Local Institutions on Small Firm Investments: Degrees of Institutional Persistence Matter

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Abstract: This study investigates the influence of local institutions including corruption, administration transparency, and leadership proactivity on small firm investment. Drawing from the institutional theory, we suggest that the persistence (resistance to changes) of institutional forces is an important determinant of their effects on investment. Using a dataset of 945,725 firm observations in Vietnam from 2006 to 2015, we find that: (1) investment is a U-shaped function of corruption controls; (2) transparency has a positive effect on investment; and (3) leadership proactivity can moderate the adverse effects of corruption and opaqueness in public services. This variety in the association patterns between investment and institutional forces is due to the degree of institutional persistence in local norms of doing business.

Keywords: Institutions; Corruption; Investment; Governance; Small Business, Vietnam

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1. Introduction

Local institutional arrangements are now well-known as an important determinant of entrepreneurial performance (Nguyen et al., 2018). While the "rules of the game" or formal institutions are concerning general laws, regulations, and constitutions, local governance or the "play of the game" is the executions of these rules at local level (Williamson, 2000). When formal institutions, the "rules", are underdeveloped and incomplete, local authorities have more room to "play the game" off-road, i.e., deviate from the merits of the rules (Aidis and Adachi, 2007). The mismatch between the rules and the play of the institutional game may negatively affect private firm growth performance. However, the extant literature lacks investigation on the mechanisms that link local institutional arrangements and firm development (Du and Mickiewicz, 2016).

This study is designed to investigate one potential channel underlying the association between local institutional environments and firm growth performance. Specifically, we focus on explaining the firm investment decision. Investment is an important input leading to growth (Nickell, 1978). The decision of making an investment is, however, highly dependent on transaction costs and property right protections which are strongly shaped by local institutional environments (Guariglia, 2008).

Institutions are multi-dimensional, some are more embedded in local norms and traditions while others are more responsive to adjustments (Fritsch and Mueller, 2007). The levels of legitimacy of institutional forces give rise to a situation in which an institutional improvement may, interestingly, lead to a drop in investment. This paradox occurs when local norms are sticky, so that local institutional players have a strong incentive to refuse any deviations from the norms. Corruption is a typical norm like that. Corruption is the situation in which officials abuse or misuse their powers to make private gains at the cost of social damage (Tonoyan et al., 2010). When the financial benefits obtained from bribery transactions are institutionalised (i.e., taken for granted), controls over freedom from corruption will make officials feel uncomfortable. With this legitimised set of logics and beliefs, officials may reduce their work efficiency to match with the new, lower level of incomes (without bribery). This behavioural adjustment consequently deteriorates public service

quality and extinguishes investment incentive. However, in the long-run, when the new set of rules and logics (corruption controls) are gradually institutionalised, corrupt officials, under the pressure of the new standards in their professions, must recover service quality for the sake of their survival, leading to more investment.

Besides corruption, we also analyse the effect of administration transparency on investment. Non-transparency is a situation in which information and resources are distributed unevenly among players who are not dissimilar (Du and Mickiewicz, 2016). This mismatch occurs when local officials play the institutional game to conform with local norms of doing business, which could be that a small group of players are always prioritised to access information before others, depending on their "back-door" relationship or political affiliation status (Zhou, 2013). Since the motivation to play obscurely may not be driven by financial factors, norms associated with public service transparency may be less persistent to changes than those associated with corruption, which is directly concerned with the financial incomes of officials. As the forces against transparency may be relatively less sticky in comparison to the forces against corruption controls, pushing public service transparency may not suffer from the initial severe negative inertia.

On top of the institutional forces, we introduce local leadership proactivity as an institution-embedded governance force, which may be able to moderate local sticky (negative) norms. This force is different from corruption and transparency in the sense that it is largely under the control of local authorities, less affected by local norms, and easy to amend (Malesky, 2015). Governors may decide to be proactive because they want to legitimise themselves to the trending values of the economic transition, or because they truly recognise the necessity of improving the local business environment. Nevertheless, we suggest that leadership proactivity may be more efficient in regions with more corruption and less transparency. The core reason is, that the marginal effect of leadership proactivity is stronger when institutional liabilities remarkably constrain entrepreneurs from seeking efficiency. Meanwhile, in regions whose local norms of

doing business are more favourable (less corruption and more transparency), the effect of leadership proactivity appears less significant.

We use a representative multi-level dataset including 945,724 firm observations in 63 provinces from 2006 to 2015 in Vietnam, to examine the nature of local institutional arrangements, and their influence on the firm investment decision. This investigation makes several contributions to the extant literature. First, we show that the "play of the game" is able to explain the wide variations of entrepreneurial investment, within a homogenous and relatively stable national institutional setting. This finding helps uncover a "black box" in literature, which tries to link institutions to firm growth, but has not provided an explanatory mechanism (Du and Mickiewicz, 2016).

More importantly, we show that the association between local institutions and investment depends primarily on the persistence of local norms and traditions. When local institutional players are strongly resistant to change, the relationship is U-shaped (e.g., corruption); but it is a simple linear positive relationship if the norms are prompt to adjustments (e.g., transparency). In addition, we find that forces which are relatively less sticky and more responsive to change, such as leadership proactivity could, to some extent, moderate the negative effects of sticky norms and give rise to more investment.

Drawing from the key findings, this study provides three essential implications for policymakers. First, to boost investment incentives, local authorities need to work on local institutional arrangements. Investment, which is the groundwork of sustainable development, is intensely responsive to local institutional environments. Second, institutional improvement may temporarily adversely affect investment. However, this negative effect will gradually abate as new logics and beliefs are legitimised. Finally, proactive leadership may help ease the adverse influence of local sticky negative norms on investment incentives.

2. Hypothesis development

2.1. Investment and institutions

The influence of institutional environments on entrepreneurial performance has been widely investigated in the extant literature. In general, institutions are human-made constraints or artificial rules, including formal institutions (laws and regulations), as well as informal institutions (norms and traditions) (Williamson, 2000). Institutions are the "rules of the game", which establish a set of social expectations that determine which behaviours are more legitimated than others (Aidis et al., 2008). The link between institutions (requirements for legitimacy) and performance (efficiency), is cited to be negative if institutional arrangements enforce institutional liabilities, which require entrepreneurs to conduct legitimated activities at the costs of giving up efficiency (Meyer and Rowan, 1977). In contrast, if institutional arrangements are constructed in a way that successfully aligns the requirements of legitimacy with efficiency, firms can boost performance by being exempted from the costs of decoupling or ceremonial operations (Baum and Oliver, 1991).[1]

However, the influence of institutions on performance appears to be "institutionalised" *a priori*, i.e., taken-for-granted. In the extant literature, entrepreneurial performance is hypothesised to be directly associated with institutional improvement, without sufficient discussions on the mechanisms (Du and Mickiewicz, 2016). We suggest that performance is the ultimate result of a set of managerial/entrepreneurial strategies (Stenholm et al., 2013), which themselves (but not performance) are the very function of institutional environments. Given this viewpoint, we propose one potential strategic response which may serve as a mechanism to link institutions and performance. Specifically, we focus on investigating investment decisions. Investment is a process of realising business opportunities, whose availability and feasibility are highly associated with external environments, including the institutional settings (Zhou, 2017).

Both formal and informal institutions can strongly shape investment incentives. However, the enforcement of formal institutions (central laws) largely depends on the effectiveness of local informal institutions (norms of doing business) (Nguyen et al., 2018). Moreover, a set of well organised "rules of the game", need not become effective, as there is another force coming from the "play of the game". The "play of the game", according to Williamson (2000), is the implementations and executions of national institutions,

which are, once again, highly dependent on local traditions and practices. When the "play" mismatches with the "rules", entrepreneurs face institutional complexity, which requires them to conform to a different (sometimes contradictory) set of logics (Raynard and Greenwood, 2002). Consequently, transaction costs and uncertainty inevitably increase, leading to a lower level of investment incentive.

Even though sharing a common set of formal institutions, local partakers (including entrepreneurs and governors) may play the institutional game differently across regions to fit into the expectations of local norms, probably to seek legitimacy for their survival. These variations of commitment to local norms may be associated with the variations of entrepreneurial investment (and potential growth performance) across regions within a country. The following discussions investigate this possibility.

2.2. Investment and Transparency

Transparency in public services implies the uneven distribution of policy information among dissimilar economic players (Du and Mickiewicz, 2016). Transparency is a normative institutional force, indicating the "play" of local authorities in disseminating and communicating changes in legal documents, new policies and laws to local private sector (Malesky, 2015). These informational updates are important inputs to investment decisions because they determine the direction of planning and organising business strategies. Time lags in receiving proper information may lead to significant losses of business opportunities. Du and Mickiewicz (2016) find that the disproportionate communication of subsidy policy to small businesses, which are not dissimilar, will harm the entire economic performance.

The extents to which legal information is disseminated are institutionalised by local norms of doing business (Malesky et al., 2015). These norms include social acceptance of a pecking order of receiving information based on "back-door" relationships. This institutional structure gives rise to an uneven playing field in which market principles are deteriorated, leading to inappropriate allocation of economic resources. Specifically, unequal communication of new-industry policies offers a small group of entrepreneurs valuable business opportunities to make an investment before others do (Du and Mickiewicz, 2016).

However, these first comers are not necessarily efficient investors to yield the most from the investment opportunities underhandedly offered to them (Zhou, 2013).

Upon these adverse effects of opaqueness, firm investments may be positively associated with degrees of transparency in public services for three reasons. First, transparency opens access to proper planning and legal documents, reduces informational asymmetries between government policies and the business sector (Malesky, 2015). This helps improve institutional trust (trust in government) and mitigates perceived uncertainty in doing business since effective communication gives a sense that public policies will be predictably implemented. Second, transparency is the premise of property right protection, which is essential to investment decisions (Acemoglu and Johnson, 2005). Opaque legal documents, incomplete communication, and unpredictable changes in policy, significantly increase the perceived risk of appropriation, and lower entrepreneurs' incentive of making investments (Caetano and Caleiro, 2009). Third, transparency reduces legitimacy liabilities. To obtain proper planning and legal documents necessary to run businesses, entrepreneurs must follow local norms, which may be either to offer bribes, or to establish "back-door" relationships with local officials by entertaining and gift giving (Du et al., 2015). These legitimate rent-seeking activities are a burden to entrepreneurs. As such, when local institutional environments become more transparent, entrepreneurs have a stronger incentive of investing. Hence, we propose the following hypothesis:

H1a: In a region, an improvement in public service transparency is associated with more firm investment.

2.3. Investment and Corruption

Corruption is one of the most salient consequences of the misalignment between the general formal legal frameworks and local legitimated norms and traditions (Tonoyan et al., 2010). Charron et al. (2014) observe an interesting fact which illustrates this very mismatch. Specifically, they find that many, if not most, highly

corrupt countries have stringent formal laws against corruption. In a simple definition, corruption is the misuse or abuse of powers for private gains at the expense of social damages (Jain, 2001). This is the case particular to emerging post-communist economies, where the formal institutional frameworks remain weak and underdeveloped (Nguyen et al., 2013; Dana and Galperin, 2008). As such, local authorities have more room to interpret and manipulate the "rules" towards their private gains, rather than on behalf of social benefits. The misalignment between the "rules" and the "play" becomes even worse when there are insufficient monitoring schemes to control local authorities' behaviour (Nguyen et al., 2018).

Corruption is well recognised, at both micro and macro levels, as one of the most important hindrances to economic growth (Mo, 2001) because of the following reasons. First, corruption gives entrepreneurs an incentive to get involved in rent-seeking activities, such as building "back-door" relationships with politicians and administrators, using bribes or giving gifts and entertaining them (Du et al., 2015). These activities distract entrepreneurs from productive management tasks, leading to an inevitable reduction of productivity in the entire economy.

Second, corruption imposes a heavy financial burden on operation costs. Bribes, which are informal costs however, find their way to be formally recorded as operation expenses, which eventually will increase product prices and reduce competitive advantages (Nguyen and Dijk, 2012). Third, corruption remarkably slows down the flow of transactions in the entire economy. The braking effect of corruption, is, in the sense that it may delay firms from getting licences or permits necessary for doing business (until they bribe) (Nguyen and Dijk, 2012), or restrict firms from gaining sufficient funding from (state-owned) financial intermediaries (Sarath and Pham, 2015). For these reasons, an improvement in corruption controls (less corrupt harassment) is associated with better economic performance (Mo, 2001).

However, when zooming into the behaviour of corrupt officials via the lens of institutional theory, we notice that officials, especially those who benefit from the institutionalised norms of corruption, are strongly against any deviations, and tend to revert to the "old rules". Fritsch and Wyrwich (2014) suggest that local informal institutions are rather sticky, persistent and deeply embedded in the way local business operates,

even when formal institutional frameworks completely change. When corruption controls are introduced as new "rules of the game", officials confront multiple and conflicting logics that prescribe different courses of action. This situation gives rise to institutional complexity – a situation in which officials seek to adjust behaviour to balance more than one set of expectations.

Specifically, as corruption controls improve, officials' incentive to ask for bribes will reduce, as they evaluate the costs of being caught are now higher than the financial benefits gained from bribery transactions. However, it is noteworthy that keeping company with a reduction in corruption is a possibility that officials' incentive towards providing qualified public services will accordingly drop (Gjalt et al., 2012). With lower compensation, officials will naturally adjust their inputs and work efficiency to match their new, lower level of incomes. This decision is a result of a cognitive changing to adopt to the new rewarding structure (Mitchell et al., 2002). The consequence of this behavioural adjustment is the stagnant, unqualified public services, and deteriorated business environment, leading to lower level of investment incentive.

However, in the long-run, public service quality will revert to the normal level for two reasons. First, when corruption controls are fully implemented, a new set of social expectations on public services is institutionalised, officials gradually take the higher standard of services for granted. Also, they have an incentive to seek legitimacy in their profession by not breaking the (newly) established norms (Estrin et al., 2013). Second, when corruption controls are raised to a higher level and rigid monitors on service quality are introduced, the costs of maintaining low service quality (i.e., being punished) are higher than the costs of adapting to the new institutional environment. The main switching cost is the cognitive acceptance of the dissatisfaction related to the perceived unfairness of lower incomes (no bribes) that accompany a higher standard of services (Gjalt et al., 2012). However, to seek legitimacy (long-term survival), officials have an incentive to *proactively* follow the new "rules" by improving service quality as per the new set of social expectations and gradually abandon the old logic of unfairness. Consequently, the recovery of public service quality may boost local entrepreneurs' investment incentives again. Thus, we propose the following hypothesis:

H1b: In a region, an improvement in corruption controls is associated with firm investment in a U-shaped manner.

It is noteworthy that we propose a U-shaped function of investment on the improvement in corruption controls but not in transparency. The reason is that norms associated with corruption are more persistent than those associated with administrative opaqueness. While keeping information obscure may simply be due to the needs of legitimacy (non-financial motivation), corruption is directly related to financial incomes of corrupt officials (Du and Mickiewicz, 2016). Because it is comfortable to stay in the old regime, corrupt officers are likely to act against institutional changes which deteriorate their benefits, and have a strong incentive to bond with the old norms. One potential solution to maintain the old logics and beliefs of "fair" transactions is to reduce work efficiency to cope with the increasingly stringent controls. This characteristic makes the process of institutionalising alternative norms to corruption more difficult, and requires higher costs than the process of institutionalising alternative norms to administrative opaqueness.

2.4. Investment and Leadership Proactivity

Leadership proactivity indicates the cleverness and friendliness of local governments in assisting local entrepreneurs doing business (Malesky, 2015). Unlike corruption and transparency, this force is an institution-embedded governance force. It measures the governance quality of local governments in facilitating local entrepreneurial investment, by cleverly interpreting and executing central laws in favour of the private sector. This governance force is distinct by its characteristics of being largely controlled by local authorities, flexible to adjustments, and less sticky to local norms (Nguyen et al., 2018).

These characteristics of leadership proactivity come from a typical political arrangement in which local authorities are assigned by the central government, and by convention, take the positions in a specific tenure of office before being reassigned (i.e., switched to other regions or promoted to the central government)

(Zhou, 2017). As such, even though local authorities must ally to local norms for the sake of their own legitimacy, the level of leadership proactivity is highly dependent on their leadership styles and ideologies (Tung, 2014).

Proactive leadership may boost local investment for three reasons. First, proactive leaders are keen to flexibly implement central policy, or to creatively design their own initiatives for local private sector development (Nguyen and Dijk, 2012). They may also work within unclear national regulatory frameworks to assist and interpret in favour of local private sector. This conducive governance force thus provides a strong incentive for local entrepreneurs to make investments. It may also reduce the general level of transaction costs, as regulations under a proactive leadership regime are well aligned with entrepreneurs' productive activities (Baron, 2007). Moreover, leadership proactivity magnifies the likelihood that investment projects positioned at the margin of the existing regulations (e.g., investment in a completely new industry) are authorised and supported. In a rigid regulatory environment, authorities will not provide accommodating considerations on unconventional projects' legal feasibility, which may lead to approvals, but a governance system led by proactive authorities, may offer them a chance (Audretsch et al., 2015).

Second, proactive leadership may improve the general level of institutional trust (trust in government). This is achieved when local authorities consistently maintain their proactivity sufficiently long enough to trigger a change in entrepreneurs' perceptions of government quality (Nguyen et al., 2018). Consequently, local entrepreneurs will gradually reduce their perceived uncertainty in government policy and potential risks of appropriation. This cognitive adjustment is particularly important to increase the sense of property rights protection, which is an essential antecedent of investment decisions.

Third, proactive leadership may reduce the burden of conforming to adverse norms (e.g. bribery) and rent-seeking activities, leaving entrepreneurs with more resources to make investments (Nguyen et al., 2018). Proactive authorities offer "short-cuts" for entrepreneurs to obtain information, permits and subsidies necessary to run businesses without a need to legitimise themselves to local negative norms. As such,

entrepreneurs can mobilise more resources towards productive activities, and are able to make more investments. Consequently, we propose the following hypothesis:

H1c: In a region, an improvement in leadership proactivity is associated with more firm investment.

2.5. Leadership Proactivity as a moderator

Besides the direct effect on investment, leadership proactivity may moderate the relationship between investment and transparency/corruption, which are rather sticky (compared to proactivity) in the way local business operates. Specifically, proactive leadership is likely to deviate from the existing practices. As such, proactive authorities may be referred to as institutional governors whose governance ideologies may sometimes mismatch with local traditions and norms. Mismatches give rise to institutional complexity, leading to combining elements from multiple logics, and subsequently trigger broader institutional changes (Raynard and Greenwood, 2002). Proactive leadership is able to affect local (negative) norms for two reasons. First, authorities are the central players of the governance system; therefore, they are less constrained by local institutions (Baum and Oliver, 1991). In addition, they may not be indigene, thus being less contaminated by local (negative) norms.

The sources of proactivity may vary by leaders and by circumstances, but could be classified into three broad categories. First, the motivation of being proactive may be institutionalised, i.e., local authorities become more proactive, because this practice is adopted in other regions. In this case, authorities try to seek legitimacy (among governors) by steering their governance-style closer to the general trend. This mimetic mechanism occurs primarily in circumstances of ambiguity and uncertainty (e.g., unclear central policy) (Raynard and Greenwood, 2002). Under such conditions, governors copy others perceived to be more successful and more legitimate. Second, proactivity may be introduced by surrounding environments. Specifically, tenure rotatory, job movements, and emerging leadership ideologies offer authorities

reflection opportunities, which may lead to adjustments in governance styles (Mitchell et al., 2002). Finally, proactivity may stem from normative pressure promulgated by emerging professions and their institutional norms and practices. For example, the growing foreign direct investment in emerging countries is accompanied with spill-overs of advanced business standards and arm-length principles. These new players may actively require governors to improve local business environments before they make substantial investments (Nguyen and Dijk, 2012).

More importantly, proactivity may be particularly prominent in regions where corruption practices and administration opaqueness are tightly institutionalised in local business norms. When negative norms are deeply embedded, a force (proactivity) that deviates from the norms attract substantial attention, because it offers entrepreneurs an opportunity to improve efficiency and to get rid of legitimacy liabilities, leading to a stronger incentive for investment (Raynard and Greenwood, 2002). Meanwhile, when entrepreneurs have experienced a considerable institutional improvement, a force (proactivity) that deviates from the negative norms has a modest influence because its marginal effect is less impressive to (effective on) local entrepreneurs (Nguyen et al., 2018). They are acquainted with a more conducive institutional environment including a higher degree of transparency and lower level of corruption. Consequently, leadership proactivity is less significant in regions with favourable institutional environments, but it has greater impact in regions where institutional environments remain hostile. Therefore, we suggest the following hypothesis:

H2: The effect of proactivity on firm investment is stronger in regions with lower transparency and higher corruption.

3. Vietnam as a context

The empirical setting of this study is Vietnam. The country is an interesting context to investigate the impact of local institutions on investment, due to its post-communist political ideology and on-going economic

transformation. The socialist-oriented market economy aims to develop a multi-sectoral market economy, in which the state sector plays a decisive role in directing economic development, with the eventual long-term goal of achieving socialism (Makino and Tsang, 2011).

This ideology has been applied since 1965. Since then, Vietnam's economic development can be categorised into four periods: 1965-75 – war in the South, and the socialist industrialisation in the North; 1976-85 – socialist industrialisation in the centrally planned economy; 1986-2005 – *Doimoi* (economic renovation) and the transition towards market-oriented and open economy; 2006-present – trade liberalisation in post WTO entry and economic restructuring. In the first two periods, the economy concentrated on heavy industry, and was exclusively led by the state under the planning structure in the absence of the market-based price mechanism. On the promulgation of the Company Law, private business was formally legalised from 1991. However, only until the 1999 revision of the Law to reduce entry barriers, did the private sector start to gain legitimacy in the economic system (Santarelli and Tran, 2012).

Even though sharing a relatively homogenous and stable national institutional setting, local institutions across regions vary significantly for two reasons. The first is related to the history: while the economic system in North Vietnam was initially following the pure socialist blueprint, South Vietnam was transformed from capitalism since only 1975. This historical event gave rise to significant cultural and traditional differences among regions (Makino and Tsang, 2011; Dana, 1994). More importantly, these informal institutions are expected to stickily maintain, despite the two states being unified four decades ago.

Second, institutional variations also resulted from the extensive decentralisation during the *Doimoi* (Lan Phi and Anwar, 2011). The foundation of this program was the promulgation of the 1996 (revision in 1998) State Budget Law, which granted local governments considerable autonomy in their fiscal strategy. Subsequently, local authorities were granted with substantial independence in determining their local governance structures and regulatory arrangements (Santarelli and Tran, 2012).

These variations of informal institutions and institutions of governance give rise to dissimilarities in business environments across regions. Given that the private sector in Vietnam is quite young (legitimised only since 2000s), most businesses are small and operate within the boundary of their local markets, which are strongly shaped by local institutional settings (Dana and Edward, 2009). This makes Vietnam a relevant and an interesting context to examine local institutions on investment.

4. Data and methodology

4.1 Data

We test the proposed hypotheses using a combination of two datasets. The first is the Annual Survey on Enterprises of Vietnam conducted by the General Statistics Office (GSO). It is a sixteen-year panel from 2000 to 2015 including firm-level information on investment, performance, financial and ownership structures of manufacturing and service sectors. However, this study is limited to ten years, from 2006 to 2015, to match with the availability of the second dataset, the Provincial Competitiveness Index (PCI)[2], which was first conducted for a sample of regions in 2005, and then for all 63 provinces from 2006. The dataset is a product of the collaboration between Vietnam Chamber of Commerce (VCCI) and the U.S Agency for International Development (USAID). Specifically, PCI is an overall provincial competitiveness index constructed from analysing local institutional environments (e.g., corruption, transparency) and governance quality (e.g., leadership proactivity). Definition and summary statistics of the indices are presented in Appendix 1.

4.2 Variables and summary statistics

To clean the data, all firms with negative total assets, negative fixed assets, depreciation and employees are dropped, same as for firms whose fixed assets are greater than total assets. The outliers are controlled by censoring the top and bottom 1% of observations in each variable. We then select only domestic private companies as the population of interest. The final sample in regressions constitutes 945,724 observations

in 10 years. Details about the panel structure of the dataset, including firm observations by year and by frequency, are reported in Appendix 2.

The dependent variable is firm *investment*, measured by the ratio of total investment to total capital.[3] Unlike previous studies, utilising balance sheet items to calculate changes in fixed assets as a proxy for investment, in this study, we use firm self-reported investment information. As such, our investment variable is broader by definition and captures more information on firm investment activities. Specifically, four investment terms are covered in our investment variable, including: (1) construction of factory and building, (2) machinery and other fixed asset purchase, (3) technology upgrade and updated spending, and (4) net working capital investment. The first three items are the conventional fixed-asset investment. Meanwhile, the last item is suggested by Fazzari and Petersen (1993), Ding et al. (2013) and Baños-Caballero et al. (2014), who argue that working capital is an important financing source of investment, especially in the context of financing constraints. This is particularly the case in emerging countries, where small businesses typically do not obtain sufficient bank loans (Carreira and Silva, 2010), and working capital may serve as an alternative financing source to fixed investment.

Our independent variables include corruption, transparency, and leadership proactivity. *Corruption* variable takes the score value of the corruption index in the PCI dataset. The index takes values from 1 to 10, the higher the score, the *better* the corruption controls (*lower* freedom from corruption). This index is a measure of how much firms pay for bribery, how much of an obstacle those extra financial burdens pose on their business operations, whether payment of those extra fees results in expected results or "services," and whether local officials use compliance with local regulations to extract rents.

Transparency variable takes the score value of the transparency index in the PCI dataset. The index takes values from 1 to 10, the higher the score, the more transparency in public services. This index measures whether firms have access to the proper planning and legal documents necessary to run their business, whether those documents are equitably available, whether new policies, subsidies, and regulations are communicated with local business community and predictably implemented.

To measure the proactivity of local top authorities towards their local private sector, we use the *proactivity* variable, which takes the score value of the leadership proactivity index in the PCI dataset. The index takes values from 1 to 10, the higher the score, the more proactivity. It is a measure of the creativity and cleverness of local authorities in implementing central policy, designing their own initiatives for private sector development, and sometimes working within unclear national regulatory frameworks to assist and interpret in favour of local private firms.[4]

We also include a set of covariates following the suggestions of previous works. At firm level, we include firm age, firm labour size, asset structure, revenue, and cash flow variables. These firm-specific characteristics are highly associated with investment decisions as they represent investment capacity and available opportunities (Ding et al., 2013; Tran and Santarelli, 2014). At entrepreneur individual-level, we include owner age, a proxy for entrepreneurs' education and experience, which may influence investment decision (Santarelli and Tran, 2013). At provincial level, we control local market demands using population density and the average consumption power variables (Nguyen et al., 2018). We also use the ratio of labour force over total population as a proxy for human resource supply, which is an essential input of investment (Dang, 2013). Finally, we include distance from a province to the closest municipality (business and political centre) as a proxy for geographical interaction (Driffield et al., 2013).

Details of variable definition and summary statistics are reported in Table 1. The statistics show that Vietnam is a typical entrepreneurial economy, in which the majority of domestic business population is young and small companies (Du and Mickiewicz, 2016). Specifically, the average age is six-years old and the average labour size is 31 employees, with investment value approximates 38% of total capital per year. In terms of local institutions, statistics show that there are substantial variations across time and space. Leadership proactivity has the largest range in which the score varies from 1.39 to 9.39. It is also the only index whose mean performance is lower than 5, showing that the degree of proactivity of local leaders, on average, has not met the middling criteria set by PCI. The correlation matrix among variables is reported in Appendix 3.

Table 1: Variable Definition and Summary Statistics

4.3 Specification and estimation

Following the extant literature (Nguyen et al., 2018; Zhou, 2013), we propose the following reduced-form investment function. This is our benchmark specification:

$$(\mathbf{1})\ Investment_{igt} = \beta_0 + \beta_1(Firm\ controls_{igt}) + \beta_2(Owner\ age_{igt}) + \beta_3(Province\ controls_{gt}) + \beta_4(Transparency_{gt}) + \beta_5(Corruption_{gt}) + \beta_6(Proactivity_{gt}) + v_j + v_t + v_i + \mu_{it}$$

where i denotes individual firm, g is province, and t is year. As such, ($Investment_{igt}$) is the investment rate that firm i in province g makes in year t. The term $(Firm\ controls_{igt})$ is a column vector of variables including firm age, firm labour size, revenue, asset structure, and cash flow; the term $(Owner\ age_{igt})$ is entrepreneur individual age variable; $(Province\ controls_{gt})$ constitutes province average consumption, population density, labour force, and distance to the closet business centre. The three variables: $(Transparency_{gt}), (Corruption_{gt}), and\ (Proactivity_{gt})$ represents the three dimensions of local institutions: corruption, transparency, and leadership proactivity respectively. The investment function also includes an industry-specific component v_j, and a time-specific component v_t, which are controlled by corresponding dummies. The term v_i represents all time-invariant, firm-level fixed effects that may influence the investment rate. Finally, μ_{it} is the idiosyncratic error.

We are interested in the coefficients of β_4, β_5 and β_6 as they indicate the association between local institutions and investment. To further analyse the U-shaped pattern of corruption, we propose the following modified specification:

$$(\mathbf{2})\ Investment_{igt} = \beta_0 + \beta_1(Firm\ controls_{igt}) + \beta_2(Owner\ age_{igt}) + \beta_3(Province\ controls_{gt}) + \beta_4(Corruption_{gt}) + \beta_5(Corruption_{gt})^2 + \beta_6(Transparency_{gt}) + \beta_7(Proactivity_{gt}) + v_j + v_t + v_i + \mu_{it}$$

For equation (2), we are interested in the coefficients β_4 and β_5. It is expected that β_4 is negative and β_5 – the squared term of corruption is positive to establish a U-shaped function of investment on corruption. To test the moderation effect of leadership proactivity on corruption and transparency, we further include two interaction terms: $(Proactivity_{gt} \times Corruption_{gt})$ and $(Proactivity_{gt} \times Transparency_{gt})$ into equation (2). According to hypothesis H2, it is expected that the coefficients associated with the interaction terms are negative, indicating that for provinces facing low values of corruption index (more corruption) and low values of transparency index (less transparency), the effect of proactivity on investment in these provinces becomes stronger.

All equations are estimated using a fixed effect (FE) panel estimator, corrected by applying robust standard errors clustered by individual firm and by province. To control for potential endogeneity, all independent variables that may suffer from reverse effects are lagged one year. They include firm size, asset structure, revenue, and cash flow. Moreover, Tran and Santarelli (2014) argue that private sector development (investment) may exert pressure on local authorities to improve local institutions and governance quality, which may be a source of endogeneity (reverse effect). As such, we also lag corruption, transparency, and proactivity variables by one year. The fixed effect estimator in addition could deal, to some extent, with unobservable heterogeneity and potential endogeneity of missing (time-invariant firm-specific) variables in the model. It is worth noting that firm-level attributes, industrial sector and regional characteristics that

are time-invariant, are already controlled by the fixed effects. Hausman tests are conducted to check the endogeneity of the fixed effect, as well as to confirm its appropriateness over the random effect. We also conducted a VIF test for multicollinearity on the benchmark specification.[5]

5. Empirical results

Regression results are reported in Table 2. Columns 1 and 2 are the direct effects of corruption, transparency, and proactivity. Columns 3-7 show the moderation effects of proactivity on corruption and transparency. In general, the Hausman tests in all specifications verify the validity of the fixed effect over the random effect method. Moreover, the VIF test of the benchmark specification is 2.86, indicating that there are no serious issues related to multicollinearity in the modelling.

Table 2: Local Institutions on Investment

While the coefficients associated with transparency and proactivity are positive and statistically significant, the coefficients associated with corruption are negative in all specifications. Because corruption is directly linked to the financial incomes of officials, when corruption controls improve, their incomes are negatively affected. This change will naturally trigger a drop in work attitude and reduce efficiency, which inevitably deteriorates public service quality, and ultimately leads to lower investment.

However, as corruption controls achieve further improvements, the negative effect reverses as shown by the positive coefficients associated with the squared term. The U-shaped pattern of corruption indicates the process of cognitive adjustments. When corruption controls become a legitimised (widely accepted) norm in a local institutional environment, officials start providing better services. As such, hypotheses H1a, H1b, and H1c are fully supported.

Using the coefficients of corruption and its squared term to calculate the turning point[6] shows that the positive effect starts from 7.68 scores. The average score of corruption is 5.91 in the study period, implying that corruption controls in Vietnam are still in the initial phase, stronger controls are in need to attract more private investment. In terms of the economic effect, each point of corruption control improvement is associated with a 3.1% decrease in investment rate (column 1). For transparency and proactivity variables, their effects are economically weaker than the influence of corruption. Specifically, a marginal score of transparency index is associated with an investment rate of 1.23%; and 0.3% for a marginal score of proactivity, lower than the 3% negative effect of corruption. This result might explain the fact that when governments began tweaking local institutional environments, in the initial phase, the net effect of institutional improvements on local entrepreneurship was not as expected.

Regarding the moderation effects, the coefficients associated with the interaction terms are negative and statistically significant. This finding indicates that leadership proactivity is more effective in provinces suffering from severe corruption and opaqueness in public services. Therefore, hypothesis H2 is fully supported. The marginal effects of proactivity on transparency and corruption are presented in Figure 1 and Figure 2. The slope of the curves of lower corruption controls and less transparency (-1 standard deviation from the means) is steeper in comparison to those of better corruption controls and more transparency (+1 standard deviation from the means), indicating that the association between leadership proactivity and investment is stronger when local institutions are more *unfavourable*. Given that leadership proactivity is relatively controllable, this finding suggests that, regardless the prevailing unfavourable norms, local governments are able to facilitate local entrepreneurship by improving their governance quality (i.e., being more proactive).

Figure 1: Marginal Effect of Transparency

Figure 2: Marginal Effect of Corruption

6. Discussion

This study investigates the "play" of local institutions on private firm investment. We propose that corruption, transparency and leadership proactivity are important determinants of investment decision. We analyse several characteristics of, and interactions among local institutional forces to understand the nature of their effects on investment. Our study is an attempt to fulfil a gap in literature pointed out by Du and Mickiewicz (2016) that while the relationship between national general institutional settings and entrepreneurship is well understood, the role of local institutions is largely unexplored. We make contributions by showing that institutional variations at local level – the plays of the institutional game take an essential role in determining investment incentive. As such, the conventional assumption of the homogenous effect of the general institutional configurations at national level may not always hold its validity.

We also make contributions by investigating the persistence of local norms and its consequence on investment. Some norms are more sticky and resistant to changes, because they are closely related to the financial benefits of institutional players (Gjalt et al., 2012). Corruption is an example. This institutional force is distinct from other non-financial forces, as it is directly linked to the financial incomes of local politicians and administrators who participate in the bribery game. In line with Gjalt et al. (2012), we suggest that when corruption controls improve, local private firms do not necessarily find this advancement favourable. The role of cognitive adjustments of local officials whose incomes are affected by corruption controls is essential, but largely neglected in the extant literature (Baron, 2007). Only when corruption controls are sufficiently strong to gain full legitimacy and to establish a new socially accepted standard of doing business, corrupt officials will begin to improve service quality; otherwise, they will keep reducing efficiency to match the old logics of equality.

While Nguyen et al. (2018) find that leadership proactivity is essential to private firm performance, we show that this institution-embedded governance force also has a crucial effect in moderating local corruption and administration opaqueness. Regions facing severe corruption and opaque public services

can rely on proactive leadership to alleviate the negative effects of local (unfavourable) norms and nurture institutional trust. While corruption and transparency take a long time to improve as they are deeply embedded in local traditions and social legitimacy (Williamson, 2000), leadership proactivity arrangements, which are adjustable in the short-term, may serve as a functional governance tool (Nguyen et al., 2018). As such, this study suggests a specific and plausible approach for local authorities to boost entrepreneurial investment even when local institutions remain unfavourable.

Besides academic contributions, this study also provides several insights for policymakers. First, it is important to distinguish financial institutional forces from non-financial ones. For the non-financial institutional forces such as transparency and proactivity, their effects on local entrepreneurial activities are relatively straightforward. However, when it comes to institutional changes concerned with officials' incomes (e.g., corruption controls), adverse effects may occur due to confrontation. Specifically, policymakers should consider the possibility that local officials will shirk when they are not allowed to receive bribes.

This study also suggests that leadership proactivity plays a prominent role in impairing the adverse impact of local unfavourable institutions (corruption and opaqueness). Proactive leadership is, fortunately, a controllable variable in the hands of local authorities. The key point here is to maintain a consistent and sustainable proactive environment to gradually erase local perceptions concerning the necessity of corruption and opaqueness in doing business. Nguyen et al. (2018) argue that trust in government, to some extent, is able to moderate local negative norms, and plays as a critical engine to boost entrepreneurial activities and performance.

7. Conclusion

Variations in local institutions and government quality are essential determinants of entrepreneurial activities and performance (Nguyen et al., 2018). In this study, we show that the play of local institutional game including corruption, administration transparency, and leadership proactivity is important to

investment decisions. Corruption controls may initially reduce investment incentives because corrupt officials without bribes may attempt to shirk their duties, leading to deteriorated local business environments. However, this negative effect will abate as soon as the new standards of public services are legitimised. Meanwhile, the non-financial force such as transparency, which is relatively less sticky in comparison to corruption, does not suffer from the initial inertia. In addition, leadership proactivity – an institution-embedded governance force, which is arguably under control of local authorities, can moderate the adverse impact of corruption and opaqueness in public administration.

In general, this study suggests that local institutions are multi-dimensional, and that each institutional force has a specific degree of persistence. This characteristic of institutions is particularly important because it determines the severity of the initial (negative) inertia when institutions improve. The more embedded the norms, the higher the adjustment costs.

Tables and Figures

Table 1: Variable Definition and Summary Statistics

Variable	Definition	Mean	SD	Min	Max
Investment	The ratio of additional capital invested to total capital	0.38	0.55	0.00	3.55
Corruption	Value of the corruption index. The indicator ranges from 1 to 10; the higher the score, the *better* the corruption controls.	5.91	1.05	4.13	8.94
Transparency	Value of the transparency index. The indicator ranges from 1 to 10, the higher the score, the more transparent the public services.	5.73	1.36	2.14	8.85
Proactivity	Value of the leadership proactivity index. The indicator ranges from 1 to 10, the higher the score, the more proactive the local leadership.	4.61	1.31	1.39	9.39
Firm age	Years of operation since the establishment	5.93	5.45	1	68
Firm size	Natural log of the number of employees (reported here the number of employees)	31.54	297.16	1	87,225
Asset structure	The ratio of fixed assets to total assets	0.19	0.21	0	0.92
Revenue	The ratio of revenue earnings to total capital	1.27	2.25	0	14.59
Cash flow	The ratio of cash flow to total capital	0.02	0.14	-0.66	0.62
Owner age	Age of business owner, in year	42.70	9.96	24	69
Distance	Distance from a province to the closet economic centre, in km	77.55	118.08	1	499
Density	The ratio of population over area by province per year, in person per km^2	1,832.68	1,364.89	39.77	3,888
Consumption	The value of provincial average consumption depreciated to 2010 value, in million VND per capita a year	37.16	23.84	1.11	89.12
Labour	The ratio of labour force over total population by province per year	0.55	0.04	0.45	0.79

Note: The data sources are Vietnam Annual Enterprise Survey and Provincial Competitiveness Index. The number of observations is 945,724 firm-year, from 2006-2015.

Table 2: Local Institutions on Investment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Corruption	-0.0308***	-0.189***	-0.0316***	-0.182***	-0.00914**	-0.175***	-0.183***
	(0.00149)	(0.0155)	(0.00150)	(0.0155)	(0.00431)	(0.0157)	(0.0156)
$Corruption^2$		0.0123***		0.0117***		0.0134***	0.0138***
		(0.00120)		(0.00120)		(0.00121)	(0.00120)
Transparency	0.0123***	0.0145***	0.0437***	0.0416***	0.0126***	0.0152***	0.0158***
	(0.00176)	(0.00176)	(0.00467)	(0.00466)	(0.00175)	(0.00176)	(0.00177)
Proactivity	0.00344***	0.00406***	0.0403***	0.0360***	0.0320***	0.0422***	0.0433***
	(0.00106)	(0.00106)	(0.00527)	(0.00526)	(0.00552)	(0.00555)	(0.00555)
Proactivity × Transparency			-0.00590***	-0.00511***			
			(0.000851)	(0.000850)			
Proactivity × Corruption					-0.00427***	-0.00568***	-0.00525***
					(0.000803)	(0.000808)	(0.000816)
Proactivity × $Corruption^2$							-9.66e-05***
							(2.21e-05)
Firm age	0.00466	0.00238	0.00434	0.00221	0.00383	0.00107	0.000783
	(0.00407)	(0.00407)	(0.00407)	(0.00407)	(0.00407)	(0.00408)	(0.00408)
Firm size	-0.0430***	-0.0428***	-0.0430***	-0.0428***	-0.0430***	-0.0428***	-0.0428***
	(0.00138)	(0.00138)	(0.00138)	(0.00138)	(0.00138)	(0.00138)	(0.00138)
Asset structure	-0.0483***	-0.0483***	-0.0483***	-0.0483***	-0.0480***	-0.0479***	-0.0478***
	(0.00569)	(0.00569)	(0.00569)	(0.00569)	(0.00569)	(0.00569)	(0.00569)
Revenue	-0.00166***	-0.00169***	-0.00163***	-0.00166***	-0.00164***	-0.00167***	-0.00172***
	(0.000437)	(0.000437)	(0.000437)	(0.000437)	(0.000437)	(0.000437)	(0.000437)
Cash flow	0.0975***	0.0958***	0.0972***	0.0956***	0.0974***	0.0954***	0.0959***
	(0.00727)	(0.00727)	(0.00727)	(0.00727)	(0.00727)	(0.00727)	(0.00727)
Owner age	-0.00611	-0.00575	-0.00619	-0.00584	-0.00599	-0.00557	-0.00563
	(0.00399)	(0.00399)	(0.00399)	(0.00399)	(0.00399)	(0.00399)	(0.00399)
Distance	-0.000861***	-0.000726***	-0.000874***	-0.000744***	-0.000868***	-0.000724***	-0.000673**
	(0.000273)	(0.000271)	(0.000273)	(0.000271)	(0.000273)	(0.000271)	(0.000270)
Density	-3.40e-05***	-2.42e-05***	-3.65e-05***	-2.69e-05***	-3.64e-05***	-2.66e-05***	-2.41e-05***
	(5.78e-06)	(5.89e-06)	(5.78e-06)	(5.90e-06)	(5.80e-06)	(5.90e-06)	(5.94e-06)
Consumption	-0.00338***	-0.00319***	-0.00331***	-0.00314***	-0.00322***	-0.00296***	-0.00284***
	(0.000185)	(0.000186)	(0.000185)	(0.000185)	(0.000188)	(0.000189)	(0.000191)

Labour	0.289***	0.286***	0.255***	0.257***	0.303***	0.304***	0.310***
	(0.0494)	(0.0494)	(0.0495)	(0.0495)	(0.0494)	(0.0493)	(0.0492)
Hausman p value	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Observations	945,724	945,724	945,724	945,724	945,724	945,724	945,724
R squared	0.508	0.508	0.508	0.508	0.508	0.508	0.508

Note: The dependent variable is firm investment. The results reported were estimated using the fixed effect panel estimator controlling for multi-level structure of the data. All specifications include full sets of two-digit industry dummies and 10-year dummies. The variables: corruption, corruption squared, transparency, proactivity, firm size, asset structure, revenue, and cash flow are lagged one year. The figures reported in parentheses are robust standard errors. Hausman test statistics are reported for the endogeneity of fixed effects. *** indicates significant at 1%. ** indicates significant at 5%, and * indicates significant at 10%.

Figure 1: Marginal Effect of Transparency

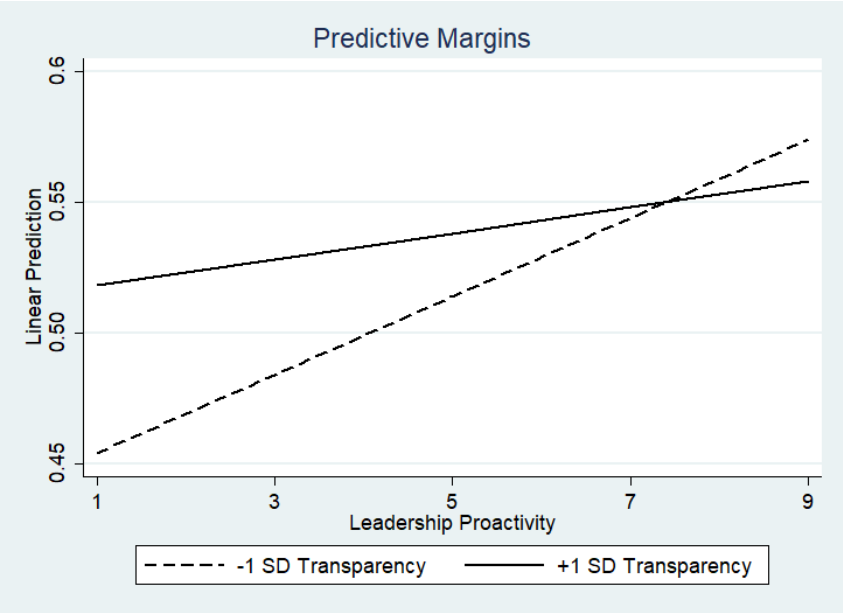
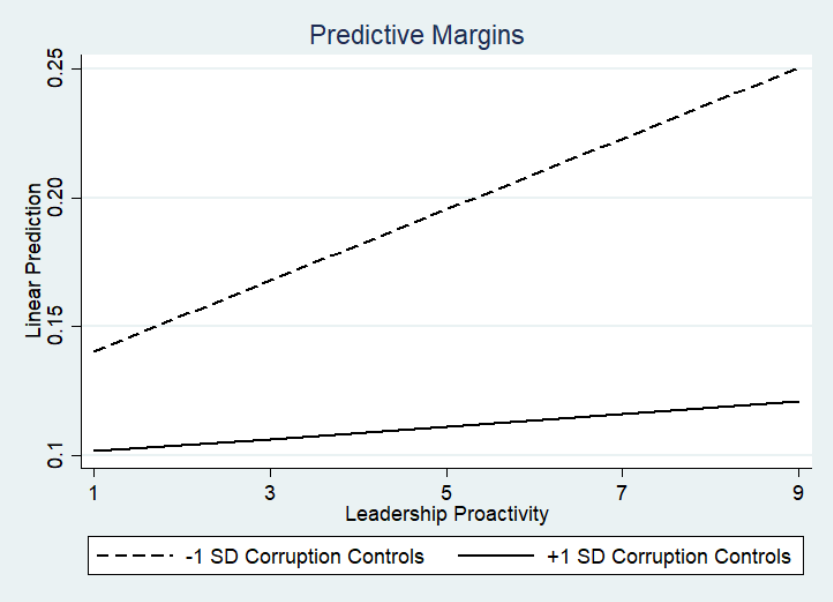


Figure 2: Marginal Effect of Corruption



Appendix:

Appendix 1:

Table: PCI Index Definition and Summary Statistics

Variable	Definition	Mean	S.D.	Min.	Max.
Legal institutions	Measure the confidence in provincial legal institutions; whether firms regard provincial legal institutions as an effective vehicle for dispute resolution, or as an avenue for lodging appeals against corrupt official behaviour. The indicator is two-digit value, ranging from 1 to 10, the higher the score, the better the institutions.	7.76	0.90	4.96	9.60
Entry costs	Measures the differences in entry costs for new firms across provinces (for example, length of business registration in days, etc.). The indicator is two-digit value, ranging from 1 to 10, the higher the score, the lower the entry costs.	5.16	1.49	1.94	8.84
Land access	Combine two dimensions of the land problems confronting entrepreneurs: how easy it is to access land and the security of tenure once land is acquired. The variable is two-digit value, ranging from 1 to 10, the higher the score, the better the access.	5.67	1.44	2.14	8.56
Time costs	Measures how much time firms waste on bureaucratic compliance, as well as how often and for how long firms must shut their operations down for inspections by local regulatory agencies. The indicator is two-digit value, ranging from 1 to 10, the higher the score, the better the access.	5.96	0.81	2.64	8.93
Business supports	Measures provincial services for trade promotion, provision of regulatory information to firms, business partner matchmaking, provision of industrial zones or industrial clusters, and technological services for firms. The indicator is two-digit value, ranging from 1 to 10, the higher the score, the better the support.	5.84	1.06	4.13	8.94
Labour training	Measures the efforts by provincial authorities to promote vocational training and skills development for local industries and to assist in the placement of local labours. The indicator is two-digit value, ranging from 1 to 10, the higher the score, the better the training.	4.82	1.02	2.00	7.91
Corruption	Measures how much firms pay in informal charges, how much of an obstacle those extra fees pose for their business operations, whether payment of those extra fees results in expected results or "services," and whether provincial officials use compliance with local regulations to extract rents. The indicator is two-digit value, ranging from 1 to 10, the higher the score, the lower the charges (corruption).	5.91	1.05	4.13	8.94
Transparency	Measures whether firms have access to the proper planning and legal documents necessary to run their business, whether those documents are equitably available, new policies and laws are communicated to firms and predictably implemented. The indicator is two-digit value, ranging from 1 to 10, the higher the score, the more transparent.	5.73	1.36	2.14	8.85
Leadership proactivity	Measures the creativity and cleverness of provinces in implementing central policy, designing their own initiatives for private sector development, and working within sometimes unclear national regulatory frameworks to assist and interpret in favour of local private firms. The indicator is two-digit value, ranging from 1 to 10, the higher the score, the more proactive.	4.61	1.31	1.39	9.39

Note: The panel encompasses all of 63 provinces and municipal cities in Vietnam in the period 2006-2015, obtained from the Provincial Competitiveness Index (PCI) dataset.

Appendix 2:

Table: Details About the Panel Structure of Our Dataset

Number of years per firm	Frequency	Percentage	Cumulative percentage
1	86,665	9.2%	9.2%
2	141,828	15.0%	24.2%
3	149,523	15.8%	40.0%
4	174,920	18.5%	58.5%
5	123,490	13.1%	71.5%
6	269,298	28.5%	100.0%
Total	*945,724*	*100%*	
Year	**Frequency**	**Percentage**	**Cumulative percentage**
2007	82,733	8.7%	8.7%
2008	100,063	10.6%	19.3%
2009	122,299	12.9%	32.3%
2010	155,423	16.4%	48.7%
2011	207,703	22.0%	70.7%
2012	277,503	29.3%	100.0%
Total	*945,724*	*100.0%*	

Appendix 3:

Table: Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Investment (1)														
Corruption (2)	0.00 [a]													
Transparency (3)	0.05	0.39												
Proactivity (4)	0.02	0.46	0.25											
Firm age (5)	-0.19	-0.02	-0.05	0.00[a]										
Firm size (6)	-0.33	0.14	0.12	0.10	0.30									
Asset structure (7)	0.01	0.13	0.01	0.14	0.14	0.23								
Revenue (8)	-0.02	0.15	0.08	0.13	0.09	0.09	0.00							
Cash flow (9)	-0.11	0.08	0.02	-0.03	0.18	0.11	0.20	0.02						
Owner age (10)	-0.13	0.04	-0.05	0.05	0.39	0.22	0.20	0.07	0.13					
Distance (11)	-0.03	0.06	-0.34	0.02	0.09	0.07	0.25	0.09	0.09	0.15				
Density (12)	-0.01	-0.34	0.02	-0.27	-0.07	-0.21	-0.30	-0.14	-0.09	-0.15	-0.67			
Consumption (13)	-0.05	-0.42	-0.23	-0.35	-0.03	-0.27	-0.29	-0.16	0.00	-0.12	-0.52	0.81		
Labour (14)	-0.03	0.35	-0.01	0.24	0.07	0.14	0.22	0.08	0.16	0.12	0.32	-0.59	-0.52	

Note: All correlation coefficients are significant at 1% except for coefficients with [a] are significant at 5%.

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[1] Decoupling is a strategy in which organisations adopt structures and practices that are aligned with institutional prescriptions, but which are deliberately distanced from how work is actually performed. Conformity is thus "ceremonial" rather than substantive.

[2] PCI is a rigorous survey of more than 10,000 domestic firms and 1,700 foreign invested enterprises about local institutional environment and governance quality across provinces in Vietnam. From 2013, there is an additional sub-index Policy Bias. Details of items measured in each indicator, methodology, and data collection information please visit www.eng.pcivietnam.org.

[3] In this study investment variable is normalised by total capital. Using ratio instead of value is theoretically necessary and very common in the investment literature, and can be seen as a required normalisation (Du et al, 201).

[4] Details of the PCI methodology are available at: http://eng.pcivietnam.org/phuong-phap-c9.html

[5] Except for the benchmark, other modified specifications are based on the interaction terms. Therefore, VIF test is not appropriate to indicate the multicollinearity among variables (Wooldridge, 2002).

[6] The turning point is calculated using the absolute value of corruption coefficient (0.189) divided by two times the coefficient associated with the squared term of corruption (0.0123).