelihood of the ZIP model yields a $[chi^2]$-statistic and the corresponding *p-value*, indicating that the *zero-inflated* NB (ZINB) model with $[\alpha = 4.681]$ is significantly different from the *zero-inflated Poisson* (ZIP) model. The ZINB model appears to fit to the overdispersed data most accurately compared to other specifications.

Although the Vuong test appear to prove that the extra zero counts in $ForSubNetwork_{it}$ are the significant factor to the model fit, the Akaike's and Bayesian information criteria (AIC and BIC), also reported in *Table 40*, lead to the opposite conclusion. The analysis of the differences in the AIC and BIC values across the models shows that the zero-inflated estimation algorithm immensely escalates the AIC and BIC values. The computed magnitudes of the absolute differences in the Bayesian information criterion between the count models provide the strong evidence $[\Delta BIC > 10\,]$ in favour of the random-effect *Poisson* model:

$$[\Delta BIC = BIC_{M(Poisson)} - BIC_{M(NB)} = 9{,}167.12 - 9{,}197.72 = -30.60 = |30.60| > 10\,],$$
$$[\Delta BIC = BIC_{M(Poisson)} - BIC_{M(ZIP)} = 9{,}167.12 - 64{,}560.38 = -55{,}393.3 = |55{,}393.3| > 10\,],$$
$$[\Delta BIC = BIC_{M(NB)} - BIC_{M(ZINB)} = 9{,}197.72 - 18{,}023.17 = -8{,}825.45 = |8{,}825.45| > 10\,],$$
$$[\Delta BIC = BIC_{M(ZIP)} - BIC_{M(ZINB)} = 64{,}560.38 - 18{,}023.17 = -46{,}537.21 = |46{,}537.2| > 10\,].$$

As demonstrated by the larger AIC value and the significant magnitude in absolute differences: [$\Delta BIC = 55{,}393.3 > 10$] and [$\Delta BIC = 8{,}825.45 > 10$] accordingly, the ZIP and ZINB specifications do not lead to improved fit of the model. However, when the ZIP model is contrasted against the ZINB alternative, the markedly significant difference in the BIC values [$\Delta BIC = 46{,}537.21 > 10$] confirms that the ZINB model provides a better fitting specification. The same trend is observed for the comparison of the log-likelihood values: the Poisson model yields a log-likelihood of [$-4{,}435.72$], which is significantly higher [$\Delta Log\text{-}likelihood > 1.92$] than the equivalent values for the NB, ZIP, and ZINB functional links, which appear to provide less efficient fit to the data.

Given the contradicting evidence, the conclusion on the comparative fit of the models ought to be assisted with the analysis of predictive margins, which, in the count specification, reflect the instantaneous change in the probability of having a particular number of foreign subsidiaries given a specific change in the firm's attributes, *ceteris paribus*.

Before developing the implications for theory-building, the next section proceeds with the final part of the data analysis, estimating the predicted probabilities and interpreting how the impact of the firm's hybrid networks and specific attributes changes for the subsequent foreign investment decisions of the Russian firms, after they attain multinationality and develop a network of foreign subsidiaries.

11.1.2 The predicted probabilities of expanding the network of foreign subsidiaries and the interpretation of marginal effects

To better understand the modelled effects of the firm-specific attributes and their predicted probabilities, the average marginal effects (AMEs) and the average discrete changes (ADCs) are presented in *Table 41* and also found to yield discrepant results. None of the computed margins is significant under the *Poisson* and NB models, and therewith return the markedly inflated values. The zero-inflated specifications, on the contrary, prove to yield the significant predictive margins and better fit into the data. Therefore, the interpretation of the coefficients and probabilities will be accomplished basing on the ZIP and ZINB functions.

The average marginal effects and the discrete change for the ZIP and ZINB models are computed as the predicted number of events separately for the count component of

the models. Among the equity network types, $NetworkEquity_{it}$, only the hybrid extra-state networking ("FI-SOEs") returns a highly significant discrete change under the ZIP specification, increasing the number of foreign subsidiaries for an average of [0.04] additional subsidiaries compared to the "POEs". The insignificant differences among the equity structures indicate that the network strategies formed at the firm's domestic institutional environment hardly can hasten the subsequent expansion of the firm's international subsidiary networks, as for the initial strategic move into the foreign market. Neither the firm's industrial affiliation adds to the heterogeneous expansion strategies, as evidenced by the insignificant average discrete changes for the $Sector_{it}$ categories with the values approximating zeroes.

Comparing the impact of the two knowledge components on the subsequent foreign investment decisions, the discrete changes for the $Patentslass_{it}$ categories appear to be negative, though of negligible magnitude. None of the patent types, – neither domestically developed, nor registered abroad, – confer the firms with a significant advantage in their further expansion in the foreign markets via FDI. The importance of the tacit knowledge, contrariwise, proves to be highly statistically significant under both *zero-inflated* link functions (ZIP and ZINB), though the magnitude of the computed semi-elasticity is remarkably low: increase in the accumulated intangible for additional USD1,000 assets would result in the 0.1% or 0.2% increase in the number of foreign subsidiaries.

The similar positive significant effect is exerted by the firm's amount of tangible assets, garnered in the domestic and foreign markets, though the marginal effect of $FirmSizeTA_{it}$ prove to be six and four times stronger compared to the intangible assets under the ZIP and ZINB specifications respectfully. The cost efficiency of the firm, $ProfitMargin_{it}$, also facilitates the expansion of the firm's network of foreign ventures, though the strength of the effect is considerably lower compared to the contribution of the garnered resources and knowledge into the subsequent ventures.

It is noteworthy that the geographic location of the parent firms changes its importance for the subsequent investment decisions of the Russian firms. Compared to the initial transition to multinationality, the firms located in the North-West region (category **[2]** of $Region_{it}$) lose their location advantage when contemplating the multiple entries into the foreign markets. Another region, breaking the established pattern with the initial FDI transition, is the South-Caucasus (category **[6]** of $Region_{it}$), which appear to generate stronger location advantages for further expansion of the subsidiary

networks, compared to the firms located in the Central Moscow region (baseline category [**1**] of $Region_{it}$); though the positive difference was not found significant. Interestingly, the discrete changes for the remaining regions are remarkably similar in magnitude, which may indicate that the regional heterogeneity of the firms diminishes once the firms obtain the multinational status. Nonetheless, all values prove the significant negative change in the endowed location advantages for expanding the network of foreign subsidiaries, compared to the firms located in the Central Moscow region.

Table 41:
The average marginal effects (AMEs) and the discrete changes for the modelled firm's attributes: the panel *Poisson* with the parent firm random effects (RE), standard *negative binominal* (NB), *zero-inflated Poisson* (ZIP) and *zero-inflated negative binominal* (ZINB) estimates.

Model:	***Poisson*** **regression**	***NB*** **regression**	***ZIP*** **regression**	***ZINB*** **regression**
DV: ForSubNetwork$_{it}$				
EquityNetwork				
2 = FI-POEs	310.189	133.075	0.016	0.022
3 = SOEs	615.977	494.088	0.005	0.016
4 = FI-SOEs	13,368.600	1,052.113	0.039*	0.098
FirmAge	1.477	0.903	0.0004*	0.001*
FirmAgeSqr	0.007	0.005	-0.000004*	0.00001*
PatentClass				
2 = Domestic RU	1,402.733	582.920	-0.002	-0.006
3 = International	0.717	0.520	-0.002	-0.006
Sector				
2 = Manufacturing	47.664	26.579	0.005	0.007
3 = Services	-3.916	-3.810	-0.008	0.001
Region				
2 = North-West	-96.470	-27.461	-0.003	-0.003
3 = Ural region	-146.148	-58.288	-0.014***	-0.018**
4 = Volga	-148.722	-59.591	-0.013***	-0.016**
5 = Far-East	-152.123	-61.772	-0.015***	-0.019**
6 = South+Caucasus	-108.249	-38.986	0.009	0.090
7 = Siberian	-148.373	-59.724	-0.014***	-0.017**
Intangibles	-0.240	-0.182	0.001***	0.002**
FirmSizeTA	2.184	1.291	0.006***	0.008***
ProfitMargin	0.034	0.019	0.0001**	0.0003**

To obtain a more rigorous insight into the predictive probabilities of the alternative count models, the incidence rates [$\exp(\beta x)$] are computed as the predicted number of events when exposure is [1] and compared with the actual prediction for $ForSubNetwork_{it}$. *Table 42* reveals that the predicted means vary drastically across the alternative models. Again, the ZINB specification provides the best fit into the observed data, followed by ZIP; while the *Poisson* and NB models show the greatest discrepancy with the actual counts, $ForSubNetwork_{it}$.

To improve on the comparison of the models, the predicted probabilities are generated for the individual counts [$ForSubNetwork_{it} = 1, 2, \dots, 20$] and averaged across the firms for each estimated specification of the count models. To compare how the fitted probabilities that the Russian firms would expand the network of foreign subsidiaries from [1] to [20], change across the alternative models and divert from the actual values observed in the sample, the mean predicted probabilities are plotted in *Figure 12*. The plotted predictions for the *Poisson* model against the observed probabilities reveal that the Poisson specification markedly overestimates the probability mass at the low counts: [$ForSubNetwork_{it} = 1, 2, and\ 3$], while the alternative models tend to underestimate those.

Figure 13 allows for a convenient comparison of the differences between the actual and predicted probabilities across the models, which are computed as the ratios of actual probabilities relative to the average fitted values. The greatest discrepancy across all count models is observed for the low values of [$ForSubNetwork_{it} = 1, 2, 3, and\ 4$]. Within this range, the predicted probabilities obtained under the *Poisson* link function exceed the sample frequency by a factor of [4.52], [4.81], [2.23], and [1.63] for [$ForSubNetwork_{it} = 1, 2, 3, and\ 4$] accordingly. The NB model, on the contrary, returned the fitted values markedly lower than the actual frequencies: by a factor of [10.3], [2.99], [3.03], and [2.27] for [$ForSubNetwork_{it} = 1, 2, 3, and\ 4$] accordingly. The zero-inflated specifications (ZIP and ZINB) indeed improve the predictive efficiency for the low counts by breaking the model into two components, separately estimating the excess zeroes and positive outcomes. For the greater values of [$ForSubNetwork_{it} = 5, 6, \dots, 11$], the Poisson model provides a more accurate fit. For the count values above that, however, the zero-inflated specifications (ZINB, in particular) appear to model the relationships between the expansion of the network of foreign subsidiaries and the firm's attributes more efficiently. Therefore, the choice among the link function should be motivated by the particular research interest and posed questions.

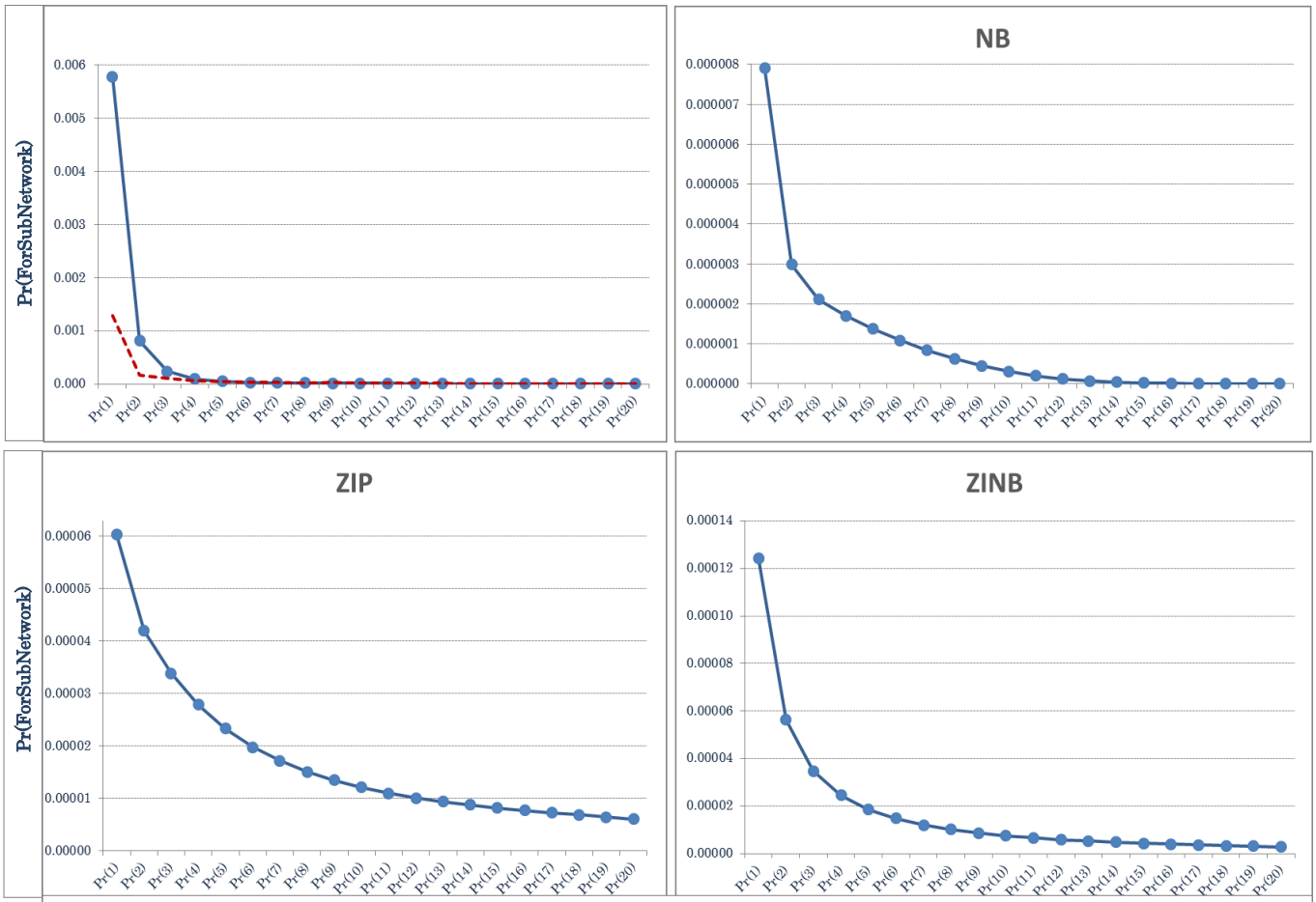
Table 42:

The comparison of the incidence rates across the models: the panel *Poisson* with the parent firm random effects (RE), standard *negative binominal* (NB), *zero-inflated Poisson* (ZIP), and *zero-inflated negative binominal* (ZINB) estimates.

IR:	Mean	SD	Min	Max
DV: *ForSubNetwork*$_{it}$	0.019	1.909	0	901
Poisson	58.730	19,298.240	1.210E-05	1.110E+07
NB	35.511	10,590.520	1.640E-05	5.919E+06
ZIP	0.010	0.696	1.680E-16	2.500E+02
ZINB	0.013	1.011	1.140E-21	5.090E+02

Figure 12:

The probability of establishing the foreign subsidiaries $[ForSubNetwork_{it} = 1, 2, \dots, 20]$ **across the models: the panel *Poisson* with the parent firm *random effects* (RE), standard *negative binominal* (NB), *zero-inflated Poisson* (ZIP), and *zero-inflated negative binominal* (ZINB).**



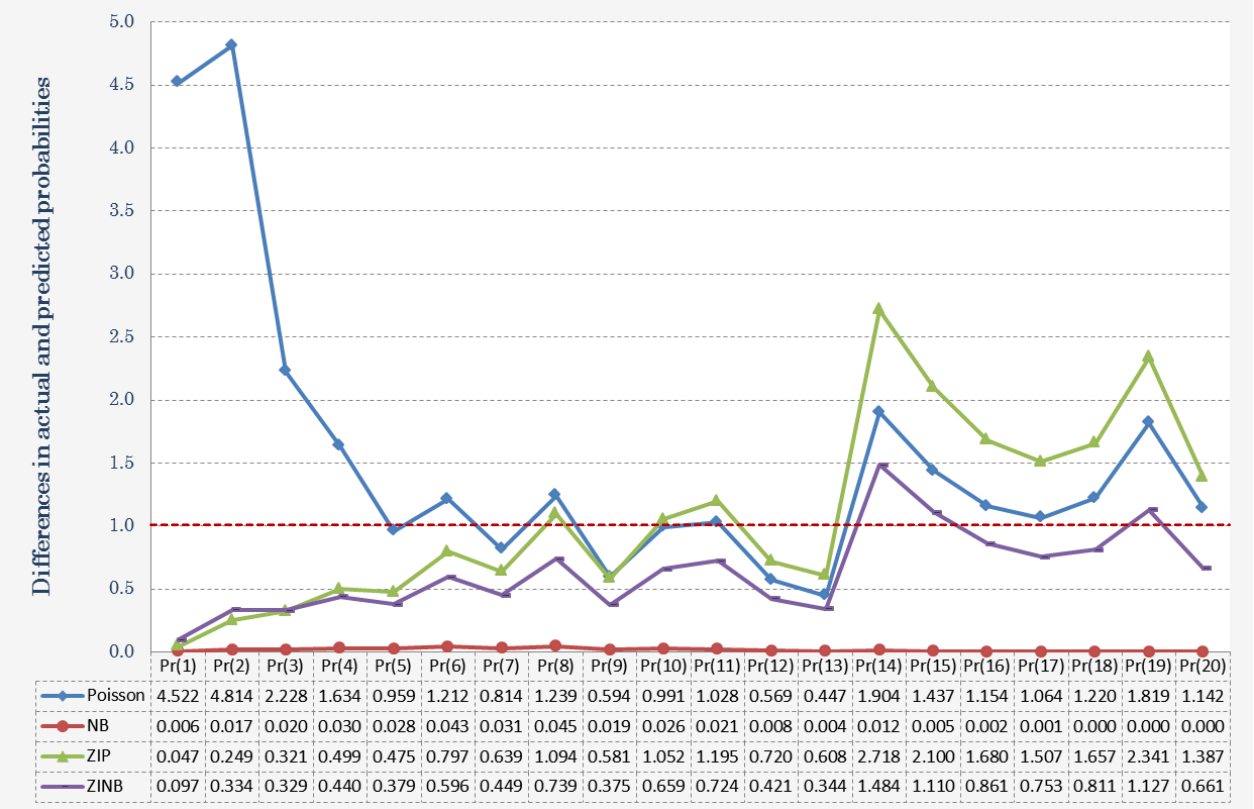
X: Pr(1) – Pr(20) – the probability of establishing a particular number of the foreign subsidiaries: (1), (2), …, (20).

Y: Pr(ForSubNetwork) – the associated probability values.

---------- – the actual probabilities of observing a count Pr(ForSubNetwork = 1, 2, …, 20).

———— – the fitted probabilities under the Poisson, NB, ZIP, and ZINB specifications..

Figure 13:
The comparison of the observed and actual probabilities of $[ForSubNetwork_{it} = 1, 2, \dots, 20]$ **across the count models: the panel *Poisson* and standard *negative binominal* (NB) with the parent firm *random effects* (RE), *zero-inflated Poisson* (ZIP), and *zero-inflated negative binominal* (ZINB).**



	Pr(1)	Pr(2)	Pr(3)	Pr(4)	Pr(5)	Pr(6)	Pr(7)	Pr(8)	Pr(9)	Pr(10)	Pr(11)	Pr(12)	Pr(13)	Pr(14)	Pr(15)	Pr(16)	Pr(17)	Pr(18)	Pr(19)	Pr(20)
Poisson	4.522	4.814	2.228	1.634	0.959	1.212	0.814	1.239	0.594	0.991	1.028	0.569	0.447	1.904	1.437	1.154	1.064	1.220	1.819	1.142
NB	0.006	0.017	0.020	0.030	0.028	0.043	0.031	0.045	0.019	0.026	0.021	0.008	0.004	0.012	0.005	0.002	0.001	0.000	0.000	0.000
ZIP	0.047	0.249	0.321	0.499	0.475	0.797	0.639	1.094	0.581	1.052	1.195	0.720	0.608	2.718	2.100	1.680	1.507	1.657	2.341	1.387
ZINB	0.097	0.334	0.329	0.440	0.379	0.596	0.449	0.739	0.375	0.659	0.724	0.421	0.344	1.484	1.110	0.861	0.753	0.811	1.127	0.661

The obtained results from the estimation and contrast of the count models lead to several essential conclusions, and, first of all, that the functional form chosen to estimate the count model can make a significant difference in the inferences which can be drawn. Furthermore, although the direction of the effects of the established hybrid equity networks are preserved, the magnitude of their relative contributions descends significantly when the firms contemplate a further expansion in the foreign market via FDI: the loss in the effect is especially prominent for the "FI-SOEs" with the triad network structures. The business experience also retains the positive coefficient and seems to provide the firms with an advantage in further expansion of their foreign networks of subsidiaries, though its effect becomes insignificant under the *zero-inflated Poisson* specification.

The effect of the firm's technological level, however, reverses its sign and loses significance for the subsequent FDI decisions of the Russian firms. The negative and insignificant relationship between the innovation capabilities of the firm and the extent

of its expansion in the foreign markets contradicts the outcome of the initial FDI transition model, and may indicate that the Russian firms use the established foreign ventures as a mean of the acquiring technological expertise and know-how, rather than exploiting the existing technological capacity.

Nevertheless, the garnered tacit knowledge, tangible resources, and the regional location are the chief decisive factors motivating the Russian firms to continue internationalisation in the form of FDI, along with their networking strategies. Those firms (*1*) located in the geographical proximity to the foreign markets, (*2*) with greater intangible and tangible assets, and (*3*) characterised by the presence of the foreign investors among shareholders, – and the complementarities of resources and capabilities provided within the extra-state networks, are more likely to establish a wider network in the foreign markets and set up a greater number of foreign subsidiaries.

The outlined contradictory evidence on the initial transition to multinationality, as well as the subsequent expansion in the foreign markets, casts the light on the long-standing debate about the distinct internationalisation strategies of the firms from the emerging market countries (EM MNEs) against the established MNEs from the developed economies. The obtained findings present novel implications for the extant theories in the IB literature, which are thoroughly elaborated in the following discussion *Section 11.2*.

11.2 The discussion of the empirical evidence and the implications for theory-building

Building upon the estimation results obtained in the previous modelling part, *Section 11.2.1* explains and further contributes to the extant IB theories and empirical research with a discussion of inadequacies in theoretical treatment of the prerequisites for the initial transition to multinationality and factors that facilitate the subsequent growth of the firms in the foreign markets. The findings, presented in the previous *Section 11.1*, confirm that the firm's reliance on the developed set of the advantages changes significantly, when the firm contemplates to expand the network of foreign subsidiaries.

Section 11.2.2 complements the conventional IB literature with a more thorough discussion of the cycle of advantages build by the firms while extending the network of foreign subsidiaries via multiple FDI projects in the foreign markets.

11.2.1 Extending the networks of foreign subsidiaries: the firm's growth strategies in the foreign markets.

Once the firm has accumulated the resources and capabilities and accomplished the initial transition to multinationality, it faces a strategically different set of decisions, which shape the firm's growth in the foreign markets. Whether the firm accelerates its foreign expansion, retains a cautious "wait and see" position, or merely involves in the "round-tripping" depends on the firm's capability to capitalise on a *cycle of advantages*, developed via its operations in the foreign markets. Given such a variety of organisational forms and differing motivation across the networking and foundation groups discussed in the preceding sections, the firms that swiftly overcome the initial barrier and enter the foreign market might not be the ones committing the capital in further expansion of the network of foreign subsidiaries.

The findings reveal that nearly all crucial prerequisites for the initial transition to multinationality change or lose their impact for subsequent foreign investment projects contemplated by the newly-established MNEs. Thereby, the straightforward theoretical links between the firm's attributes and its network of foreign subsidiaries might be a greatly misleading interpretation of FDI strategies pursued by the EM firms. None of the IB theories, however, neither the empirical research on the EM MNEs draw

a distinction between the initial transition to multinationality and the subsequent FDI decisions, when examining their internationalisation path.

The findings, rigorously tested at the modelling stage in *Section 11.1*, reveal that the expansion of the firm's network in the foreign markets is not merely defined with the change in the value of advantages accumulated in the domestic market over other indigenous firms, but largely with an ability to swiftly transform the learning and networking strategies, which brought the firm to a leading position in the domestic market, into the practices which are as much effective in the foreign markets, leading to a higher degree of multinationality.

Among all the firm's specific assets, the networking strategies developed by the Russian firms retain their significance for the subsequent expansion of the network of foreign subsidiaries and remain the most important determinant, though the relative magnitude of the effects across the hybrid networks changes drastically. Surprisingly, the prior equity linkages with the foreign firms, boosting the firm's initial propensities to switch to multinationality, do not translate into the intensive expansion of the subsidiary network in the foreign markets, as could be expected from the arguments suggested by the literature on the internationalisation process and cross-border transfers and spillovers.

The firms, most advanced in generating the relational rents within the complex hybrid networks (FI-SOEs) and leveraging those for the initial transition to multinationality, lose their ability to capitalise on the established ties as effectively for the subsequent foreign investment projects. This apparently happens because the interests and intentions of foreign shareholders had been oriented on the domestic resources, or the initial complementarities within triad networks create lower marginal rents, constraining the firm's growth in the foreign markets.

In the contrast to the extra-state networking strategies, the equity ties with the state enhance their effect on the subsequent expansion of the network of foreign subsidiaries, relatively to other strategic groups. The strong coercive state, purposefully rebuilding its resource capacity and increasing embeddedness in the relations with the privileged business groups and foreign capital, evidently retain the geopolitical focus and convey the expansionist interests via the established direct incentive route, once the initial barrier had been overcome. The active expansion of the SOEs and the constrained growth of the foreign-invested firms in the foreign markets reveal a close merge of the intentionality of shareholders and the firm's strategic decisions.

Evidently and unfortunately, the political will and the direct incentives delivered by the state via the hierarchical equity channels, prompting the firms for the initial entry into a foreign market, are more effective in incentivising the firms for the subsequent expansion in the foreign markets, compared to the indirect capability-building effects developed within the extra-state networks.

Another unfortunate and striking trend reflects the apparent inability of the Russian firms to learn effectively and update their portfolios of capabilities in the foreign markets. None of the strategic groups intensively accumulates the tacit knowledge or absorb innovations disseminated in the foreign markets, as frequently suggested in the IB studies on the knowledge-seeking motivation of FDI. The enhancing effect of the knowledge stock and innovations acquired or generated in the domestic market diminishes or changes to a marginally negative, inhibiting the firm's growth in the foreign markets. The statist policies, ignoring or suppressing the apprenticeship cooperation among the Russian firms even within the privileged group, resulted in a weak ability and incentives for self-teaching in new normative environments and capitalise on a cycle of technological advantages obtained in the foreign markets, which sadly kept the position of the Russian firms rather low on the technological ladder.

Neither the initial transition to multinational status helps the newly-established MNEs to overcome the barrier induced by the vast geographic remoteness among the Russian regions. The distal location of the firms remains as strong barrier for the subsequent foreign investment undertakings as for the initial transition into the foreign markets. Such an aggravate outcome may not merely reflect the geographic peculiarity of the Russian Federation, but also the centralised power structure reconstituted by the state.

In the Russian state, the geographic distance evidently embodies the political and economic distance from the central decision-making office and the centralised finance, inhibiting the investment opportunities and internationalisation of the non-central regions. Given the limited power and capabilities of the regional appointees in defining the development and investment priorities in the regions, the geographic distance unfortunately translates into weak investment linkages and regional backwardness, hampering the entrepreneurial endeavour and the investment capabilities of the local firms.

11.2.2 Conclusion and implications for theory-building

The strong political content of the foreign investment decisions amid the EM firms, particularly in further expansion of the network of foreign subsidiaries, once again points at the immensely simplified representation by the IB theories of the actual mechanisms underlying the initial foreign investment decisions and subsequent growth in the foreign markets of the EM firms. The resource-based and macro-institutional approaches, when applied on their own, are capable to reveal only the fragmental aspects of the heterogeneous internationalisation strategies devised by the newly-created and long-established firms in the transition and emerging market economies.

The embeddedness of the state in subtle economic networking strategies with the domestic investors and foreign capital, or even the foreign states, employed as a tool for conveying the political will and geopolitical interests, is evidently reflected in the investment decisions of the EM firms. At the same time, the abilities of the newcomers to strategically develop and capitalise on the cycle of advantages in the foreign markets prove to be dramatically weak, casting doubts on the technology- and knowledge-seeking motivation of the EM firms. The acquired experience in the initial transition into a foreign market does not seem to reinforce the use of knowledge and assets for subsequent expansion. As a possible reason, the encountered novelties of the foreign environment put forth the adaptation mechanisms within the firms or the mechanisms of adaptive inefficiency, as termed by March (2010), which seem to hinder the creative mechanisms and do not sustain the expansion.

The precise understanding of how the new assets, knowledge, and technologies acquired via FDI projects are utilised for the subsequent growth of the firm, and its expansion in the foreign markets remains shallow. The meaningful conceptualisation of the investment decision-making process needs, in the first place, a shift away from the attribute approach steadily enrooted in the IB field, as the subsequent growth of the firms in foreign markets depends not on FSAs *per se*, but on how their exploitation and transformations are structured. The understanding of underlying relational mechanisms would imply a careful study of the properties of the emerging organisations, with a reference to the relational models developed in the political science and the literature on the cognitive boundaries of the firms.

CHAPTER 12. CONCLUSION

This research began with a relatively simple idea to endeavour an inquiry into FDI behaviour of a group of firms from an EM country, – namely Russia, which received a littlest attention in the IB field, despite its growing strength and influence in political and economic arenas. The activism of the Russian state, reversing the policies toward statism, was accompanied with a growing economic activity of the Russian firms and the flow of outward foreign investment, especially in the European domain; though the contradictory and impartible nature of such duality in the development of the Russian state has not been recognised by IB scholars. Throughout this thesis, the ostensible simplicity of the research matter had been vanishing, when the economic view of firm's investment was combined with a polity lens, and more complex underlying realities started to arise.

To comprehend how the duality of economy and polity is internalised in the firms' investment strategies, the research focus had been inevitably veering toward emerging and evolving relational structures in the transition states, posing new questions about hybrid organisational forms and internal mechanisms – hastening or hampering the entrepreneurial undertakings in foreign markets. More comprehensive research questions, reflecting the novelty of organisational genesis in Russia, have extended and deepened the intellectual scope of theoretical exploration, which had to include the literatures on network relations between the state and business groups, and to admit that the EM firm behaves as a "political entity" or "political micro-system and coalition" and the EM state resembles an "organisation". The methodological design of the research had to respond with constructing novel models to capture the FDI-inducing effects within co-evolving economic and political networks created by the Russian firms.

The following sections brief the major contributions of the undertaken research (*Section 12.1*), relating those to policy-building in the EM countries (*Section 12.2*), acknowledging limitations and suggesting improvements in the future agenda of IB research (*Section 12.3*).

12.1 The research contributions and implications for the IB literature

The presented research was designed with three aspects of academic contribution in mind: (*i*) to bring to light the novelty of empirical context, revealing

the organisational genesis in the transitional states, (*íí*) to elaborate the theoretical framework, relating the actual empirical context of the state-business relations and emerging organisations with the FDI outcomes, and (*ííí*) to advance the methodological base to make the intended investigation possible and unbiased.

Besides exploring the context of state-building in the EM countries, which importance for international business strategies has escaped the attention of the IB scholars, the empirical novelty of the undertaken research resides in discovering the historical logic of organisational genesis and the emergence of hybrid structures – principally different in their organisational properties from the contractual type of business organisations and relations in the western society. The rapid emergence of hybrid types of firms is grounded in the transformations of relational models and *co-evolving* political and economic networks in EM economies, bringing few important implications for the enquiry into FDI strategies of the EM firms.

First, the co-evolution of economic and political networks differs immensely among the EM states, which creates diverse grounds for organisational genesis, resulting in distinct institutional configurations and relational models internalised within the firms' boundaries. This empirical observation points at the common misconception in the IB research, which considers the BRIC economies as creating a unitary class of firms, which are driven with common investment motives. To correct this deficiency, the present research, contrariwise, recognises the organisational diversity in the EM economies as a crucial source of heterogeneity in investment strategies, – as circumstantially explained in *Chapter 1*.

The second piece of empirical contribution concerns the recognition of the distinct models of state-business relations evolving in the EM countries, which defines the combinations of relational powers and the position of diverse organisational forms within network structures emerging in the EM economies. The distinct hybrid firms, pursuing heterogeneous growth strategies, cannot be meaningfully allocated on the conventional continuum of organising modes extending from a "*hierarchy*" to "*market*", suggested for the Western type of organisations.

Instead, the EM firms reside along a "*power continuum*" among major intra-state and extra-state forces which influence the organisational properties of *firms-in-creation* (e.g., their intentionality, resource boundaries, and exchange mechanisms) and, hence, their FDI motives, – introduced in the present research as a basis for developed

framework (*Table 2*, *Chapter 2*). The power continuum of the organisational types reflects the peculiar combinations of relational powers – via domination and influence mechanisms, internalised within firm's boundaries. The "*domination*" power in hybrid networks is shaped by the resource and investment capacity of participants, leading to asymmetric endowments of asset and knowledge advantages amid EM firms; while the "*influence*" mechanism of relational power is defined by an ability to persuade and deliver motivation and incentives for international venturing, changing the cognitive models and managerial attitudes towards more risky and innovative start-ups in foreign markets, – even though the uncertainty is high, and the experience of coordinating foreign ventures is scarce.

Besides the strategic implications, the empirical novelty calls for a wider intellectual approach to conceptualise a "rich mixture of continuity and change" in the EM states (Olsen, 2009; March, 2010) by bridging the political and economic duality of firm's networks, – which constitutes the theoretical contribution of this thesis. The more extensive theoretical basis, covered in *Chapter 2*, was aimed at extending the enquiry beyond the conventional attribute frameworks, directly associating selected firm-specific assets or advantages (FSAs) with FDI decisions of firms, and reach out for insights of the adjacent social disciplines. The omnifaceted theoretical discussion, interweaving the IB frameworks with the network economics and political science, allowed explicitly capturing three empirical peculiarities shaping the EM economies and investment strategies: the co-evolving economic and political networks (*Table 1*, *ibidem*), the dynamic nature of the state-business relations (*Table 2*, *ibidem*), and the history of organisational genesis (*Table 3*, *Chapter 3*). A more holistic approach made it possible to classify and relate the heterogeneity in hybrid networks and state-business relations, actually observed in the EM states, to the potential FDI outcomes for the EM firms.

The rich network and organisational learning literature helped to understand and describe the dynamic nature of network effects within diverse hybrid structures and pry open the "black-box" forming the FDI motives via shared learning and capabilities, changing the cognitive model of managers or directly altering incentive structures (*Section 2.3*, *ibidem*). Reflecting further, the variety of networking strategies – from extractive and collusive linkages to growth-oriented coalitions, hastening shared investment in foreign markets – emerge depending on the power balance in the EM states among the major forces (the state, domestic and foreign business interests). Hence, to understand how the evolving power structures are internalised within the blurred boundaries of the firm and influence its FDI propensities, this thesis had recourse to

the political science (*Section 2.4, ibidem*) and gradually constructed the trajectory of evolving state-business relations (*Table 2, ibidem*). Each of the relational patterns is embedded in the structure of organisational fields, which give a rise to particular types of organisational forms clustered in privileged or peripheral business segments; while the gap between the core and periphery of the business sector varies drastically among the EM economies and defines the investment behaviour of the EM firms. The FDI capacity of the emerging organisational types might be enhanced by a greater inclusiveness of the peripheral business groups into reciprocal and coherent collaborative arrangements, and, contrariwise, constrained by the centralisation of resources in the hands of a narrow privileged group.

The conceptual framework extends the theoretical contribution of this thesis (*Chapter 3*) by overcoming the limitations inherent to the institutional studies of investment strategies of EM firms, conventionally focused on modelling the macro-measures of the institutional environment and quality, – which are merely the surface of economic and political transformations in the EM states. Although adopting the idea of institutional economics that the firm's behaviour can be meaningfully comprehended only within a larger system of social structure, the present research takes a different path in conceptualising the investment propensity of the EM firms, and the Russian firms in particular, and considers the interrelations among the major power constituents, internalised within the hybrid structures of the firms, as exerting a major influence on their FDI behaviour.

The development of the conceptual framework started with defining the position of the Russian state on the trajectory of SBRs during the hectic period of neo-liberal reforms in the 1990s and the following post-reformation period in the 2000s – after the transition to statism (*Section 3.2, Chapter 3*). The transition from the state capture by the narrow fraction of business elite to reconstituting the capacity and strength of the Russian state implied a change in organisational fields and specifically in the nature of relations with the privileged and peripheral business groups. The shift toward more subtle networking strategies, interweaving economic and political interests of the strong state, altered distributional outcomes, cognitive models, and investment incentives within the hybrid networks. The comparison of how the influence of the major power constituents on the investment propensities of the Russian firms changes over time formed the first essential element of the developed conceptual framework.

Having defined the fundamental effects, the research inquiry was directed further to trace the relational powers of domination and influence exerted by the conceptualised intra-state (the state and domestic business) and extra-state forces (foreign capital and foreign states), and how particular combinations of those change the FDI propensity of the Russian firms. Once again, the peculiar configurations of relational powers within network structures vary across the EM countries, contributing to the heterogeneity of EM firms and their international strategies. The two underlying networking mechanisms, described in *Table 1*, – indirect complementarities in resource and capability building versus a direct alteration of incentive structures – were decomposed and compared across the four strategic groups of firms: with classic governance structures and those combining the intra-state and extra-state networking strategies (*Sections 3.3* and *3.4*, *ibidem*).

Moreover, the transformation of the organisational field, previously fragmented by infighting among the powerful private interests, brought the new types of organisations emerging in the hierarchically structured fields, which consequently introduced further complexity and peculiarities into the research subject. The novelty of organisational genesis over the history of political and economic transition in Russia proved an exceptional "testing field" for the assumptions of the extant IB and organisational theories. Along with verifying the effects of conventional FSAs against the properties of firms-in-creation, the inclusion of the two groups of newly-founded firms with distinct cognitive and structural properties made it possible to test whether intra-state and extra-state networking strategies helped the newly-emerged firms to compensate for their newness and adolescence in the domestic and foreign markets, – for instance via innovative learning strategies (*Section 3.5*, *ibidem*).

The final piece of theoretical contribution disentangled the very strategic decision of the firm's entry into foreign markets into a two-stage process: (*i*) the initial decision to start up the foreign operation and transit to multinationality, and (*ii*) the subsequent decisions to expand the network of foreign subsidiaries and increase the number of foreign affiliates. Those two strategic FDI decisions are crucial to differentiate, as the effects of conventional firm-specific attributes and networking strategies are likely to change after the firm's initial transition into the foreign markets. The subsequent decisions to expand the network of foreign subsidiaries might in a greater extent depend on the abilities of the emerging Russian MNEs to capitalise on advantages acquired in the foreign markets: for instance, enhanced learning strategies and technological capabilities, and swiftly adopting cognitive models towards venturing in novel

environments. Fundamentally, the final part of the conceptual framework questioned how two organisational transformation mechanisms will interact after the initial move into the foreign markets: whether the transition to multinationality accelerates "creation" in novel environment or puts forth the mechanisms of "ineffective adaptation", and whether the latter sustains or hinders the creativity and further expansion of the firm in the foreign markets.

Modelling of the conceptualised effects proved challenging and called for the next step of advancements in the methodological basis of the research. Capturing the time-continuous transition in FDI status of the firms and the unbiased decomposition of networking effects introduced a methodological novelty into the course of the research (*Chapter 4*). Three distinct types of time-continuous models were designed to unbiasedly: (1) capture the firm's transition between two FDI states over time: from being a domestic firm to a foreign direct investor, (2) decompose and compare two networking effects within hybrid structures: the complementarity in resources, knowledge, and technologies versus the provision of direct incentives for international venturing via hybrid structures, and (3) estimate the capability of the Russian firms to capitalise on acquired tangible assets, knowledge, and capabilities in the foreign markets and expand their networks of foreign subsidiaries after their initial transition to multinationality.

The rigorous testing of the created models would not be possible without overcoming another challenge in the construction of the dataset, for the firm-level data on the FDI transition of Russian firms (and any firms) had not been readily available, moreover in the longitudinal format. Programming efforts were required to merge the data from two databases and construct the binary and valued matrices on FDI transition in longitudinal format for a large sample of Russian firms (*Chapter 5*). The created time-variant measures made it possible to track the evolving effects within the hybrid networks on the FDI propensities of the Russian firms, and also their subsequent expansion in the foreign markets. The five sets of modelling results, rigorously verified in the respective sections of *Chapters 7.1*, *8.1*, *9.1*, *10.1*, *and 11.1*, helped to obtain the evidence for attaining the unbiased answers to each of the four research questions.

The interpretation and depiction of the five sets of findings into a more holistic picture (*Chapters 7.2*, *8.2*, *9.2*, *10.2*, *and 11.2*) contrast several major strands of the literature on firm's behaviour. The overall conclusion points at an immensely simplified representation by the established IB theories of the actual effects underlying the initial

transition to multinationality by the EM firms and their subsequent expansion in the foreign markets. The endeavoured analysis of the relational powers and underlying mechanisms within the three types of hybrid networks and their effects onto the EM firms' propensities to enter a foreign market and further expand their network of foreign subsidiaries revealed that the FSA-based and macro-institutional approaches are only capable of capturing fragmental aspects of the heterogeneous internationalisation strategies devised by the firms of new organisational types, which have been emerging in the novel economic and political environments of transition economies.

Instead, the effects influencing the FDI decisions of the EM firms reveal a greater complexity and heterogeneity, which prove to be highly conditional on the network structures and relational mechanisms created by the firms, rather than on firm's productivity as presumed in the IB literature. The attribute models, meant to uncover the firm's heterogeneity by directly associating a set of FSAs with FDI outcomes, are likely to yield biased results. The concept of the firm as a "depositary of assets" or "knowledge processor" is an inevitably narrow – though not untrue – description of the firm in the novel environment of organisational genesis, for it ignores an important feature of social structures in the EM states, interweaving political and economic relations within the blurred boundaries of hybrid firms. Therefore, to understand the actual sources of the heterogeneity in investment behaviour, the EM firm ought to be conceptualised as a "*political system*" or "*coalition*", embedded in a uniquely configured societal hierarchy and orchestrating a network of relations beyond its proprietary boundaries.

The estimated FDI models show that the FDI propensities of the Russian firms depend to a greater extent on their structural position within the network of relations with the major economic and political forces in the economy, which shape the relational micro-systems of the firms and the overall "*strategic foundation*" across the EM states. The intra-state and extra-state networking strategies not only directly change the firm's incentives for international venturing, but were also found to drastically change the effect of conventional firm's attributes within hybrid equity structures, advising a closer merge of the IB concepts with the analytical tradition on *political* and *economic networks* (e.g., Knoke, 1990, 1994, 2014) – frequently overlooked amid the IB studies.

To overcome the evident deficiencies in the conventional theoretical treatment of the FDI strategies of the EM firms, this thesis suggested that the evolving models of the state-business relations (*Table 2*) may serve as a key to mapping the heterogeneous

strategies innovated by individual firms across the EM economies. The established model of SBRs induces the formation of either collusive or growth-oriented coalitions, featured with the dominance of either extractive or inclusive institutions, which shape the asymmetrical flows of resources and knowledge within the intra-state and extra-state networks formed by the EM firms. Moreover, the findings clearly show that the dominant relational model among the major forces in economy alters the cognitive models of managers and incentive structures within hybrid networks: for either undertaking more risky ventures in foreign markets or more effective capitalisation upon a similar set of FSAs.

The accomplished comparative analysis of the investment propensities among the four strategic groups of firms also suggested the amendments for two strands of non-IB literature. The group of firms forming the extra-state networks (FIEs) is not as much of a homogeneous and one-valued phenomenon as considered in the strategic group literature (following Peng et al., 2004). Contrary to the assumptions in the political economics, the inflow of inward FDI exerts differing effects on the competitiveness of domestic firms depending on their structural position in the relational networks and the strength and effectiveness of the state in restraining the extractive motives of foreign capital. The modelling results proved that the two strategic sub-groups of the foreign-invested enterprises put forth distinct relational mechanisms and synergies, and pursue distinct FDI strategies. To bring an example, with no intention to repeat details discussed in *Chapter 8.2*, the extra-state networking changes the cognitive models of managers of the private firms (FI-POEs) and extend the boundaries of cognition for more risky entrepreneurial undertakings in the foreign markets. By contrast, the extra-state equity ties with foreign firms and governments effectively demolish the normative barriers for the firms with state participation (FI-SOEs) and expedite their adaptation in the foreign markets, combating the liability of foreignness via reputational and legitimising mechanisms.

The very fact that the hybrid structures create distinct "micro-orders" within the firm's boundaries contributes to the literature on the capability development approach (following Sen, 1979, 1999a, 1999b, 1999c, 2005), proving that internalisation of the change in state policies (or other critical junctures) varies significantly depending on the networking structure of the firms, and shapes differently their foreign investment decisions. Those distinct micro-orders exemplify the possible configurations of relational powers that are neither hierarchies nor market, but either collusive or cooperative activities among the major forces in the economy, with complementary resources and

capabilities and expectations of mutual gains (Knoke, 2014). The network configurations vary within and across the economies and yield different FDI outcomes: the equity linkages between the private firms and foreign capital (FI-POEs) accelerate the extractive motives and the transfer of valuable tangible assets in the foreign markets, while the participation of the strong state in extra-state networks seemingly shifts the firm's extra-state coalitions towards a reciprocal collaborative arrangement inducing more balanced development of capabilities and shared investment in foreign markets.

These findings contrapose the neo-liberal position on the demise of the scope of the state involvement in the EM economies, by proving the importance of the strong state for enhancing the collaborative arrangements within hybrid networks and prompting shared investment, especially after a period of collusive infighting for resource redistributions among the narrow business elite (shift from column 2 to column 3, *Table 2*). However without promoting inclusive institutions, the positive synergies, induced by the strong state within hybrid coalitions, are likely to have a temporary effect enhancing investment only in the short term, though helping to reconstitute the financial and resource capacity of the state and restrain the extractive coalitions. The focus of the political and comparative economics on the *scope* measure of state participation in the economy is evidently narrow and insufficient for elaborating long-term developmental policies. To continue reaping the benefits of foreign investment in the long run, the gradual shift towards a more wise state-building agenda is needed, which implies a change in the state effectiveness (shift from column 3 to column 4, *ibidem*). The second dimension characterising the *effectiveness* or *quality* of state participation proves more crucial for inducing a greater inclusiveness of the peripheral business groups in shared foreign investment and growth-oriented coalitions, nurturing entrepreneurial talents and apprenticeship, reducing the asymmetries in shared resources and knowledge, as well as the misalignment of political and business interests.

Another finding, calling for a more thorough consideration of organisational genesis and innovation in the EM economies, should attract attention of the IB scholars. The peculiar history of the state-business relations leads to the creation of a variety of organisational forms featured with distinctive intentionality, boundaries, and exchange mechanisms. The distinct properties of the "firms-in-creation" were proved to divert the effects of the conventional FDI prerequisites; for instance, the liability of newness or adolescence was found to transform into a learning advantage of newness, endowing the emerging firms with a capability for the flexible strategic change toward international venturing. Better understanding of the properties of emerging

organisations will help to conceptualise their international strategies; though this would require closer attention to the insights of the cognitively-oriented research on the firm's intentionality (Shapero, 1975; Aldefer, 1997; Weick, 1979) and the evolution of the firm's boundaries elaborated in the system theories (Katz and Kahn, 1978).

To reiterate the overall conclusion, crystallising out of the noted divergences of the obtained evidence from the major EM state and the conventional IB assumptions, the concept of the EM firm should be restated in the first place. The view of the firm as an "asset depositor" or "knowledge processor" widely accepted in the FSA studies, or as a unit embedded within a macro-system acknowledged in the institution-based research, presents an erroneous micro-description of the firm. The findings attained throughout the modelling *Sections 7.1, 8.1, 9.1, 10.1, and 11.1* rather support the view of the EM firm as a *political system* itself (March, 1962, 2010), forming a "junction" of structural and political network relations with major forces in the economy. This change in the fundamental view on the essence of the firm brings two important implications for conceptualising and modelling the international strategies of the EM firms.

First, the international undertakings of the EM firms are not univocally defined by a portfolio of FSAs, but rather by the nature and co-evolution of intra-firm coalitions (both political and economic), which enhances or constrains an ability of the firm to devise and adopt the cognitive models for the innovative leverage of available resources in the novel settings of foreign markets. Furthermore, the hybrid relational arrangements play an "orchestrating" role and set the transformational processes within the EM firm: hastening or inhibiting the accumulation of conventional firm-specific assets, changing their importance for investment decisions, or altering the cognitive models and incentives for innovative strategies in foreign markets. The complexity of the observed interrelations and interdependencies suggests that the IB field would benefit if the research agenda paid a closer attention to the adjacent fields of organisational genesis and political studies.

Second, the conceptualisation of the EM firm as a *political coalition* or the centre of a network of relations implies a change in the conventional research design from the attribute approach, which narrows modelling of the firm's strategies to the effects of FSAs, to the relational approach, which would be capable of describing the underlying network mechanisms within the blurred boundaries of the firms and would aim for more comprehensively constructed FDI models to disentangle the complementarity and direct incentive effects induced by the relational powers. Modelling complementarities within

hybrid networks requires an accurate and unbiased decomposition of the network effects, as those were found to cause positive or negative synergies – that is, enhancing, supressing, and even reversing the effect of conventional firm-specific attributes (or FSAs), depending on the particular configuration of relational powers internalised within the hybrid firms. The adequate conceptualisation and modelling of the positive and negative complementarities within the hybrid networks, devised by the EM firms, may grant the ability to draw the direct implications for their heterogeneous international strategies, though would require developing an analytical apparatus distinct from one employed in the IB research.

12.2 The implications for policy building in the emerging market countries

The major implication for state policies in the EM countries concerns building an effective model of the state-business relations, characterised not only and not as much with the *scope of the state*'s involvement into economic and business affairs as emphasised in recommendations for the EM states, but rather with a *quality* imperative – termed as the *state effectiveness*, which determines a genuine developmental spurt in the economy and long-term foreign investment. Such a transition towards a wiser state, combining its current goal for re-building its coercive strength and investment capacity with enhancing its effectiveness in collaborating with the private sector, requires tackling two issues discovered by the research findings. The first concerns a heavy reliance on the resource base in foreign investment strategies, observed in the hybrid networks with state participation. For the country with a rich natural resource base, it might be an inevitable recourse on the way to reconstituting the strength and financial capacity of the state, especially after the preceding period of the state capture by powerful private interests.

The second issue is closely related to the mentioned resourcism in the state policies and consists in the weak support of inclusive political and economic institutions in the economy. The political strategy of the state to pursue its interests via connections with the narrow credited business groups – the core of the business sector – does help to pursue its ambitions in rapidly restoring its strength and controlling its coercive power and monetary flows; however, this is achieved by sacrificing the developmental goals of the economy, society, and the nation in the longer term. Having proved the significance and imminence of the state involvement in economic networks in the EM economies,

the establishment of more effective relations between the state and the peripheral business groups might be conducive to a greater inclusiveness of the smaller businesses into growth-oriented coalitions and shared investment, – still rarely observed in the Russian economy that favours formation and international expansion of big capital in the strategic sectors.

The transformation towards more effective collaborative arrangements in the economy starts with a strong will-input of the state purposefully adopting a set of inclusive institutions to empower the broader peripheral business segments for capitalising on the collective knowledge base, developing the competences, rearing and allocating the entrepreneurial talents into the internationally competitive lines of business.

Such qualitative change implies a shift from coercive enforcement of the state geopolitical interests via foreign investment, observed in the dyadic networks with state participation and supported with resourcism, toward maintaining a wise degree of autonomy. Building an autonomous wise state is an unattainable target without educating the intelligent bureaucracy capable to foster more coherent and reciprocal arrangements, narrowing the existing immense gap in learning and investment capabilities between the core and peripheral business groups. The reciprocal inter-industrial collaboration, apprenticeship, and long-term investment across all business segments are unlikely to emerge within the current state-building strategy, featured with a direct enforcement of political and personal interests through hierarchical hybrid structures – the arrangement dominating the adopted statist model of the state-business relations in Russia. Without developing inclusive institutions, the gains of the remarkable economic and investment growth under the current state-building model can be sustained only in the short term.

To sustain the benefits in the longer run, it is crucial for the state elite to understand its own role in cultivating knowledge values, nurturing entrepreneurial talents, altering the social structure and organisational genesis in the economy, for the created hybrid arrangements and networks do not merely convey incentives and transfer valuable resources but transform the cognitive models: from bankruptcy and survival perceptions – to the opportunity entrepreneurship and growth mindset. Moreover, the creation of the effective state-business relations is a precondition for implementing the long-term industrial policies and fostering the emergence of organisational forms with a superior capacity for investment growth in the domestic and

foreign markets. The findings on the distinct micro-orders created by the firms show that the effectiveness of the state policies depends on the internalisation mechanisms created within the boundaries of the long-established and newly-created firms, which define the individual and collective action in the core and peripheral business groups. The nature of the collective action in response to the state policies – either directed towards innovative learning and productive restructuring across all business segments, or the necessity entrepreneurship by the peripheral groups and mere infighting for distributional benefits and political investment by the privileged firms – greatly depends on the *quality* dimension of the EM states.

Although hastening the inter-industrial collaboration is not a new recommendation, the importance of a reciprocal balance in the SBRs for directing the learning potential of the EM firms towards the foreign markets and maximising the collective capacity of the state and business actors across the diverse groups, has not been realised by the IB scholars and the statesmen. The capabilities of the firms, even those with state participation in equity, to capitalise on the acquired knowledge and assets in the foreign markets remain weak. The initial move into the foreign markets rather puts forth the mechanisms of adaptive inefficiency amid the Russian firms, which seem to be unable to intensively acquire new knowledge and technologies in the foreign markets and utilise those for the subsequent expansion. Without a move toward a greater pluralism, accompanied by the complementary industrial policies and improved economic coordination, it would not be possible to facilitate the effective restructuring of resources, building the knowledge base and technology channels across the disaggregated and unequally targeted sectors.

Though reconstituting the coercive strength of the state is, without any doubt, a crucial step for the state fractured with collusive coalitions and extractive interests, it is destructive for long-term development when designated as an ultimate goal. Once the state order is restored, more governance wisdom is needed to gradually move away from the coerciveness towards establishing "*strategic bridges*" between the core and peripheral segments, fostering the benign collaboration within and across the industries, and restoring technological leadership and national esteem. The current goal of the state in restoring the authoritative power in the domestic and international domains is valuable; however, the true legitimate power of the state rests upon the reciprocal power relations with business segments, which can be obtained by combining more effective *domination* mechanisms, coherently balancing the resource capacity and capability development, with *influence*, directing the entrepreneurial talents toward the most

competitive lines of business and altering their boundaries of cognition through soft mental models. Such shift towards a more effective state-building agenda would enable the state elite to ward off the extractive interests of foreign capital and involve it into growth-oriented coalitions in the local industries, ensuring long-term investment projects in the domestic and foreign markets.

12.3 The limitations of the undertaken research and directions for future studies

The first and greatest limitation of the undertaken research lies in the scope of the theoretical basis for empirical exploration. The main theoretical contribution – i.e., complementing the IB frameworks with the political and network perspectives – would ideally require a more thorough investigation of the development of co-evolving political and economic coalitions within the firms and the changes in boundaries of managerial cognition, than it was possible to implement in the present research. Although the elements of the political and inter-organisational studies have been sketched in the literature review (*Chapter 2*) and served as a basis for developing a handful of ideas incorporated in the conceptual framework (*Chapter 3*), the limited depth of exploration did not allow for strikingly novel formulations. To understand how the growth-oriented coalitions are developed, and how they enhance shared investment, major theoretical work is yet to be done. As a recommendation, any future attempts to obtain more satisfactory theoretical explanations and concepts should establish a more close linkage with the empirical novelty of the organisational genesis and the history of the state-business relations observed in the EM states.

The strongest limitation on the methodological side, which at the same time may serve as guidance for future investigations of international strategies of the EM firms which rely on network-based growth, concerns the collection and construction of the relational data. The types of hybrid networks, emerging in a particular EM economy, should be defined on the basis of the history of interactions between the state, domestic business, and foreign capital (or an alternative combination of major forces in economy). A more sophisticated classification of hybrid organisations would facilitate understanding how the intra-state and extra-state coalitions are formed within the firms, and in what instances they lead to extractive and collusive motives, or on opposite – to a more coherent collaboration and shared investment. An interesting addition to mapping the network structures would be to reflect a more profound dichotomy of

informal and formal ties, which – though being not a new idea – would allow conceptualising the discrepancies between formal and informal structures and the novelties of co-evolving economic and political networks across the EM states. Such improvements, however, would require the IB field to turn its attention to a different research design based on mixed methods and advanced modelling of the dynamics of multiple parallel networks and nested systems.

The coverage of the historical data also proved a limitation, as the modelling efforts were confined to the recent period of the state building in Russia. To yield the correct inferences about the historical (time-continuous) processes, the data span should be rich enough to capture the evolution of FDI propensities within intra-state and extra-state networks before and after the major critical junctures in the state development. More complex large datasets, more vast data span, and experimenting with new methods would increase the chances of identifying the true interdependencies in the history of organisational genesis and "death", entries and exits from the foreign markets by the EM firms and their counterparts from the advanced economies.

Two more specific drawbacks in constructing the measures for technological capabilities and learning strategies can be noted. The two databases used in the data collection returned weak records on R&D expenditures; and no records were available for constructing more accurate measures of technological efficiency of the firms, relating the expenditures on innovation with the introduction of new products or alternative technological output. The employed patent data may not capture the technological change in the firms. The same conclusion can be drawn for describing the learning strategies of the firms – for which the stock of intangible assets and intangibility may not be the most accurate measure. The same criticism relates to the measure of the firm's productivity, for which the Orbis database provided unsatisfactory coverage across the firms and years.

Another research aspect that could not be thoroughly incorporated in the research design, but proved to be important, concerns the change in the firm's learning strategies and other capabilities after its initial transition to multinationality. The weak capabilities of the Russian firms to capitalise on new experience and assets acquired in the foreign markets pose further questions to explore post-entry changes in the firm's capabilities and strategies occurring after its initial move to multinationality. Modelling the "*cycle of advantages*" – i.e., advancement in the firm's FSA portfolio after each new foreign entry – would require merging two analytical tools: (1) the time-continuous network analysis,

tracing the evolution of the networks of foreign subsidiaries, and (2) more accurate separation of the knowledge, experiences, and assets obtained in foreign markets. Modelling the simultaneous evolution of firms' networks and firms' investment behaviour would require more complex longitudinal datasets and methods, compared to those employed in the IB research. A greater diligence in data collection and modelling would be, without a doubt, rewarded with brighter insights into the reciprocal effects of the firm purposefully determining the relational mechanisms within its network boundaries and the established network relations determining the firm's behaviour in the domestic and foreign markets in the longer term.

Two final notes or lessons return the discussion to the previous point on the advantages of relational approach in designing the studies of international strategies of the EM firms, which warns against the straightforward modelling of the effects of firm-specific attributes – in contrast to the widely adopted attribute frameworks and models in the IB field. The research findings show that the FSA approach does not meet the requirements for generalisation, when the actual heterogeneity of the firms is disentangled and analysed.

The complexity of actual interrelations observed within the hybrid networks created by the EM firms suggests that modelling the resource and knowledge transfers (for instance, between the parent firms and subsidiaries, or in other configurations of ties) can hardly be a true representation of actual network mechanisms and boundary conditions. The findings show that the firm's networks do not merely serve as exchange mechanisms, but rather do *transformational work*, understanding of which would need a more comprehensive approach to conceptualising and modelling the interactions within and between the firms. Those transformational processes within networks allow the EM firms to survive and grow in the domestic and foreign markets by internalising the relational powers and factors, which otherwise would remain outside of their boundaries and control.

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APPENDIX

Table 7.A.1:

The effect of the networking strategies and the firm-specific characteristics on the FDI transition propensities: the panel *logit* regression estimates with the parent firm *random effects* (RE), pursuing the available case analysis.

(a) the comparison of the effects of networking strategies, technological intensity, and innovation capabilities

Model	M(1)	M(2)	M(3)	M(4)	M(5)	M(6)	M(7)	M(8)	Prediction
DV: FDIstatus [0 → 1]									
EquityNetwork									
2 = FI-POEs	**0.841*****	**9.854*****	**7.719*****	**7.623*****	**7.120*****	**9.794*****	**2.577*****	**6.856*****	+ [H5]
3 = SOEs	**1.221*****	**10.517*****	**7.329*****	**7.156*****	**6.740*****	**9.645*****	**3.007*****	**7.003*****	+ [H1]
4 = FI-SOEs	**9.446*****	**23.256*****	**17.867*****	**17.730*****	**14.704*****	**23.443*****	**22.675*****	**16.668*****	+ [H5]
FirmAge		0.0763***	0.146***	0.151***	0.143***	0.121***	0.153***	0.145***	control var.
FirmAgeSqr			-0.0005***	-0.00049***	-0.00048***	-0.00041***	-0.00046***	-0.00056***	
Patents				0.00075	0.04602***	0.0119	0.0221	0.015	control var.
PatentsSqr					-0.0002***	-0.00007	-0.00008	-0.00006	
PatentClass									
2 = Domestic RU						10.284***	3.877**	4.258**	control var.
3 = International						1.251***	1.376***	1.138***	
Region									
2 = North-West							-0.022	-0.080	
3 = Ural region							-7.617***	-1.109**	
4 = Volga							-8.310***	-1.900***	control var.
5 = Far-East							-9.837***	-7.005***	
6 = South+Caucasus							-8.765***	-2.086***	
7 = Siberian							-8.125***	-1.597***	
Sector									
2 = Manufacturing								0.586	control var.
3 = Services								-0.197	
The comparison of goodness-of-fit across the two-state transition probability models:									
Number of observations	4,348,900	4,340,059	4,340,059	4,340,059	4,340,059	4,340,059	4,338,714	4,338,585	
McKelvey & *Zavoina*'s R^2	0. 0021	0.042	0.046	0.0473	0.9166	0.5465	0.6726	0.6056	
AIC [a]	19,222.17	5,436.79	5,815.37	5,857.15	5,929.63	5,421.27	5,514.64	5,701.45	
BIC	19,288.59	5,516.46	5,908.36	5,963.41	6,049.18	5,567.27	5,740.46	5,953.82	
LR test [b] *chi²*:	170.85	13,787.38	-376	-39	-70.48	512.36	-81.38	-182.80	
p-value:	[<0.00005]	[<0.00005]	[1.0000]	[1.0000]	[1.0000]	[<0.00005]	[1.0000]	[1.0000]	
Wald test *chi²*:	295.59	2,637.02	2,111.84	1,780.15	1,384.73	2,362.08	1,803.63	1,604.37	
p-value:	[<0.00005]	[<0.00005]	[<0.00005]	[<0.00005]	[<0.00005]	[<0.00005]	[<0.00005]	[<0.00005]	
Log Likelihood	-9,606.08	-2,712.39	-2,900.67	-2,920.57	-2,955.81	-2,699.63	-2,740.32	-2,831.72	

Notes:

[a] The AIC and BIC comparison criteria for the non-nested ML models estimating the same event of the firm's transition to multinationality: the smaller value of the both criteria is attributed to a more efficient (i.e., better fitted) model. The strength of evidence is evaluated with the absolute difference in the BIC criteria between two compared models (Raftery, 1996; Long, 1997; Long and Freese, 2001):

$\Delta BIC = \{0 - 2\}$ *indicates weak evidence*,
$\Delta BIC = \{2 - 6\}$ *indicates positive evidence*,
$\Delta BIC = \{6 - 10\}$ *indicates strong evidence*,
$\Delta BIC = \{> 10\}$ *indicates very strong evidence*.

[b] The likelihood ratio test compares the change in the goodness-of-fit after addition of a new variable across all the nested ML models: i.e., Model (1) is compared with the null or intercept model, Model (2) is compared with Model (1), and so forth. All pairs of the models are compared on the identical sample of the Russian firms.

Table 7.A.1:
Continued.

(b) the comparison of the effects of the learning strategies and intangibility of assets

Model	M(9)	M(10)	M(11)	M(12)	Prediction
DV: FDIstatus [0 → 1]					
EquityNetwork					
2 = FI-POEs	3.431***	10.42***	3.464***	10.69***	
3 = SOEs	3.087***	9.903***	3.176***	10.17***	
4 = FI-SOEs	9.860***	17.122***	11.353***	16.337***	
FirmAge	0.155***	0.171***	0.137***	0.143***	
FirmAgeSqr	-0.00083***	-0.00054***	-0.00062**	-0.00038**	
Patents	**0.077****	**0.056****			
PatentsSqr	**-0.00028****	**-0.00017***			
PatentClass					
2 = Domestic RU			**7.876****	**10.494****	
3 = International			**2.124****	**1.165****	
Sector					
2 = Manufacturing	0.293	0.544	0.381	0.392	
3 = Services	-1.158*	-0.565	-0.938	-0.671	
Region					
2 = North-West	-0.005	-0.191	-0.021	-0.143	
3 = Ural region	-1.228	-0.830	-1.113	-0.907	
4 = Volga	-2.863***	-1.706***	-2.338**	-1.627**	
5 = Far-East	-4.954**	-9.745***	-5.723***	-10.19***	
6 = South+Caucasus	-3.202***	-2.058**	-3.009**	-2.156**	
7 = Siberian	-3.132**	-1.401*	-2.238*	-1.538*	
Intangibles	**1.266****		**1.364****		control var.
Intangibility		**3.697****		**3.779****	control var.
The comparison of goodness-of-fit across the two-state transition probability models:					
Number of observations	2,886,948	2,783,836	2,886,948	2,783,836	
McKelvey & *Zavoina*'s R^2	0.9163	0.6840	0.0523	0.0722	
AIC [a]	4,152.33	4,065.13	4,053.13	4,038.49	
BIC	4,384.09	4,296.24	4,284.89	4,269.59	
LR test [b] *chi²*:	1,170.00 [c]	1,257.20 [d]	1,197.61 [c]	1,212.25 [d]	
p-value:	[<0.00005]	[<0.00005]	[<0.00005]	[<0.00005]	
Wald test *chi²*:	1,016.23	1,988.43	882.10	1,254.75	
p-value:	[<0.00005]	[<0.00005]	[<0.00005]	[<0.00005]	
Log Likelihood	-2,058.17	-2,014.57	-2,008.56	-2,001.24	

Notes:

[c] Models (9) and (11) have been compared with the identical models without $Intangibles_{it}$, not presented in *Table 24*, testing whether the inclusion of the $Intangibles_{it}$ variable significantly improves the explanatory power of the FDI transition probability model specified with the $Patents_{it}$ and $PatentClass_{it}$ measures accordingly.

[d] Models (10) and (12) have been compared with the identical models without $Intangibility_{it}$, not reported in *Table 24*, testing whether the addition of the $Intangibility_{it}$ measure significantly improves the explanatory power of the FDI transition probability model specified with the $Patents_{it}$ and $PatentClass_{it}$ accordingly.

Table 7.A.1:
Continued.

(c) the comparison of the resource accumulation effect: across the asset, human capital, and financial measures

Model	M(13)	M(14)	M(15)	M(16)	M(17)	M(18)	Prediction
DV: FDIstatus [0 → 1]							
EquityNetwork							
2 = FI-POEs	3.215***	3.603***	4.655***	2.458***	4.607***	4.252***	
3 = SOEs	4.699***	2.276**	5.302***	3.635***	3.056***	5.198***	
4 = FI-SOEs	13.796***	10.460***	11.801***	10.383***	11.787***	13.025***	
FirmAge	0.068*	0.089**	0.143***	0.058*	0.120***	0.148***	
FirmAgeSqr	-0.00037	-0.00054	-0.00083**	-0.00028	-0.00074**	-0.00083**	
PatentClass							
2 = Domestic RU	8.329***	7.291*	8.217	5.765	5.832*	6.883*	
3 = International	2.331**	2.229***	2.387***	1.755**	2.262***	2.135***	
Sector							
2 = Manufacturing	2.237	0.372	-0.0387	2.114*	0.789	0.0448	
3 = Services	-0.171	-0.464	-1.792*	0.416	-0.276	-1.977*	
Region							
2 = North-West	0.356	0.113	0.502	0.597	0.0180	0.209	
3 = Ural region	-2.642*	-1.726	-2.028*	-2.077*	-2.397*	-2.305*	
4 = Volga	-4.359***	-4.152***	-3.535***	-2.972***	-4.263***	-3.793***	
5 = Far-East	-5.625**	-5.050**	-5.054*	-5.035**	-5.479**	-5.429**	
6 = South+Caucasus	-4.407***	-3.774**	-1.817*	-1.459	-4.247***	-2.765***	
7 = Siberian	-4.010**	-4.826***	-3.355**	-2.872**	-4.888***	-3.536***	
Intangibles	0.794***	1.032***	1.105***				
Intangibility				5.861*	4.467	7.317**	
FirmSizeTA	**2.257****			**2.211****			control var.
FirmSizeEmp		**1.548****			**2.158****		control var.
Revenue			**1.655****			**1.903****	control var.
The comparison of goodness-of-fit across the two-state transition probability models:							
Number of observations	2,886,746	2,544,283	2,683,869	2,783,836	2,480,277	2,655,765	
McKelvey & *Zavoina*'s R^2	0.2088	0.1085	0.2136	0.2499	0.1366	0.1812	
AIC [a]	3,459.38	3,351.85	3,408.07	3,516.22	3,382.9	3,542.53	
BIC	3,704.02	3,594.09	3,651.33	3,760.17	3,624.7	3,785.58	
LR test [b] *chi²*:	595.74 [e]	703.28 [e]	647.05 [e]	524.27 [f]	657.54 [f]	497.96 [f]	
p-value:	[<0.00005]	[<0.00005]	[<0.00005]	[<0.00005]	[<0.00005]	[<0.00005]	
Wald test *chi²*:	1,073.72	836.64	1,773.12	1,586.11	673.09	1,627.05	
p-value:	[<0.00005]	[<0.00005]	[<0.00005]	[<0.00005]	[<0.00005]	[<0.00005]	
Log Likelihood	-1,710.70	-1,656.92	-1,685.04	-1,739.11	-1,672.47	-1,752.26	

Notes:

[e] Models (13), (14), and (15) have been compared with Model (11), reported in *Table 24-b*. Models (13), (14), and (15) are nested within Model (11).

[f] Models (16), (17), and (18) have been compared with Model (12), reported in *Table 24-b*. Models (16), (17), and (18) are nested within Model (12).

Table 7.A.1:
Continued.

(d) the comparison of the effects of the firm's labour, asset, and cost efficiency

Model	M(20)	M(21)	M(22)	M(23)	M(24)	M(25)	Prediction
DV: FDIstatus [0 → 1]							
EquityNetwork							
2 = FI-POEs	3.243***	2.561***	2.712***	3.587***	3.999***	4.737***	
3 = SOEs	2.659**	3.934***	3.512***	2.270**	2.070*	1.971*	
4 = FI-SOEs	12.701***	11.595***	12.732***	10.340***	9.361***	8.914***	
FirmAge	0.090*	0.059*	0.086***	0.092**	0.102**	0.102**	
FirmAgeSqr	-0.000532	-0.000264	-0.000546**	-0.000565	-0.000738*	-0.000760*	
PatentClass							
2 = Domestic RU	8.767***	7.038**	7.49**	7.315*	7.181*	8.090**	
3 = International	2.295**	1.823**	1.953***	2.220***	2.169***	2.293***	
Sector							
2 = Manufacturing	2.312	2.161*	1.757	0.381	0.240	0.514	
3 = Services	0.811	0.319	-0.354	-0.463	-0.723	-0.0455	
Region							
2 = North-West	0.823	0.669	0.624	0.0916	0.320	0.485	
3 = Ural region	-2.182*	-2.234*	-2.383**	-1.714	-1.979	-1.877	
4 = Volga	-3.698***	-3.370***	-4.038***	-4.105***	-4.082***	-3.326***	
5 = Far-East	-4.799*	-5.395**	-5.680**	-5.053**	-4.480*	-3.518	
6 = South+Caucasus	-2.881**	-2.541**	-3.033***	-3.768**	-3.408***	-0.958	
7 = Siberian	-4.494***	-3.147**	-3.658**	-4.800***	-4.720***	-3.758**	
Intangibles	0.748***		0.794***	1.027***	0.997***	1.032***	
Intangibility		6.188*					
FirmSizeTA	2.318***	2.367***	2.746***				
FirmSizeEmp				1.549***	2.071***	2.887***	
Revenue							
LProductivity	**-0.0000038***			**0.00000013**			control var.
ROA		**0.0176***			**0.0000253*****		control var.
ProfitMargin			**0.0236*****			**0.0375*****	control var.

The comparison of goodness-of-fit across the two-state transition probability models:

Number of observations		2,544,121	2,680,612	2,635,402	2,544,283	2,422,655	2,379,209
McKelvey & *Zavoina*'s R^2		0.2148	0.2437	0.2579	0.1082	0.1342	0.1483
AIC [a]		2,987.47	3,459.76	2,956.11	3,353.86	3,024.34	2,788.06
BIC		3,242.46	3,715.79	3,211.80	3,608.85	3,278.35	3,041.70
LR test [b]	*chi²*:	473.92 [g]	58.46 [h]	505.27 [g]	-0.01 [i]	329.51 [i]	565.79 [i]
	p-value:	[<0.00005]	[<0.00005]	[<0.00005]	[1.0000]	[<0.00005]	[<0.00005]
Wald test	*chi²*:	1,147.49	1,531.23	977.06	813.28	376.88	1,688.65
	p-value:	[<0.00005]	[<0.00005]	[<0.00005]	[<0.00005]	[<0.00005]	[<0.00005]
Log Likelihood		-1,473.73	-1,709.88	-1,458.05	-1,656.93	-1,492.17	-1,374.03

Notes:

[g] Models (20) and (22) have been compared with Model (13), reported in *Table 24-c*. Models (20) and (22) are nested within Model (13).

[h] Model (21) has been compared with Model (16), reported in *Table 24-c*. Model (21) is nested within Model (16).

[i] Models (23), (24), and (25) have been compared with Model (14), reported in *Table 24-c*. Models (23), (24), and (25) are nested within Model (14).

Table 7.A.1:
Continued.

(e) the comparison of the effects of labour, asset, and cost efficiency of the firm

Model	M(26)	M(27)	M(28)	M(29)	M(30)	M(31)	
DV: FDIstatus [0 → 1]							
EquityNetwork							
2 = FI-POEs	2.804***	4.123***	3.541***	2.973***	3.606***	2.437***	
3 = SOEs	1.973***	5.018***	4.616***	2.431***	2.334***	2.968***	
4 = FI-SOEs	6.040**	12.822***	12.684***	9.598***	9.036***	10.942***	
FirmAge	0.130***	0.144***	0.128**	0.095***	0.108***	0.073***	
FirmAgeSqr	-0.000709**	-0.000835**	-0.000816*	-0.00054*	-0.00064*	-0.00047***	
PatentClass							
2 = Domestic RU	6.984**	6.800	8.348**	0.082**	0.084***	0.073**	*Patents*
3 = International	1.687***	2.060***	1.926**	-0.00029*	-0.0003***	-0.00027*	*PatentsSq*
Sector							
2 = Manufacturing	1.457	0.167	-0.571	2.332*	0.447	1.870*	
3 = Services	0.271	-1.781*	-2.633*	0.929	-0.459	0.074	
Region							
2 = North-West	0.243	0.194	0.211	0.869	0.092	0.731	
3 = Ural region	-1.514	-2.283*	-2.363*	-2.094*	-1.537	-2.081*	
4 = Volga	-3.450***	-3.720***	-3.950***	-3.246***	-4.140***	-3.364***	
5 = Far-East	-3.939**	-5.350*	-5.261*	-4.097**	-5.301***	-4.842**	
6 = South+Caucasus	-2.586**	-2.589***	-2.998**	-2.471**	-3.531***	-2.096**	
7 = Siberian	-3.685***	-3.521***	-3.757**	-3.943***	-4.999	-3.265***	
Intangibles	0.860***		0.929***	0.728***	1.056***	0.765***	
Intangibility		8.705**					
FirmSizeTA				2.174***		2.484***	
FirmSizeEmp					1.635***		
Revenue	9.124***	1.946***	2.289***				
LProductivity	**-0.0000113****			**-0.0000037****			control var.
ROA		**-0.0154***			**0.000028**		control var.
ProfitMargin			**0.0254***			**0.023*****	control var.

The comparison of goodness-of-fit across the two-state transition probability models:

Number of observations		2,544,283	2,556,148	2,627,982	2,544,121	2,532,374	2,635,402
McKelvey & *Zavoina*'s R^2		0.0832	0.1898	0.2029	0.8578	0.8854	0.8653
AIC [a]		3,439.86	3,538.91	3,111.72	3,012.45	3,323.94	2,993.47
BIC		3,694.85	3,793.99	3,367.35	3,267.44	3,578.83	3,249.16
LR test [b]	chi^2:	-29.78 [j]	5.61 [k]	298.36 [j]	383.47 [l]	153.50 [l]	402.45 [l]
	p-value:	[1.0000]	[0.0178]	[<0.00005]	[<0.00005]	[<0.00005]	[<0.00005]
Wald test	chi^2:	912.75	1,553.39	905.35	1,210.23	572.78	1,116.55
	p-value:	[<0.00005]	[<0.00005]	[<0.00005]	[<0.00005]	[<0.00005]	[<0.00005]
Log Likelihood		-1,699.93	-1,749.46	-1,535.86	-1,486.23	-1,641.97	-1,476.74

Notes:

[j] Models (26) and (28) have been compared with Model (15), reported in *Table 24-c*. Models (15) are nested within Model (26) and (28).

[k] Model (27) has been compared with Model (18), reported in *Table 24-c*. Model (18) is nested within Model (27).

[l] Models (29), (30), and (31) have been compared with the identical models without $Productivity_{it}$, Roa_{it}, and $ProfitMargin_{it}$ accordingly, not presented in *Table 24*, in order to test whether the inclusion of the firm's efficiency variables significantly improves the explanatory power of the FDI transition probability model when specified with the $Patents_{it}$ measure.

7.A.2 The verification of the final FDI transition probability model of Russian firms across the functional forms: controlling for the rare events effect

The comparison of the estimated models using the LR test and the information criteria, as well as the unbiased interpretation of the observed effects, hinges upon a correctly defined functional form and density (Cameron and Trivedi, 2009). Given the peculiarity of the constructed dataset, featuring the transition in the FDI status of the Russian firms as a rare event, the adequacy of the estimation results of the logit transition model is ought to be verified, because the *logit* function is likely to sharply underestimate the probability of the rare FDI transition $[Prob_i(\text{FDIstatus}_{it} = 1|\boldsymbol{x}_{it})]$, which is frequently overlooked in the published analyses (King and Zeng, 2001). A relatively few, if any, IB studies appear to involve the comparison of link function for the transition probability models, contrasting the results under the *logit*, *probit*, and *complementary log-log* specifications; while ignoring the nuances of the link specification may lead to severely incorrect inferences. The choice among the link functions gains its relevance for the contemporary large-scale studies on the firm behaviour, increasing exponentially in the contemporary business research, for the outcomes of the three alternative models diverge more significantly for the large datasets $[n > 1{,}000]$ (Chamber and Cox, 1967; Hahn and Soyer, 2005).

Therefore, to correct for the existing methodological drawback in the IB research and ensure the consistency in the model selection process, the estimates of the final random effect *logit* Model (22), reported in *Table 24*, have been re-analysed for the identical sample of the Russian firms. Particularly, the *logit* Model (22) was contrasted with two alternative families of probability models: the *probit* and, more importantly, the *complementary log-log* functional link, particularly specified for the skewed rare event data under the assumption of binary response with an extreme proportion of non-events (as particularised in *Chapter 4.1* with the mathematical derivation in *Table 4*). Unlike the *logit* and *probit* models, the *complementary log-log* function is asymmetrical and yields the best results when the probability of an event occurrence is peculiarly small, which well characterises the transition probability in the FDI status of the Russian firms – on basis of the preliminary data exploration carried out with the Markov transition counts method (*Chapter 5.5*)

The resultant Markov transition matrix, reported in *Table 14* (*ibidem*), confirmed that the dataset is designed with a significantly lower number of the transition events, compared to the number of the firms not switching in their FDI status. In the context of

the novel FDI strategies of the EM MNEs and the overdispersed data pattern, ignoring the impact of the alternative link functions might not be as innocuous as for modelling the response functions of the established MNEs from the advanced economies with an immense experience of the international venturing, making these considerations critical for the modelling process. Thereby, the conventional wisdom on relative similarity of the functional links may not carry over to the FDI transition model of the Russian firms.

If the model estimates prove to be consistent across the compared functional forms of FDI transition probability, – that is, *logit*, *probit*, and *complementary log-log*, – the difference in the coefficients obtained with the three alternative models would be merely a consequence of the differently scaled variances. It implies that the consistency of the effects of the firm's networking strategies and the firm-specific attributes onto the FDI transition probabilities, and the possible efficiency gains with the alternative functional form, can be verified after rescaling the coefficients with the conversion factors, specified in *Table 4* (*Chapter 4.1*). The *probit* estimates obtained with the available cases analysis are to be rescaled with the factor:

$$\pi/\sqrt{3} \cong 1.86 \quad \rightarrow \quad \beta_{logit} \cong 1.86 \times \beta_{probit},$$

which allows for comparison with the obtained *logit* results (Amemiya, 1981). After adjusting with the factor:

$$\pi/\sqrt{6} \cong 1.238 \quad \rightarrow \quad \beta_{logit} \cong 1.238 \times \beta_{clog-log},$$

the comparable coefficients are obtained for the *complementary log-log* model (Fahrmeir et al., 2013).

As illustrated in *Table 7.A.2*, which reports the three examined specifications of the FDI transition probability of the Russian firms, the *logit* and *probit* models (M(22) and M(32) accordingly) yield the similar parameter estimates and associated *t-statistics*. To facilitate comparability across all link functions, the rescaled coefficients of the *probit* and *complementary log-log* models, M(32) and M(33) accordingly, are reported in the next columns to the original parameters. The divergence of the *complementary log-log* estimates, M(33), adjusted with the conversion factor [1.238], from the coefficients of the *logit* model is more discernible but not substantial for the key variable, for its sign and significance are preserved. A closer examination of the $EquityNetwork_{it}$ variable confirms that all networking categories retain their significance and expected relative values of the estimates across three alternative models, providing the ultimate evidence

in support of the hypotheses **H1a** and **H5a-b**, though the magnitude of the effects differs across the functions.

None of the predicted covariate effects changes its sign across the alternative model specifications, with the only exception for the "Services" (category **[3]** of $Sectors_{it}$), which turns to a positive effect on the probability of the Russian firms to transit towards multinationality. The greatest departures in the modelled parameter across the models occur for the time-varying $FirmAge_{it}$ and the time-invariant $PatentClass_{it}$ and $Region_{it}$ categories. The squared term of $FirmAge_{it}$ loses its significance in the *complementary log-log* model, which also exhibits the greatest divergence from the *logit* model in the magnitudes of the $PatentClass_{it}$ and $Region_{it}$ estimates: on average, the factual $[logit/cloglog]$ ratio of the coefficients exceeds the applied rescaling factor [1.238] by [0.5] and [0.83] accordingly. However, to avoid an unfounded conclusion on the best fitting specification by reason of the observed differences in the modelled parameters, the direct comparison of the covariates is complemented with a more robust statistical diagnosis of the non-nested models, estimated on the identical sample, the identical dependent binary state variable $EquityNetwork_{it}$, and the identical set of covariates with the alternative links, which allows to more effectively discern between the functional forms.

When selecting which of the three estimated functional specifications predicts the data most accurately, the most efficient *logit* model (that is, Model (22) in *Table 24*) and its *probit* and *complementary log-log* alternatives are evaluated across the test statistics, additionally reported in *Table 7.A.2*. The performed model comparison tests suggest that the *logit* model provides the best fitting specification. The information criteria, both AIC and BIC, are smaller for the *logit* Model (22) estimated with the intercept and covariates, yielding a strong evidence $[\Delta BIC > 10]$ for favouring the *logit* link, Model (22), over the *probit* and particularly over the *complementary log-log* model, Model (32) and Model (33) accordingly:

$$[\Delta BIC = BIC_{M(22)} - BIC_{M(32)} = 3{,}211.80 - 3{,}226.76 = -14.96 = |14.96| > 10],$$
$$[\Delta BIC = BIC_{M(22)} - BIC_{M(33)} = 3{,}211.80 - 3{,}348.78 = -137.0 = |137.0| > 10],$$
$$[\Delta AIC = AIC_{M(22)} - AIC_{M(32)} = 2{,}956.11 - 2{,}971.07 = -14.96 < 0],$$
$$[\Delta AIC = AIC_{M(22)} - AIC_{M(33)} = 2{,}956.11 - 3{,}093.09 = -137.0 < 0].$$

Table 7.A.2:

The comparison of the FDI transition probability models: the panel *logit* and *probit* regressions with the parent firm *random effects* (RE), and the *complementary log-log* estimation.

Link:	***Logit* regression** [RE]	***Probit* regression** [RE]		***Complementary log-log* regression**	
Model:	**M(22)**	**M(32)**	adjusted by factor [×1.86]	**M(33)**	adjusted by factor [×1.238]
DV: FDIstatus [0 → 1]					
EquityNetwork					
2 = FI-POEs	**2.712*** **	1.449***	**2.695*** **	1.529***	**1.893*** **
3 = SOEs	**3.512*** **	1.762***	**3.278*** **	1.332**	**1.649** **
4 = FI-SOEs	**12.732*** **	6.101***	**11.348*** **	5.747***	**7.116*** **
FirmAge	**0.086*** **	0.043**	**0.080** **	0.041**	**0.050** **
FirmAgeSqr	**-0.000546** **	-0.000278*	**-0.000517* **	-0.000244	**-0.000302**
PatentClass					
2 = Domestic RU	**7.49** **	4.427***	**8.235*** **	4.705**	**5.825** **
3 = International	**1.953*** **	0.980***	**1.823*** **	1.094***	**1.354*** **
Sector					
2 = Manufacturing	**1.757**	1.097*	**2.040* **	1.128*	**1.396* **
3 = Services	**-0.354**	0.080	**0.149**	0.225	**0.278**
Region					
2 = North-West	**0.624**	0.332	**0.617**	0.678	**0.839**
3 = Ural	**-2.383** **	-0.692	**-1.287**	-1.129*	**-1.397* **
4 = Volga	**-4.038*** **	-1.994***	**-3.708*** **	-1.792***	**-2.218*** **
5 = Far-East	**-5.680** **	-2.837**	**-5.276** **	-2.933**	**-3.631** **
6 = South+Caucasus	**-3.033*** **	-1.373***	**-2.554*** **	-1.198**	**-1.482** **
7 = Siberian	**-3.658** **	-1.892***	**-3.519*** **	-1.837**	**-2.274** **
Intangibles	**0.794*** **	0.422***	**0.149*** **	0.487***	**0.602*** **
FirmSizeTA	**2.746*** **	1.386***	**2.577*** **	1.534***	**1.899*** **
ProfitMargin	**0.0236*** **	0.0129***	**0.024*** **	0.0162***	**0.020*** **
Comparison of goodness-of-fit of the two-state transition probability models:					
Number of observations	2,635,402	2,635,402	2,635,402	2,635,402	2,635,402
McKelvey & *Zavoina*'s R^2	**0.2579**	0.2530	–	n.a.[b]	–
McFadden's R^2	0.7528	**0.7541**	–	0.7430	–
AIC [a]	**2,956.11**	2,971.07	–	3,093.09	–
BIC [a]	**3,211.80**	3,226.76	–	3,348.78	–
LR test *chi²*:	505.27	n.a.[c]	–	n.a.[c]	–
p-value:	[<0.00005]		–		–
Wald test *chi²*:	977.06	1,153.40	–	1,501.56	–
p-value:	[<0.00005]	[<0.00005]	–	[<0.00005]	–
Log Likelihood	**-1,458.05**	-1,465.53		-1,526.55	

Notes:

[a] The AIC and BIC comparison criteria for the non-nested ML models that estimate the same probability event of transition in the firm's FDI status: the smaller value is related to a more efficient model.

[b] *McKelvey* and *Zavoina's* R^2 cannot be derived for the *complementary log-log* model.

[c] Likelihood ratio (LR) test is not applicable for comparison of the non-nested models M(22), M(32), and M(33).

Despite the employed dataset of the Russian firms has been designed with the significant access of non-events [$FDIstatus_{it} = \mathbf{0}$], the *complementary log-log* function is not superior to the traditional logit estimation and provides the least desirable fit to the data, as attested by the greatest AIC and BIC values for M(33) and the magnitude in the absolute difference [$\Delta BIC = 137.0$], while the *logit* link leads to the improved model fit, that is, fitting the overdispersion in the data more accurately. Although the *McKelvey* and *Zavoina's pseudo-R^2* values are almost identical for both *logit* and *probit* estimates [0.2579 and 0.2530 respectively], those, nonetheless, confirm a slight gain in efficiency of the *logit* function. The *McFadden's pseudo-R^2*, which compares the likelihood ratio of the intercept-only model with the model estimated with all covariates, also suggests that the *complementary log-log* link does not lead to improved fit of the model and returns the equivalent values for all three models.

The fit of the models in terms of the obtained log-likelihood values also favours the *logit* specification; and again no support can be found for the *complementary log-log* model. The LR test of a single restriction rejects the null hypothesis (at 5% significance level), if the LR statistics exceeds [3.84] (Cameron and Trivedi, 2009); or the equivalent statistics for the change in log-likelihood values would be [$3.84/2 = 1.92$]. The log-likelihood change, when the *probit* and *complementary log-log* functions are compared with the *logit* link, indicates that none of the alternative specifications leads to improved fit of the model. The *logit* model returns a log-likelihood of [−1,458.05], which is [7.48] higher than for the *probit* and [68.52] higher than for the *complementary log-log* link, lending further support for the *logit* specification. The comparison with the [1.92] benchmark confirms that the difference is significant, ultimately favouring the *logit* model M(22):

$$\left[\Delta Log\text{-}likelihood = LL_{M(22)} - LL_{M(32)} = (-1{,}458.05) - (-1{,}465.53) = 7.48 > 1.92\right],$$
$$\left[\Delta Log\text{-}likelihood = LL_{M(22)} - LL_{M(33)} = (-1{,}458.05) - (-1{,}526.57) = 68.52 > 1.92\right].$$

A different picture emerges, however, when the predictive efficiency of the models is evaluated, which is a critical step for the model comparison and selection. Considering the within-sample forecasting, the prediction-realization table is constructed (*Table 7.A.3*), with the entries in the form of [p_{mk}]: the fraction of times the realisation was outcome [m], when the models predicted the outcome [k]. In order to compare the observed and predicted outcomes falling into the two categories of $FDIstatus_{it}$ [$\mathbf{0}, \mathbf{1}$] for all estimated link functions, the fitted and actual values across the two FDI states have been calculated and tabulated. The goodness-of-fit measure is obtained by confronting the percentage of the correctly classified observations under all the link functions,

as well as the false positive and false negative classification error rates.

The summary statistics, generated in *Table 7.A.3-a*, determines that the predicted probabilities in the sample of the Russian firms span almost in the entire range $[0 \rightarrow 1]$; however, the most of the observations fall within the $[0 - 0.2]$ probability band. The mean difference in the predicted probabilities between the models is not substantial in absolute values, however, decreasing by 9.50% for the *probit* and 23.93% for the *complementary log-log* link accordingly. *Figure 7.A.1* depicts a similar pattern in the predicted probabilities for the individual categories of $EquityNetwork_{it}$ across the alternative specifications, which are in accord with the hypothesised predictions: the state's participation in equity and the equity ties with foreign firms indeed improve the firm's propensity to switch to multinationality. However, the predicted probabilities particularly differ for the *complementary log-log* model: the category [**3**] of $EquityNetwork_{it}$ in the graph (*c*) for the complementary log-log model reveals a lower probability compared to the graph (*a*) and (*b*), while the category [**1**] "POEs" yields higher probability values.

In order to verify whether the observed difference in the probability levels are significant, the correlation matrix for the probabilities predicted for each individual firm under the *logit*, *probit*, and *complementary log-log* models is computed and tested. The extremely high correlation coefficients, estimated in *Table 7.A.3-b*, confirm that the predictions of the *logit* and *probit* models are essentially identical [0.9912], though slightly lower for the *complementary log-log* function [0.9402 *and* 0.9699], which confirms that the differences in the $\mathrm{Var}(\varepsilon|\boldsymbol{x}_{it})$ are absorbed in the relative magnitudes of the estimated parameters.

The panel (*c*) of *Table 7.A.3* compares the fitted and actual probability values of switching to multinationality by the Russian firms $[FDIstatus_{it}|\mathbf{0} \rightarrow \mathbf{1}]$, computed for each observation in the sample. The estimated probability is derived as follows (Franses and Paap, 2004):

$$Estimated.Prob(\boldsymbol{y}_{it} = 1|\boldsymbol{x}_{it}) = f\left(\hat{\beta}^{MLE}\boldsymbol{x}_{it}\right).$$

As a goodness-of-fit measure, the percentage of correctly classified observations is identical across all models [60.73%], not providing grounds for preferring either of the links. However, the *complementary log-log* function returns a greater number of predictions misclassified as [1] when the correct classification is [0]: [1,330] versus [1,310] under the *logit* and [1,316] under the *probit* links.

Table 7.A.3:

The comparison of the predicted probabilities and the dichotomous outcome for the *logit* and *probit* models with the parent firm *random effects* (RE), as well as the *complementary log-log* specification.

(a) the summary statistics for the predicted probabilities

Links:	Number of observations	Mean	%-Δ in means	SD	Min	Max
Logit	2,635,402	0.0000179		0.0037064	9.25E-33	0.9999959
Probit	2,635,402	0.0000162	-9.50%	0.0033557	0	1
Clog-log	2,635,402	0.0000137	-25.93%	0.0028952	0	1

(b) the correlation coefficients between the predicted values of the three link functions

Links:	*Logit*	*Probit*	*Clog-log*
Logit	1		
Probit	0.9912	1	
Clog-log	0.9402	0.9699	1

(c) the frequencies of the correct and false predictions

	Observed:		total:		Hit Rate		Error Rate	
Predicted:	FDIstatus= **0**	FDIstatus= **1**		Correctly classified	specificity[a] measure	sensitivity[b] measure	negative[c] false	positive[d] false
Logit link				60.73%	60.68%	84.16%	15.84%	39.32%
FDIstatus=**0**	2,634,048	1,310	2,635,358					
FDIstatus=**1**	1,706,580	6,962	1,713,542					
total:	4,340,628	8,272	4,348,900					
Probit link				60.73%	60.68%	84.09%	15.91%	39.32%
FDIstatus=**0**	2,634,048	1,316	2,635,364					
FDIstatus=**1**	1,706,580	6,956	1,713,536					
total:	4,340,628	8,272	4,348,900					
Clog-log link				60.73%	60.68%	83.92%	16.08%	39.32%
FDIstatus=**0**	2,634,048	1,330	2,635,378					
FDIstatus=**1**	1,706,580	6,942	1,713,522					
total:	4,340,628	8,272	4,348,900					

Notes:

[a] Calculated as a proportion of true negative outcomes classified as being negative; i.e., for the *logit* model: $\left[\frac{2.634.048}{4,340,628} \times 100\% = 60.68\%\right]$.

[b] Calculated as a proportion of true positive outcomes classified as being positive; i.e., for the *logit* model: $\left[\frac{6,962}{8,272} \times 100\% = 84.16\%\right]$.

[c] Calculated as a proportion of true positive outcomes classified as being negative; i.e., for the *logit* model: $\left[\frac{1,310}{8,272} \times 100\% = 15.84\%\right]$.

[d] Calculated as a proportion of true negative outcomes classified as being positive; i.e., for the *logit* model: $\left[\frac{1,706,580}{4,340,628} \times 100\% = 39.32\%\right]$.

Therefore, a more appealing way to compare the predictive efficiency of the models is to measure the *sensitivity* of the models, which is computed as a fraction of observations with $[FDIstatus_{it} = 1]$ that are correctly predicted. The logit model retains a slightly better predictive efficiency: [84.16%] versus [84.09%] for the *probit* and [83.92%] for the *complementary log-log* specifications, and accordingly a lower error rate of the false negative prediction: [15.84%] compared to [15.91%] for the *probit* and [16.08%] for the *complementary log-log* links, though all three functions demonstrate the consistency in generating within-sample forecasts. To confirm which model has a superior predictive power, the predicted probabilities are converted in the *McFadden's* (1977) R^2-type measure of the model's forecasting performance, which prove to yield the similar results across the estimated models, differing only for the 11th decimal:

$$McFadden's\ F_{logit} = \frac{(6{,}962 + 2{,}634{,}048 - 8{,}272^2 - 4{,}340{,}628^2)}{(1 - 8{,}272^2 - 4{,}340{,}628^2)} = 0.9999,$$

$$McFadden's\ F_{probit} = \frac{(6{,}956 + 2{,}634{,}048 - 8{,}272^2 - 4{,}340{,}628^2)}{(1 - 8{,}272^2 - 4{,}340{,}628^2)} = 0.9999,$$

$$McFadden's\ F_{clog-log} = \frac{(6{,}942 + 2{,}634{,}048 - 8{,}272^2 - 4{,}340{,}628^2)}{(1 - 8{,}272^2 - 4{,}340{,}628^2)} = 0.9999.$$

Figure 2:
The differences in the functions: the comparison of the predicted probabilities for the $EquityNetwork_{it}$ categories under the *logit*, *probit*, and *complementary log-log* links.