The Paradox of Investment Timing in Small Business:

Why Do Firms Invest When It Is Too Late?

Bach Nguyen[a], Chau Le[b, c], Vinh Vo[d]

[a] Economics, Finance & Entrepreneurship Department, Aston Business School, Aston University, UK. Email: nguyenb1@aston.ac.uk

[b] School of Economics, University of East Anglia, UK. Email: Chau.Le@uea.ac.uk

[c] School of Banking, University of Economics HCMC, Vietnam

[d] Institute of Business Research, University of Economics HCMC, Vietnam. Email: vinhvx@ueh.edu.vn

Abstract: This paper aims to tell the "gamble of resurrection" story for small owner-managed firms. Analyzing a set of private firms in Vietnam, we find that firms that are less financially constrained, an increase in the degree of financing constraints leads to a decrease in the use of entrepreneurs' personal capital. However, once critical value of constraints is reached, this relationship reverses. Specifically, deferring investments that would otherwise be in time may result in firms' experiencing such serious financial distress that the entrepreneurs will invest their personal capital to try and maintain their firms' survival even it may be too late.

Keywords: Cash flow, financial constraints, investment behaviour, personal capital, small business

1. Introduction

Small and medium enterprises (SMEs) have accounted for much of the recent growth in the private sector and serve as engines of economic progress, both in the developed countries and the transition economies. Despite their essential role in terms of employment generation, innovation fostering, economic dynamism and equal distribution of income Savlovschi and Robu (2011), anecdotal evidence shows that difficulty in accessing finance prevents small business firms from growing to their full potential by, inter alia, discouraging their investment in expansion (Pham & Talavera, 2018). Being highly susceptible to the effects of information asymmetries and external financial constraints, owners of small firm typically operate with a sub-optimal debt to equity ratio

and demonstrate a strong preference for the financing options that come with minimal intrusion into their business (Hamilton & Fox, 1998). Thus, their financing hierarchy favours the use of internal funds, which is consistent with the pecking order theory. An entrepreneur running a small business, however, has a notion of internal funds that differs from the one associated with corporate capital structure analysis. Specifically, the new venture and the entrepreneur, in most cases, overlap and are sometimes perceived (at least by the entrepreneurs themselves) as being one and the same identity (Gartner, Frid, & Alexander, 2012). Entrepreneurs therefore tend to regard their personal capital (i.e. entrepreneurs' self-raised capital via personal savings and personal wealth) as an "internal" financing source of their new ventures. In situation where the entrepreneur has insufficient access to bank loans, personal capital becomes his/her major and most effective financing source; unfortunately this widespread phenomenon has attracted little attention from the extant literature (Parker, 2010).

Small businesses further differ from large firms in that their investment projects, particularly when they are affected by financing constraints, are flexible to adjustments, and in many cases are divided into several independent phases. The reason is that entrepreneurs running their own businesses are more risk-averse than managers running businesses for their principles (shareholders). Facing irreversibility of capital expenditures due to sunk costs associated with little experience, entrepreneurs running small businesses are inclined to stage their investment projects to facilitate learning-by-doing and minimize uncertainties (Ghosal & Loungani, 2000). Therefore, the investment decision is likely to be dependent not only on economic considerations but also on business-owner's behaviour and psychological expectations which may be driven by the tendency to either "wait and hope" or "do and hope". The "wait and hope" strategy is seen, in situations where the degree of financing constraints has slightly increased from an initially low level so that the firm may find that the investment value that has been obtained is actually only marginally less than the optimal value sought, and so the business owner may decide that he or she can manage the shortfall. This reluctance to invest may be due to either over-optimism (i.e. the business owner is banking on gaining sufficient access to finance to be able to scale up the investment project once the firm's financial health has improved) (Nishihara & Shibata, 2013) or cost effects (i.e. higher investment is

associated with higher borrowing, increased repayment costs and a heightened risk of default) (Guariglia, 2008). The "do and hope" strategy, on the other hand, is more of a gamble of resurrection; it occurs when financing constraints reach a particular threshold, so that entrepreneurs wishing to retain their preferred mode of psychological satisfaction are strongly motivated to maintain their ventures' survival (Douglas & Shepherd, 2000).

The paradox of investment timing being subjective to different levels of financing constraints for small businesses is the distinct research interest in this paper. Accordingly, we use a comprehensive and rich information firm-level dataset from the Enterprise Annual Survey (EAS) conducted by the General Statistics Office (GSO) in Vietnam to study the investment behaviour of SMEs under the effects of internal and external financial constraints. Our empirical approach is driven by the theoretical model of Cleary, Povel, and Raith (2007), who hold that a firm's optimal investment is a U-shaped function of its internal funds. Specifically, we expect that for firms that are less financially constrained, an increase in the degree of financing constraints leads to a *decrease* in the use of entrepreneurs' personal capital. However, once a critical value of constraints is reached, the relationship reverses.

The contribution of this paper is three-fold. First, this study in one of the first thoroughly examining the role that the entrepreneur's personal capital plays in reducing the financing gap and optimizing the firm's investment strategy. Second, this study proposes a novel theoretical framework that investigates the motivational aspect (in contrast to rational aspect) of small businesses' financing decisions. Third, our sample covers Vietnamese SMEs, a sector that is dominated by micro and very small businesses struggling to survive in a significantly disrupted economic environment.

2. Related Literature and Hypothesis Development

2.1. Theories of small business financing

According to the classic capital structure theory (called the M-M theory after the authors), financing sources are irrelevant to firm value (Modigliani & Miller, 1958). As long as a firm obtains sufficient capital for its operations and investments, the question "where does the money come from?" is redundant. However, empirical studies appear to invalidate this proposition by showing

that "where the money comes from" does in fact matter greatly. Specifically, there are two alternative mechanisms explaining the preference of one source of financing over the others.

The trade-off theory of financing challenges one of the most notable assumptions of the M-M model, which is the absence of corporate taxes (Scott, 1972). In a tax system, interest payments on debts are allowable against corporate taxes, and so a firm with a higher level of leverage enjoys a lower level of payable taxes. This tax-shield effect triggers an incentive to encourage profitability by increasing the ratio of leverage. Conversely, too high a level of debt is associated with potential financial distress and can lead to insolvency. Therefore, the static trade-off theory suggests that there is an optimal debt ratio that firms attempt to maintain (Du, Guariglia, & Newman, 2015). This trade-off theory is however less applicable to understanding the financing strategy of small businesses for following two reasons. First, smaller firms are not as profitable as larger firms, so the use of tax-shield financing is less relevant for them (Hechavarria, Matthews, & Reynolds, 2016). Second, younger and smaller firms are intrinsically more likely to fail than their larger and older counterparts (Jovanovic, 1982), so they are likely to be more concerned with business risks and financial distress than with the tax-shield effect of a financing strategy (Bhaird, 2010). These arguments indicate that the debt tax-shield is not a first-order concern for small businesses opting for debt finance and an alternative theory of financing required.

The pecking-order theory of financing challenges another assumption of the M-M model, in which borrowers (business insiders) and lenders (outside investors) are privy to the same information (Myers, 1984). However, a large body of literature evidences an asymmetry of information; business owners have the benefits of knowledge about their own investment projects, and may therefore use this informational advantage to seek rents from external capital providers. In addition, small businesses, unlike listed firms, suffer from difficulties in signalling to the financial markets because of their liabilities of newness and smallness (e.g., their performance track-record is insufficient) (Carreira & Silva, 2010). Faced with such informational opacity, outside investors naturally require a higher rate of return to make up for the potential risks inherent in their informational disadvantage. Informational asymmetry thus creates a pecking-order of financing, in which small business owners try to meet their finance needs by first calling their own personal

capital before applying externally (e.g., seeking bank loans) (S. Bond & Meghir, 1994). In this pecking-order, personal capital is the most effective financing source because it minimizes issues related to agency costs (including moral hazard and adverse selection).[1] Bank loans are the second most popular financing source, while assessing external equity is a rare event for most SMEs (Müller & Zimmermann, 2009).

2.2. Financing sources in the context of small businesses

The literature on entrepreneurship recognizes that smaller firms and new ventures are not likely to be publicly traded or incorporated, which limits the sources of financing available to them (D. Cumming & Groh, 2018). In addition, the distinction between the business risk associated with venturing activities and the personal risk associated with owner-managers is blurred and may even be one and the same. As such, Gartner et al. (2012) suggest that to differentiate among several financing sources employed by small businesses, we simply need to classify them as either personal or external capital. Personal capital is the financing that comes from the owner-managers themselves through the use of personal savings, personal loans, or other sources of income. Some researchers even classify retained earnings from the business of interest as personal capital because this funding source is fully owned and under the control of entrepreneurs themselves (Bhaird, 2010; Hechavarria et al., 2016). External capital on the other hand can be any other financing sources that is not funded (owned) by the entrepreneurs, including, for example, bank loans, informal finance[2], and equity finance (e.g., venture capital, crowdfunding, angel capital).

The key difference distinguishing personal capital from external capital, according to Gartner et al. (2012), is that external capital is outside of the entrepreneurs' personal control, it requires some expenditure (whether in the form of finance, time, or effort) to obtain, and it entails contractual, legal,

[1] Moral hazard arises when actions taken by entrepreneurs is unobservable by outside investors but bring about benefits to entrepreneurs at the cost of investors. Adverse selection arises when entrepreneurs have more information than investors, making it is difficult for investors to distinguish “good” projects from “bad” projects (Hechavarria et al., 2016).

[2] The literature defines informal finance including loans from relatives and friends, credit from pawnshops and professional moneylenders, and savings from Rotating Savings and Credit Associations (Bao Duong & Izumida, 2002; Lainez, 2014).

or social obligations. As such, external capital is second-order financing, coming after personal capital. While the nature of various external financing sources and their influence on small businesses is closely examined in the recent literature (D. Cumming & Groh, 2018), the role of personal capital appears to attract scant interest in both the financial and entrepreneurship literature (Julie A. Elston & Audretsch, 2011). The gap in understanding about personal capital is ironically juxtaposed with the fact that personal capital is by far the largest source of capital for micro and small businesses (Parker, 2010).

2.3. Personal capital and financing constraints

An extensive literature predicts a positive and monotonic relation between investment and financing constraints (see Carreira and Silva (2010) for a review). However, Cleary et al. (2007) argue that this conventional wisdom is based on overly restrictive assumptions about firms' financing opportunities or ad hoc assumptions about the costs of external finance. Focusing on the effects of the availability of internal funds, they theoretically prove the non-monotonic investment curve, finding that firm investment is a U-shaped function of internal funds. Cleary et al. (2007) 's theoretical model is especially relevant to explaining the relationship between the personal capital share in the total value of investments and the financing constraints of small business. Specifically, entrepreneurs may adjust the use of their personal capital when making investment decisions, according to the degree of financing constraints faced by their ventures. For firms that are less financially constrained, an increase in the degree of financing constraints leads to a *decrease* in the use of entrepreneurs' personal capital. However, once a critical value of constraints has been reached, this relationship reverses so that an increase in financial constraints will prompt entrepreneurs to invest more personal capital in their ventures. This gamble for resurrection is even stronger when the ventures become financially distressed (i.e., reach the stage where the cash inflow is inadequate not just to fund the firm's investment projects, but also to meet its contractual obligations). Figure 1 graphically summarises this hypothesized relationship between personal capital and financing constraints.

<Figure 1 inserts here>

In general, the relationship between personal capital and financing constraints may be classified into two distinct segments: the negative relationship phase, when the degree of financing constraints is low, and the positive relationship phase, when the degree of financing constraints is high. With reference to two-phased relationship, we explain how the manager-owner's psychology and behaviour will invoke the paradox of investment timing in small businesses.

2.3.1. Over-optimism, risk-aversion and the reluctance to invest

When the degree of financing constraints slightly increases from an initially low level, a firm may find that it does not need to sacrifice many of its investment projects because the actual investment value achieved is not significantly less than the optimal investment value. Chaddad and Reuer (2009) suggest that small businesses cope with the existence of financing constraints by keeping their investment projects highly flexible. Financing constraints impose requirements that the investments of small firms be flexible to adjustments, and in many cases can be divided into several independent phases with each phase of investment serving as a fully functioning module that may be integrated subsequently with other modules (Baker & Nelson, 2005). The reason is that uncertainties significantly affect investment outlays. Specifically, the irreversibility of capital expenditures, insufficient experience and financial constraints are likely to motivate entrepreneurs to make step-wise investment outlays (Ghosal & Loungani, 2000). Moreover, Baker and Nelson (2005) also describe a possible approach to investments that small firms in resource-poor environments might consider, that is bricolage – making do with means and resources at hand. Meanwhile, larger firms' investment projects (thanks to sufficient capital) tend to be more capital-intensive, larger-scale and longer in terms of investment time.

Where the actual investment value is only marginally less than the optimal investment value, entrepreneurs may feel that there is no urgency to plug the financing gap with their personal capital. This reluctance to invest may be due to the following two reasons. First, there may be other low-cost financing sources available that would be easy to access as soon as the firm recovers some financial health. When a firm is not too far removed from the least financially constrained situation, its owner-manager may perceive that bank loans, trade credits, and working capital are within his/her reach

(Ben Mohamed, Amel, & Bouri, 2013). As long as the venture's financial health recovers to normal levels, possibly even in the next period, they can regain access to these financing sources and continue with their investment projects (Nishihara & Shibata, 2013). If the immediate alternative is to transfer personal capital from other (safer) investment opportunities (e.g., savings) to the business venture, the strategy of waiting and hoping for the best can appear more attractive.

The second reason for this wait-and-hope strategy is that, in a case where institutions are weak and property rights are unprotected, entrepreneurs would prefer to fund their venturing activities with external capital, directing their personal wealth to safer channels. Specifically, the institutional systems, including the general constitutional configurations and the governance quality of local governments in a developing country, may not be sufficiently "strong" (effective) to persuade entrepreneurs that their private properties are protected from appropriation (Efendic, Mickiewicz, & Rebmann, 2015). Insecure property rights protection thus reduces entrepreneurs' trust in governments, leading to a situation in which entrepreneurs are inclined to rely on external financing sources to fund their investments (Cull & Xu, 2005). In addition, Zhou (2013) demonstrates that it is only when entrepreneurs have sufficient confidence in the political system that they will be willing to increase reinvestments and reduce profit distributions.

In general, this combination of over-optimism and risk-aversion in the context of financing constraints sets the costs of risking personal capital in venturing activities at a higher level than the costs of reducing investment levels. Therefore, an increase in the degree of financing constraints becomes associated with a stronger hope of resurrection in the next period. Where entrepreneurs believe that financing constraints are currently insignificant, and that investment projects can wait until external capital is obtained, entrepreneurs may become more and more averse to risking their personal capital, leading to a negative association between personal capital and financing constraints.

Because entrepreneurs are reluctant to make in-time investments to maintain their ventures' financial health, there is a chance that the ventures will become increasingly financially constrained. Once the point is reached where financial distress becomes a serious issue for the venture, the entrepreneur may realize that the costs of not making the investment are now higher than the costs

of risking their own personal capital in it. This may lead to a situation in which entrepreneurs start to inject substantial amounts of personal capital into their businesses, in the hope that the ventures will survive and resurrect.

2.3.2. Gamble for resurrection

Figure 1 notes that when financing constraints reach a particular level, entrepreneurs start investing their personal capital in their businesses. It is noteworthy that firms suffering from significant financing constraints are likely to be financially distressed. The lack of sufficient capital to maintain daily operations and make the required investments may, after a certain point, reduce a small venture's ability to meet its contractual obligations (Pindado, Rodrigues, & de la Torre, 2006). When financing constraints cease to be an issue of *wait*-and-hope, entrepreneurs recognize that they need to *do*-and-hope. The more financially distressed the firms are, the more personal capital entrepreneurs are willing to invest, for the following reasons.

First, for entrepreneurs, the entrepreneurial career path promises maximal utility (or psychic satisfaction), and thus they have a strong motivation to maintain their ventures' survival and retain their preferred mode of psychological satisfaction (Douglas & Shepherd, 2000). Douglas and Shepherd (2002) further suggest that individuals' utility from any occupation, whether that be self-employed or employed, depends on the income produced (which depends in turn on ability), their decision-making control (independence), risk exposure, and the work effort required. People with greater managerial and entrepreneurial ability, a positive attitude to work (i.e., less aversion to the work effort required), who are more tolerant of risk-bearing, and who have a preference for independence (or decision-making control) are more likely to pursue the entrepreneurial career path.

Individuals will consider the differences in each of these factors when contemplating a career choice. But it is the sum of the utility and disutility from these sources that determines their career decisions (Douglas & Shepherd, 2000). Financial income is therefore only one determinant of venturing decisions and may not even be the most strongly influential one, with stronger weight often being attached to other non-financial factors such as a preference for independence and the

achievement of social status. As such, as soon as it becomes the case that their businesses are at risk of collapsing, entrepreneurs are more willing than anybody else to inject their personal capital into their ventures in the hope that conditions may improve and their ventures will survive and recover. This gamble for resurrection is conducted with the aim of maximizing entrepreneurial utility, even if the gamble may not result in a satisfactory financial outcome.

The second reason underpinning the gamble for resurrection may possibly be the limited liability nature of small businesses (Décamps & Faure-Grimaud, 2000). Unlike family companies or household businesses, which usually take the legal form of sole proprietorship where the owner-managers are personally accountable for the financial liability of their businesses, small companies typically take the legal form of limited liability to isolate business risks from the entrepreneur's personal wealth. Adopting this legal form is an important antecedent to obtaining more legal rights/operational support, to gaining access to additional business sectors and locales, and to facilitating access to external finance (Klapper, Laeven, & Rajan, 2006).

Referring to the limited liability nature of small businesses, Décamps and Faure-Grimaud (2000) describe the gamble for resurrection as an agency problem that arises when the entrepreneur-owners of a distressed firm decide to keep investing funds even though liquidation would have been the optimal solution. Continuing to operate allows the business to be exposed to future operating conditions that are uncertain but perhaps better. Entrepreneurs hope that a fortunate turn of events will push their ventures back into the black. With little left to lose, entrepreneurs who are protected by limited liability can thus, relatively safely, gamble for resurrection (Bhattacharjee & Han, 2014).

In sum, we expect that entrepreneurs will be reluctant to use their personal capital to make up a deficit in the optimal value of investments when their financing constraints are insignificant. This wait-and-hope strategy may exacerbate the constraints until the businesses become financially distressed. At that point, the owner-managers, driven by their entrepreneurial utility, have a strong motivation for injecting personal capital with the hope of resurrecting their failing business. The following proposition summarises our arguments:

Proposition: Personal capital is a U-shaped function of financing constraints.

Financing constraints cannot be directly observed. As such we need to approximate the degree of financing constraints using a proxy. Following Guariglia (2008), we classified financing constraints into two groups: internal financing constraints, and external financing constraints.

Internal financing constraints: this categorization classifies firms based on their internal funds, such as their cash flow or, more generally, the degree of internal financing constraints that they face. Compared to their peers (in the same industry and the same year), firms that are abundant in cash flow are less likely to encounter financing constraints than firms with unhealthy (e.g., negative) cash flow (S. Bond, 2003). It is noteworthy that the higher the level of cash flow, the *less* financially constrained firms are. Using cash flow as a proxy for internal financing constraints, we therefore propose the following hypothesis:

H1: *Personal capital is a U-shaped function of cash flow. Firms with the lowest and highest levels of cash flow use more personal capital to make investments than firms with a moderate level of cash flow.*

External financing constraints: this categorization uses firm size, measured by their total real assets, to approximate the degree of financing constraints that firms may encounter. Smaller firms typically face more severe problems of asymmetric information since they are more likely to suffer from idiosyncratic risk, having lower collateral values in relation to their liabilities as well as higher bankruptcy costs and short track records (Guariglia, 2008). These liabilities of smallness raise the costs of screening and distinguishing "good" investment projects from "bad" investment projects for the potential lenders. For this reason, the larger the firm size, the higher the likelihood that firms can successfully obtain external finance (e.g., bank loans), and thus the *less* financially constrained they are. Using firm size as a proxy for external financing constraints, we therefore propose the following hypothesis:

H2: *Personal capital is a U-shaped function of firm size (measured by total real assets). The smallest and largest firms use more personal capital to make investments than firms of an average size.*

3. Data and Methodology

3.1. Data

We employ the EAS conducted by Vietnam GSO to empirically test the proposed hypotheses. This dataset provides comprehensive and rich firm-level information including ownership and owners' characteristics, firm employment, investment, capital structure, and performance for manufacturing, mining, and service industries. The survey was first conducted in 2000 and since then it has been carried out annually on a national scale. As such, this is comprehensive and representative panel data showing the general characteristics of several types of businesses operating in Vietnam. The sample of surveyed firms keeps increasing, with a sharp expansion in the number of newly established businesses: from approximately 40,000 firms in 2000 to more than 500,000 firms in 2016. Details of the panel structure are presented in Appendix 1.

The EAS dataset employed in this study is largely unexplored.[3] One of the advantages of GSO data is that they are comprehensive and representative. Specifically, the sample size is large and involves different types of observations. However, because the surveys are modified annually, it is difficult to match between years. Moreover, the available data are usually impure, and require substantial cleaning before conducting rigorous analysis. To clean the data, all firms with meaningless accounting reports are excluded.[4] The outliers are controlled by censoring the top and bottom 1% of observations in each variable. In this study we select only private micro-firms and small and medium-sized companies, defined according to the Vietnam Enterprises Law, as the target observations. The final sample constitutes 1,485,520 firm-year observations from 2000 to 2016.

3.2. Variables and summary statistics

Dependent variable: Personal capital

[3] Recently, Tran (2019)and B. Nguyen, Mickiewicz, and Du (2018) make use of a subset of the data (2006-2012) to investigate the influence of local institutions on firm performance.

[4] The number of excluded firm-year observations are 147. Meaningless accounting reports include negative assets, negative or zero employees, and fixed assets greater than total assets. These errors were probably caused by input typos.

The primary dependent variable of interest in this study is personal capital. Specifically, the *Personal Capital* variable is the proportion of a firm's investment value sourced from entrepreneurs' self-raised finance, normalized by its total assets. It should be noted that entrepreneurs' self-finance is net of any informal and semi-formal borrowing. The personal capital variable investigated in this study is closely related to the concept of reinvestment used in the literature that examines listed corporations. Reinvestment is the value of profits retained for future development before dividends are paid to shareholders (Cull & Xu, 2005). In the context of the small businesses in our study, personal capital is self-reported by entrepreneurs in a survey question: "state the total amount of profits that your company reinvested plus the amount of additional personal wealth that you invested in your business last year". Using this item, our dependent variable captures both the profit-reinvestment and the additional equity investment from the existing owners. This measurement is consistent with the conventional definition of personal capital as entrepreneurs' "own" capital (which contrasts with external capital not "owned" by entrepreneurs) (Julie Ann Elston, Chen, & Weidinger, 2016).

Independent variables: Financing constraints

- Internal financing constraints:

Following Guariglia (2008), we use cash flow normalized by total assets as a proxy for internal financing constraints. In general, firms with a higher level of cash flow are less likely to be financially constrained than firms suffering from a lower level of cash flow. However, there is a situation in which some firms have negative cash flow without being financially distressed (Bhagat, Moyen, & Suh, 2005). This is because such firms may, for the sake of future development, deliberately hold their profits in terms of receivables and short-term financial investments rather than as cash (D'Espallier, Huybrechts, & Schoubben, 2014; Teal & Sivarama Krishnan, 2014). This study thus follows Bhagat et al. (2005) in classifying the degree of financing constraints using both the cash flow and profitability criteria. We account for the differences among industries and macro-socioeconomic heterogeneity across periods, by comparing each firm observation to their peers in the same industry and in the same year. Specifically, the following mutually exclusive dummy variables are constructed:

(i) *Distressed*, equal to 1 if firm i has a negative cash flow to capital ratio *and* a negative profit to capital ratio at time t, and equal to 0 otherwise.

(ii) *Potential*, equal to 1 if firm i has a negative cash flow to capital ratio *and* a positive profit to capital ratio at time t, and equal to 0 otherwise.

(iii) *Medium*, equal to 1 if firm i has a positive cash flow to capital ratio that falls below the 75th percentile of the distribution of the corresponding ratio (of firms in the same industry and in the same year).

(iv) *Cash-rich*, equal to 1 if firm i has a positive cash flow to capital ratio that falls above the 75th percentile of the distribution of the corresponding ratio (of firms in the same industry and in the same year).

- External financing constraints

We rank firm external financing constraints by their total real assets (this is also done on the basis of industry-year).[5] Specifically, firms with total real assets in the first quartile of the respective distributions by industry-year are labelled *Micro*; firms with real assets in the second quartile of the respective distributions by industry-year are labelled *Small*; for the third quartile, it is *Medium*, and for the highest quartile, *Large*.

Control variables

Firm age: Previous studies suggest that firm age is an important source of heterogeneity in firm investments (Anderson, Duru, & Reeb, 2012; Ding, Guariglia, & Knight, 2013; Tsai, Chen, Lin, & Hung, 2014). Older firms can reduce the liabilities of newness by accumulating financial, managerial, and social capital. A longer operating period also helps these firms to establish the trackable performance records that are crucial when applying for external loans. Therefore, this study sees firm age as an important factor affecting firm investments. *Firm age* is the number of years since the establishment.

[5] Asset values are deflated to 2010 prices using the official inflation rate.

Labour size: Labour size is one of the most important firm characteristics that may influence investment values (Aidis, Estrin, & Mickiewicz, 2012). As such, this study controls for the effect of firm size using the variable *Labour size,* which is measured by the natural log of the number of employees.

Asset structure: *Asset structure* is the fixed assets normalized by total assets, and serves as collaterals for bank loans. It is a proxy for informational asymmetry reduction between the lenders and the borrowers (Du et al., 2015). The higher the level of fixed assets, the easier it is for young and small firms to obtain bank loans.[6]

Regional time-invariant factors: Each region in Vietnam is allowed to establish its own economic institutions and execute its own regulatory arrangements (B. Nguyen et al., 2018). In order to take into account the geographical and socioeconomic differences across the country, a set of regional dummies are included as control variables in this study.

Investment opportunity: In the extant literature, the investment opportunities of listed firms are proxied by average q. For unlisted firms, some authors use the growth rate of revenue size (real sales) as valid control variables (Ayyagari, Demirgüç-Kunt, & Maksimovic, 2010; Cleary et al., 2007; Rahaman, 2011), while others interact industry dummies with year dummies to indirectly account for time-varying demand shocks at industry level (J. R. Brown & Petersen, 2009; Duchin, Ozbas, & Sensoy, 2010; Guariglia, Liu, & Song, 2011). Following the literature, this study controls for investment opportunities using the *Revenue growth* variable, which is the percentage change in real sales between two consecutive years, as well as a set of interaction terms between the industry and year dummies in the regressions.[7]

---

[6] Whether bank loans serve as a substitute for or a complement to personal capital remains a debate in the literature (B. Nguyen, 2019).

[7] D'Espallier and Guariglia (2015) identify three measures of investment opportunities suitable for unlisted firms. They then estimate firm-varying investment-cash flow sensitivities (ICFS) from reduced-form investment equations that include these measures, and compare them with those derived from a model that does not control for investment opportunities. They find that all models yield similar ICFS estimates. Their findings suggest that the ICFS of SMEs do not reflect investment opportunities, leading to the conclusion that the investment opportunities bias may have been overstated in the previous literature.

Productivity: The industrial economic literature suggests that unobserved productivity is an underlying factor that brings about firm heterogeneity (Ferguson, 1988; Nickell, 1978). In this study, following current small business literature, differences in firm productivity are controlled by (1) *Labour productivity*, measured by the ratio of the number of employees over real sales; and (2) the fixed effect in the regression, which can control for all firm-specific, time-invariant characteristics (Rahaman, 2011).

Table 1 shows the definition of variables and the summary statistics of the total sample (columns 1 - 3); the summary statistics classified by internal financing constraints (columns 4 - 7); and the summary statistics classified by external financing constraints (columns 8 - 11).

<Table 1>

Table 1 shows that the rate of personal capital investment is lowest for "medium" firms, i.e., firms with an average level of financing constraints. This initial statistic appears to support our proposition that the injection of personal capital is a U-shaped function of financing constraints. In terms of firm age and size, the statistics are consistent with the general stylized facts that younger and smaller firms are more likely to be financially constrained. Moreover, firms that are more financially constrained show a lower level of labour productivity, evidently demonstrating the importance of investment in boosting firm performance.

3.3. Model setting and estimation

The basic theoretical framework that underpins our work is the structure model of investment dynamics that derived from an assumption about adjustment costs, namely that capital cannot be adjusted immediately and without cost (Stephen Bond & Van Reenen, 2007)[8]. This is an extension of the basic *q-model* of investment. A large body of empirical work uses the partial adjustment model to characterize optimal investment behaviour by firms. The simple specifications of the model are given by:

$$(1)\ IF_t - IF_{t-1} = \varphi \times (IF_t^* - IF_{t-1})$$

[8] See also Abel and Eberly (1994, 1996)

$$(2)\ IF_t^* = \sum_{k=1}^{K} \gamma_k \Omega_{kt} + \varepsilon_t$$

where: IF_t represents firm's internal fund at time t; IF_t^* is an optimal target investment value, which is not readily observable, but depends on a set of K factors, denoted by Ω_{kt}, therefore in the long run IF tends to converge to IF^* level; φ reflects the rate at which such convergence occurs; and ε_t is error term. Specifically, φ measures the speed of adjustment and lies between 0 and 1. The closer it is to 1, the faster the speed of adjustment.

Combining (1) and (2) and the conventional investment model from the literature (Cull & Xu, 2005; Guariglia, 2008; Zhou, 2017), we propose an expanded reduced-form of personal capital investment-financing equation which is subject to the degree of internal and external financing constraints such that:

$$\begin{aligned}(3)\ \Delta IF_{it} = {} & \beta_0 + \beta_1(IF_{i,t-1}) + \beta_2(Firmage_{it}) + \beta_3(Lasize_{it}) + \beta_4(Assetstruc_{it}) \\ & + \beta_5(Productivity_{it}) + \beta_6(Revgrowth_{it}) + \beta_7(InternalFC_{it}) + \beta_8(ExternalFC_{it}) \\ & + v_j + v_t + v_{jt} + v_g + v_i + \mu_{it}\end{aligned}$$

where: i denotes an individual firm, and t a year. Therefore, ΔIF_{it} is the rate of investments sourced from personal capital that firm i makes in year t. The terms $(Firmage_{it}), (Assetstruc_{it}), (Lasize_{it}), and\ (Productivity_{it})$ are firm-level characteristics corresponding to firm age, asset structure, labour size, and labour productivity, respectively. $(InternalFC_{it})$ and $(ExternalFC_{it})$ are the two sets of corresponding dummies that represent the degree of internal and external financing constraints.

We are interested in β_7 and β_8 since they show the association between financing constraints and the use of personal capital. It is expected that the firms that are the most and least financially constrained use more personal capital than the firms with an average level of financing constraints.

To control for investment opportunities, we use revenue growth $(Revgrowth_{it})$. In addition, we also use industry dummies, v_j; year dummies, v_t; and their interaction terms, v_{jt}, to take investment opportunities into account at the level of industry-year. To control for regional

socioeconomic factors that may influence local entrepreneurs' investment decisions, we include v_g: a set of regional dummies. The term v_i covers firm-specific time-invariant characteristics, which are controlled by the fixed effect/first difference estimator in the regressions. Finally, μ_{it} is the idiosyncratic error.

We employ the system general method of moment (GMM) to estimate equation (3). The GMM approach could deal, to some extent, with the potential endogeneity in our model that may arise because firm-level characteristics (except for firm age) may be endogenous since an additional unit of investment may improve firm financial performance, labour productivity, and bring about more business opportunities (i.e., the reverse effects) (Guariglia & Liu, 2014). As such, we treat the two sets of independent variables (internal financing constraints, and external financing constraints) together with labour size, asset structure, labour productivity, and revenue growth as endogenous variables.

GMM addresses potential endogeneity using the lagged terms of these endogenous variables as instrumental variables (Blundell & Bond, 1998). In the difference equations, we use the lagged 3 to 4-year terms to instrument the endogenous variables. The specification tests suggest that this length of lag is sufficiently deep to reduce the correlation between endogenous variables and the error terms, while at the same time remaining relevant to the current terms of these endogenous variables and thereby remaining valid instrumental variables. The system GMM, moreover, corrects any possible finite sample bias by omitting informative moment conditions through the use of differences as instruments for level equations. In level equations, we use the difference of endogenous variables lagged 2 to 3-years as valid instruments. Finally, we conduct two specification tests: a second-order autocorrelation test, AR(2) in the transformed equations to examine whether the level equations are serially correlated at order 1; and the Hansen (J) test for the overidentifying restrictions.

However, we are aware that endogeneity is more than a problem of econometrics (especially in the structural equations) but also a problem of theory. For example, the separation of investing and financing decisions articulated in finance theory strongly relies on the assumption of perfect

capital market. However, the real financial world suggests that they are highly interrelated and jointly determined (C.-M. Lin, Phillips, & Smith, 2008; Peterson & Benesh, 1983; Stewart & Majluf, 1984). Therefore, using economically meaningful and exogenous instruments is a better solution than using lagged variables in the system GMM. However, the scant availability of data prevents us from including exogenous instruments. Also, it is prevalent in empirical business and finance research that the chosen instruments turn out to be some other endogenous variables (Reeb, Sakakibara, & Mahmood, 2012). We document this methodological aspect as one of the limitations in our paper and suggest avenues for future research in Section 5. In order to improve the validity of our empirical testing of models, robustness test across different estimation techniques and specifications will be conducted with results presented in Appendix 2.

4. Empirical Results and Discussion

The regression results are presented in Table 2. The variance inflation factor (VIF) tests suggest there is no significant multicollinearity in our specifications. For the sake of completeness, we also report the results using OLS and fixed effect (FE) estimators. All aforementioned endogenous variables are lagged 1 year in these two specifications. Columns 1 to 3 investigate the effect of internal financing constraints while columns 4 to 6 examine the effect of external financing constraints. The specification tests suggest that there are no serious issues with our modelling. The Hansen test p-values suggest that the null hypothesis of valid instruments cannot be rejected. The AR(2) results clearly indicate that the moment conditions of the models meet the requirements relatively well. In columns (1) and (4), the lag of the dependent variable is statistically significant at the level of 1% which confirms the presence of adjustment cost and justifies the selection of the dynamic models and system GMM. The estimated coefficients on the lagged dependent variable suggest that firms will dynamically adjust their financing and investment decisions when faced with different regimes in internal and external financing constraints.

<Table 2>

The coefficients associated with the three dummies of internal financing constraints are positive and statistically significant, indicating that the use of personal capital for investments by

firms in the Distressed, Potential, and Cash-rich groups is greater than the use of personal capital by firms in the benchmark Medium group. Similarly, the coefficients associated with the three dummies of external financing constraints are positive and statistically significant, indicating that the use of personal capital for investments by firms in the Micro, Small, and Large groups is greater than the use of personal capital by firms in the benchmark Medium group. This finding indicates that the most and the least financially constrained firms use more personal capital than those firms who have an average level of financing constraints. As such, hypotheses H1 and H2 are fully supported.

The magnitudes of coefficients in Table 2 reveal that financially distressed and cash-rich firms increase their investment of personal capital by 4.8% and 0.85% greater than the Medium group of non-distressed firms, ceteris paribus. The coefficients associated with the three dummies of external financing constraints also suggest similar implications. Specifically, the uses of personal capital by firms in the Micro, Small and Large groups are greater than that of the benchmark (Medium group) by 11.9%, 1.9% and 1.58%, respectively.

The higher marginal effects of financial constraints than that of surplus finance on the use of personal capital provide compelling evidence about the "gamble of resurrections" explaining that facing serious financial distress, entrepreneurs have strong motivations to invest their personal capital to maintain their firms' survivals. However, it is also noteworthy that such psychological behaviour may become less significant in foreseeable future when technological and financial innovations facilitate the development of alternative sources of external finance such as crowdfunding (Blaseg, Cumming, & Koetter, 2020).

Equity crowdfunding is emerging as a "financing escalator" to mitigate market frictions and financial constraints for SMEs (Pekmezovic & Walker, 2016) and is considered as an online extension of traditional financing by friends and family (Best, Neiss, Swart, Lambkin, & Raymond, 2013). Whereas crowdfunding markets are evolving in some countries, regulatory framework and institutional issues have temporarily restricted its development in others (Vismara, 2016). The contemporary literature mainly investigates crowdfunding data from advanced economies, concentrating in North America and Europe while emerging markets' data have been scantly used. It

is observable that developing markets are lagging in crowdfunding. Schwienbacher and Larralde (2010) review key factors that influence the use of crowdfunding, including the lack of pre-existing resources, information asymmetries, risk and moral hazard, organizational form, control preferences, regulatory framework and legal issues.

Specifically, investing in developing countries is notoriously risky because informational asymmetry problems are potentially higher (Menkhoff, Neuberger, & Suwanaporn, 2006) and legal issues of equity issuance to protect investors are insufficient that affect risk-taking behaviour of the entrepreneurs. In a study about informal institutions using raw data from blogs, interviews and public statements of key decision-makers of equity crowdfunding across countries, Kshetri (2018) shows that perceptions of stigma and humiliation associated with failures in start-up ventures and low social trust (i.e. lack of trust in online transactions and strangers) have hindered the investors' engagement in crowdfunding in Asian Pacific region.

From the demand side, Walthoff-Borm, Schwienbacher, and Vanacker (2018) prove that firms go for equity crowdfunding platforms as a "last resort" – that is, when they lack internal funds and additional debt capacity. Their findings lend support to the pecking order theory of funding preference: internal funds (the so called "3Fs" – founders, family, and friends), bank lending and then equity source of finance. Additionally, R. Brown, Mawson, Rowe, and Mason (2015) add that demands for equity crowdfunding are higher in innovative young firms led by growth-oriented entrepreneurs who were highly skilled entrepreneurial 'early adopters'. However, in many developing countries, SMEs are dominated by family businesses that suffer from entrepreneurial skill shortage. Raymond (2015) also provides empirical evidence showing that crowdfunding is much more challenging than most entrepreneurs anticipate because it requires significant human, time and financial resources. Therefore, crowdfunding may take longer to gain a foothold in developing countries while it is now on the verge of becoming a "substitute seed financing source for entrepreneurial ventures" in many advanced economies (Kshetri, 2018).

Like other emerging market economies, these institutional and cultural constraints make crowdfunding a less popular funding channel to entrepreneurs in Vietnam, compared to conventional

financing such as bank loans. There are four biggest crowdfunding platforms in Vietnam (Firststep, Betado, Comicola and Funstarter) founded since 2014-2015. However, they are mainly reward/donation-based model to obtain a very small amount of money for creative ideas in arts and music while other types of crowdfunding, such as lending-based and equity-based, are much less popular and are not employed by entrepreneurs as an effective means to call for investment (see Appendix 3 for a comprehensive review of the literature on equity crowdfunding).

Figure 2 and Figure 3 illustrate the U-shape effects of internal and external financing constraints on personal capital. Accordingly, when financing constraints are at a lower than critical level, entrepreneurs reduce their investment of personal capital, probably because they believe that the constraints are insignificant and temporary, and may possibly even vanish in the next period. Then, once a certain level of financial distress has been reached and financing constraints have become more serious, entrepreneurs start investing their personal capital in the hope of resurrection, even though the decision appears to have been made too late to ensure business survival. Taken as a whole, this finding thus contradicts the common wisdom that a constrained firm is more likely to rely on external financing (S Bond, Soderbom, & Wu, 2011).

<Figures 2 and 3>

Regarding the control variables, firm age and labour size are negatively associated with the use of personal capital, suggesting that younger and smaller firms (in terms of the number of employees) use more personal capital than older and larger firms do. An interesting point is that when we use firm age and labour size as indicators of external financing constraints when the results also confirm a U-shaped function of personal capital. However, to be consistent with the literature, we use firm age and labour size as control variables and employ real total assets as an indicator of external financing constraints. External lenders (e.g., banks) are more concerned with a venture's financial size (assets) rather than labour size (employees) when they make financing decisions.

We also conduct a set of robustness checks, including: (1) using continuous variables of financing constraints; (2) using observations with reducing cash flow/real assets only; and (3) using

sub-samples of before and after the 2008 global financial crisis. The results are consistent with our main findings and are reported in Appendix 2.

5. Concluding Remarks

5.1. Implications

This paper was motivated by Cleary et al. (2007) 's arguments concerning the incompleteness of the conventional theoretical explanation for the monotonic relation between internal funds and firm investment. We employ a dynamic investment model and GMM estimation on a comprehensive surveyed dataset of SMEs in Vietnam to investigate firm investment decisions under different levels of internal and external financing constraints, with an emphasis on the role of personal capital. The empirical results clearly demonstrate that there are two distinct phases in the firm financing and investment behaviour cycle: namely, a period when the degree of financing constraints is low where the relationship is negative, and a phase of positive relationship when the degree of financing constraints is high. This provides strong support for the U-shaped investment curve hypothesis in the context of small businesses and new ventures.

We explained the initial "negative phase" in terms of the entrepreneur's "wait-and-hope" strategy; here, the entrepreneur is over-optimistic about the firm's financial health and its capacity to overcome a (hopefully) temporarily low level of financing constraints. This optimistic perception induces entrepreneurs to over-estimate their ability to deal with unknown events while overlooking the uncertainties in the surrounding environment (Cassar, 2010). The result is that they are inclined to make higher forecasts than they can realistically achieve. There are two possible explanations for this over-optimism. The first holds that individuals who follow entre/intrapreneurship share traits such as a tendency to be less formal and rational in their thinking, while favouring instinctual deductions that will inevitably produce errors in expectations (McMullen, Bagby, & Palich, 2008). The second reason points to the nature of entre/intrapreneurship that requires individuals to make decisions quickly and without sufficient and clear information (Corbett, 2005). In both cases, individuals have substantial room for being blinded by personal inferences that are a function of their

hopes, beliefs, and expectations. These factors represent the levels of individuals' desires and aspirations for achievements rather than their rational evaluations of their probability of success (Baron, 2007; Baruch, 1975).

However, reluctance to make an unpalatable investment decision may result in the financial position of the firm deteriorating, and inevitably results in firms becoming more and more financially distressed. Once this occurs, financing constraints cease to be an issue of *wait*-and-hope but rather, prompt entrepreneurs to invest their personal capital to maintain the survival of their ventures. Therefore, the "*do*-and-hope" strategy is aggressively employed as a gamble for resurrection. This explains the "positive phase" of the firm investment-financing constraints relationship seen in our empirical results.

Further, we find that the macro-economic uncertainties consequent to the GFC sharpen entrepreneurial motivation to use personal capital investment. As was explained in (Campello, Graham, & Harvey, 2010; Ivashina & Scharfstein, 2010), there was a significant cut and run of short-term loans and credit lines from the commercial banks during the liquidity tension associated with the disruption to the international credit market. Firms noticed that accessing bank credit and other sources of external finance became more difficult and expensive, increasing the likelihood of entrepreneurs relying on their personal capital to prop up their firms.

While our findings about the U-shaped investment curve are not unique, being fairly consistent with Cleary et al. (2007) and Guariglia (2008), we put the story in the context of a developing economy where the financing constraints are much more pronounced than in the mature markets and developed countries. While SMEs are crucial to driving economic development during a developing country's transitioning and liberalizing economic process, the obstacles to accessing bank loans and other external sources of finance drive entrepreneurs to use their own funds and, probably, informal credit. Our paper, therefore, provides new evidence and creates a template for understanding the paradox of investment timing for small businesses and new ventures in the emerging market economies.

5.2. Limitations and avenues for future research

This study is not without limitations that should be acknowledged, but they also provide potential avenues for future research. First, endogeneity is one of the biggest concerns in modelling increasingly complex relationships of firms' financing decisions, and we try to mitigate this problem with relatively appropriate estimation technique of GMM. However, Coles, Lemmon, and Meschke (2012) emphasize that the customary econometric remedies for endogeneity and causation are not very effective in empirical corporate finance. For future work, natural experiments using a plausibly exogenous source of variation in the independent variables may become a more rigorous technique to deal with endogeneity and help to build a stronger theory (Gippel, Smith, & Zhu, 2015).

Second, it is noteworthy that the generalisability of findings in this study is contingent on institutional configurations. We expect that the results of our study could be extended, with substantial caution, to countries that share similar institutional settings to Vietnam, especially in the following two dimensions. The first dimension is the availability of alternative external financing sources. Entrepreneurs in developing countries, where alternative external financing sources for small businesses are limited, may be forced to use their personal wealth for investments. Meanwhile, in countries where alternative financing sources such as crowdfunding and peer-to-peer lending are available, we may not find such behaviour of entrepreneurs because these innovative fundraising channels provide potential solutions to SMEs' funding problems (Pekmezovic & Walker, 2016). In this institutional setting, the substitution effects and/or moderating effects of business transition associated with "fin-tech" revolutions on the relationship between personal capital and financial constraints should be explored in future research. This once again reinforces our earlier suggestion about the implementation of natural experiments that involve using naturally occurring exogenous events to compile evidence and progress theory.

The second dimension is the informal institutions/culture that influence the utility entrepreneurs attach to the survival of their business ventures. Entrepreneurs are more willing to "gamble for resurrection" in countries that share similar culture and norms with Vietnam, which highlights the importance of "mianzi" – a Chinese concept that indicates the social costs of failure put on entrepreneurs, including broken social networks, discriminations from family and relatives, and limited support to re-start a business in the future (Ko & Liu, 2017; L.-H. Lin, 2011; Olwen, 2011). In

this saying, the "gamble for resurrection" behaviour may not be found in institutional settings where failure is more socially accepted.

Another limitation of this study is its presumption that entrepreneurs are able to invest more of their personal wealth into their business ventures in the case of being financially constrained. However, this decision is contingent on some factors such as the quality of the projects, social ties that the entrepreneurs have (networks), basic endowment levels, and the extent to which the entrepreneurs used personal resources to get started of the ventures. While the literature has confirmed the direct relationship between these factors and investment decisions of small businesses (Le Van, Nguyen, Nguyen, & Simioni, 2018; Vos & Vos, 2000), their influences on the use of entrepreneurs' personal wealth to make investments remain unexplored. Given the lack of well-established literature/theories to explain the use of personal capital of entrepreneurs, there could be alternative explanations for our empirical findings. Future research, therefore, may want to investigate the contextual precedents of the use of personal capital in a more general perspective. This strand of research helps answer an important question "in which circumstances do entrepreneur use personal capital for the ventures' investments."

References

Abdullah, S., & Oseni, U. A. (2017). Towards a shari'ah compliant equity-based crowdfunding for the halal industry in Malaysia. *International journal of business and society, 18*(S1), 223-240.

Ahlers, G. K., Cumming, D., Günther, C., & Schweizer, D. (2015). Signaling in equity crowdfunding. *Entrepreneurship theory and practice, 39*(4), 955-980.

Aidis, R., Estrin, S., & Mickiewicz, T. (2012). Size matters: entrepreneurial entry and government. *Small Business Economics, 39*(1), 119-139.

Anderson, R. C., Duru, A., & Reeb, D. M. (2012). Investment policy in family controlled firms. *Journal of Banking and Finance, 36*(6), 1744-1758. doi:10.1016/j.jbankfin.2012.01.018

Angerer, M., Brem, A., Kraus, S., & Peter, A. (2017). Start-up funding via equity crowdfunding in Germany: A qualitative analysis of success factors. *The Journal of Entrepreneurial Finance (JEF), 19*(1), 1-34.

Ayyagari, M., Demirgüç-Kunt, A., & Maksimovic, V. (2010). Formal versus Informal Finance: Evidence from China. *Review of Financial Studies, 23*(8), 3048-3097.

Baker, T., & Nelson, R. E. (2005). Creating Something from Nothing: Resource Construction through Entrepreneurial Bricolage. *Administrative Science Quarterly, 50*(3), 329-366. doi:10.2189/asqu.2005.50.3.329

Bao Duong, P., & Izumida, Y. (2002). Rural Development Finance in Vietnam: A Microeconometric Analysis of Household Surveys. *World Development, 30*(2), 319-335. doi:https://doi.org/10.1016/S0305-750X(01)00112-7

Baron, R. A. (2007). Behavioral and cognitive factors in entrepreneurship: entrepreneurs as the active element in new venture creation. *Strategic Entrepreneurship Journal, 1*(1-2), 167-182. doi:10.1002/sej.12

Baruch, F. (1975). Hindsight is not equal to foresight: The effect of outcome knowledge on judgment under uncertainty. *Journal of Experimental Psychology: Human Perception and Performance, 1*(5), 288-299.

Ben Mohamed, E., Amel, B., & Bouri, A. (2013). Investment Cash Flow Sensitivity and Managerial Optimism: A Literature Review via the Classification Scheme Technique. *Review of Finance and Banking, 5*(1), 7-26. doi:http://www.rfb.ase.ro

Best, J., Neiss, S., Swart, R., Lambkin, A., & Raymond, S. (2013). *Crowdfunding's potential for the developing world*. Retrieved from

Bhagat, S., Moyen, N., & Suh, I. (2005). Investment and internal funds of distressed firms. *Journal of Corporate Finance, 11*(3), 449-472. doi:http://dx.doi.org/10.1016/j.jcorpfin.2004.09.002

Bhaird, C. m. a. (2010). The Modigliani–Miller proposition after fifty years and its relation to entrepreneurial finance. *Strategic Change, 19*(1/2), 9-28. doi:10.1002/jsc.855

Bhattacharjee, A., & Han, J. (2014). Financial Distress of Chinese Firms: Microeconomic, Macroeconomic and Institutional Influences. *China Economic Review, 30*(1), 244-262. doi:http://www.sciencedirect.com/science/journal/1043951X

Blaseg, D., Cumming, D., & Koetter, M. (2020). Equity Crowdfunding: High-Quality or Low-Quality Entrepreneurs? *Entrepreneurship theory and practice*, 1042258719899427.

Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics, 87*(1), 115-143.

Bond, S. (2003). Financial Factors and Investment in Belgium, France, Germany, and the United Kingdom: A Comparison Using Company Panel Data. *Review of Economics and Statistics, 85*(1), 153-165. doi:http://www.mitpressjournals.org/loi/rest

Bond, S., & Meghir, C. (1994). Financial constraints and company investment. *Fiscal Studies, 15*(2), 1-18.

Bond, S., Soderbom, M., & Wu, G. L. (2011). *The Effects of Financing Constraints on Firm Investment: A Structural Econometric Analysis.* Paper presented at the Royal Economic Society Annual Conference, Royal Holloway, University of London, United Kingdom.

Bond, S., & Van Reenen, J. (2007). Microeconometric models of investment and employment. *Handbook of econometrics, 6*, 4417-4498.

Brown, J. R., & Petersen, B. C. (2009). Why has the investment-cash flow sensitivity declined so sharply? Rising R&D and equity market developments. *Journal of Banking & Finance, 33*(5), 971-984. doi:10.1016/j.jbankfin.2008.10.009

Brown, R., Mawson, S., & Rowe, A. (2019). Start-ups, entrepreneurial networks and equity crowdfunding: A processual perspective. *Industrial Marketing Management, 80*(Jul), 115-125.

Brown, R., Mawson, S., Rowe, A., & Mason, C. (2015). *Harnessing the Crowd: The Demand-Side Dynamics of Equity Crowdfunding in Nascent Entrepreneurial Ventures*. University of St Andrews. University of St Andrews.

Brown, R., Mawson, S., Rowe, A., & Mason, C. (2018). Working the crowd: Improvisational entrepreneurship and equity crowdfunding in nascent entrepreneurial ventures. *International Small Business Journal, 36*(2), 169-193.

Campello, M., Graham, J. R., & Harvey, C. R. (2010). The real effects of financial constraints: Evidence from a financial crisis. *Journal of Financial Economics, 97*(3), 470-487.

Carreira, C., & Silva, F. (2010). No Deep Pockets: Some Stylized Empirical Results on Firms' Financial Constraints. *Journal of Economic Surveys, 24*(4), 731-753. doi:http://onlinelibrary.wiley.com/journal/10.1111/%28ISSN%291467-6419/issues

Cassar, G. (2010). Are individuals entering self-employment overly optimistic? an empirical test of plans and projections on nascent entrepreneur expectations. *Strategic Management Journal, 31*(8), 822-840.

Chaddad, F. R., & Reuer, J. J. (2009). Investment dynamics and financial constraints in IPO firms. *Strategic Entrepreneurship Journal, 3*(1), 29-45.

Cleary, S., Povel, P., & Raith, M. (2007). The U-Shaped Investment Curve: Theory and Evidence. *Journal of Financial & Quantitative Analysis, 42*(1), 1-39.

Coles, J. L., Lemmon, M. L., & Meschke, J. F. (2012). Structural models and endogeneity in corporate finance: The link between managerial ownership and corporate performance. *Journal of Financial Economics, 103*(1), 149-168.

Corbett, A. (2005). Experiential learning within the process of opportunity identification and exploitation. *Entrepreneurship: Theory and Practice, 29*(4), 473-491.

Cull, R., & Xu, L. C. (2005). Institutions, Ownership, and Finance: The Determinants of Profit Reinvestment among Chinese Firms. *Journal of Financial Economics, 77*(1), 117-146. doi:http://www.sciencedirect.com/science/journal/0304405X

Cumming, D., & Groh, A. P. (2018). Entrepreneurial Finance: Unifying Themes and Future Directions. *Journal of Corporate Finance, 50*(2018), 538-555.

Cumming, D., Meoli, M., & Vismara, S. (2019). Does equity crowdfunding democratize entrepreneurial finance? *Small Business Economics, Article in Press*, 1-20.

Cumming, D. J., Leboeuf, G., & Schwienbacher, A. (2017). Crowdfunding cleantech. *Energy Economics, 65*(Jun), 292-303.

D'Espallier, B., & Guariglia, A. (2015). Does the investment opportunities bias affect the investment–cash flow sensitivities of unlisted SMEs? *European Journal of Finance, 21*(1), 1-25. doi:10.1080/1351847X.2012.752398

D'Espallier, B., Huybrechts, J., & Schoubben, F. (2014). Why do firms save cash from cash flows? Evidence from firm-level estimation of cash-cash flow sensitivities. *Accounting & Finance, 54*(4), 1125-1156. doi:10.1111/acfi.12027

Décamps, J.-P., & Faure-Grimaud, A. (2000). Bankruptcy costs, ex post renegotiation and gambling for resurrection. *Finance, 21*(2), 71-84.

Dell, M., Lane, N., & Querubin, P. (2018). The Historical State, Local Collective Action, and Economic Development in Vietnam. *Econometrica, 86*(6), 2083-2122. doi:10.3982/ECTA15122

Ding, S., Guariglia, A., & Knight, J. (2013). Investment and Financing Constraints in China: Does Working Capital Management Make a Difference? *Journal of Banking and Finance, 37*(5), 1490-1507. doi:http://www.sciencedirect.com/science/journal/03784266

Douglas, E. J., & Shepherd, D. A. (2000). Entrepreneurship as a utility maximizing response. *Journal of business venturing, 15*(3), 231-251. doi:http://dx.doi.org/10.1016/S0883-9026(98)00008-1

Douglas, E. J., & Shepherd, D. A. (2002). Self-employment as a career choice: attitudes, entrepreneurial intentions, and utility maximization. *Entrepreneurship: Theory and Practice, 26*(3), 81-90.

Du, J., Guariglia, A., & Newman, A. (2015). Do Social Capital Building Strategies Influence the Financing Behavior of Chinese Private Small and Medium-Sized Enterprises? *Entrepreneurship: Theory & Practice, 39*(3), 601-631. doi:10.1111/etap.12051

Duchin, R., Ozbas, O., & Sensoy, B. A. (2010). Costly External Finance, Corporate Investment, and the Subprime Mortgage Credit Crisis. *Journal of Financial Economics, 97*(3), 418-435. doi:http://www.sciencedirect.com/science/journal/0304405X

Efendic, A., Mickiewicz, T., & Rebmann, A. (2015). Growth aspirations and social capital: Young firms in a post-conflict environment. *International Small Business Journal, 33*(5), 537-561. doi:10.1177/0266242613516987

Elston, J. A., & Audretsch, D. B. (2011). Financing the Entrepreneurial Decision: An Empirical Approach Using Experimental Data on Risk Attitudes. *Small Business Economics, 36*(2), 209-222. doi:http://link.springer.com/journal/volumesAndIssues/11187

Elston, J. A., Chen, S., & Weidinger, A. (2016). The Role of Informal Capital on New Venture Formation and Growth in China. *Small Business Economics, 46*(1), 79-91. doi:https://link.springer.com/journal/volumesAndIssues/11187

Estrin, S., Gozman, D., & Khavul, S. (2018). The evolution and adoption of equity crowdfunding: entrepreneur and investor entry into a new market. *Small Business Economics, 51*(2), 425-439.

Ferguson, P. R. (1988). *Industrial economics : issues and perspectives*. Basingstoke: Macmillan Education.

Gartner, W. B., Frid, C. J., & Alexander, J. C. (2012). Financing the Emerging Firm. *Small Business Economics, 39*(3), 745-761. doi:https://link.springer.com/journal/volumesAndIssues/11187

Ghosal, V., & Loungani, P. (2000). The Differential Impact of Uncertainty on Investment in Small and Large Businesses. *The Review of Economics and Statistics, 82*(2), 338-344.

Gippel, J., Smith, T., & Zhu, Y. (2015). Endogeneity in accounting and finance research: natural experiments as a state-of-the-art solution. *Abacus, 51*(2), 143-168.

Guariglia, A. (2008). Internal financial constraints, external financial constraints, and investment choice: Evidence from a panel of UK firms. *Journal of Banking & Finance, 32*(9), 1795-1809.

Guariglia, A., & Liu, P. (2014). To What Extent Do Financing Constraints Affect Chinese Firms' Innovation Activities? *International Review of Financial Analysis, 36*(12), 223-240. doi:http://www.sciencedirect.com/science/journal/10575219

Guariglia, A., Liu, X., & Song, L. (2011). Internal Finance and Growth: Microeconometric Evidence on Chinese Firms. *Journal of Development Economics, 96*(1), 79-94. doi:http://www.sciencedirect.com/science/journal/03043878

Hamilton, R. T., & Fox, M. A. (1998). The financing preferences of small firm owners. *International Journal of Entrepreneurial Behavior & Research, 4*(3), 239-248.

Hechavarria, D. M., Matthews, C. H., & Reynolds, P. D. (2016). Does Start-Up Financing Influence Start-Up Speed? Evidence from the Panel Study of Entrepreneurial Dynamics. *Small Business Economics, 46*(1), 137-167. doi:https://link.springer.com/journal/volumesAndIssues/11187

Hornuf, L., & Neuenkirch, M. (2017). Pricing shares in equity crowdfunding. *Small Business Economics, 48*(4), 795-811.

Hornuf, L., Schmitt, M., & Stenzhorn, E. (2018). Equity crowdfunding in Germany and the United Kingdom: Follow-up funding and firm failure. *Corporate Governance: An International Review, 26*(5), 331-354.

Hornuf, L., & Schwienbacher, A. (2018). Market mechanisms and funding dynamics in equity crowdfunding. *Journal of Corporate Finance, 50*(Jun), 556-574.

Ivashina, V., & Scharfstein, D. (2010). Bank lending during the financial crisis of 2008. *Journal of Financial Economics, 97*(3), 319-338.

Jovanovic, B. (1982). Selection and the Evolution of Industry. *Econometrica, 50*(3), 648-670.

Klapper, L., Laeven, L., & Rajan, R. (2006). Entry Regulation as a Barrier to Entrepreneurship. *Journal of Financial Economics, 82*(3), 591-629. doi:http://www.sciencedirect.com/science/journal/0304405X

Kleemann, F., Voß, G., & Rieder, K. (2008). Un (der) paid Innovators. The Commercial Utilization of Consumer Work through Crowdsourcing. *Science, Technology & Innovation Studies, 4*(1), 5-26.

Kleinert, S., & Volkmann, C. (2019). Equity crowdfunding and the role of investor discussion boards. *Venture Capital, 21*(4), 327-352.

Ko, W. W., & Liu, G. (2017). A Typology of Guanxi-Based Governance Mechanisms for Knowledge Transfer in Business Networks of Chinese Small and Medium-Sized Enterprises. *Group & Organization Management, 42*(4), 548-590. doi:10.1177/1059601115627942

Kshetri, N. (2018). Informal institutions and Internet-based equity crowdfunding. *Journal of International Management, 24*(1), 33-51.

Lainez, N. (2014). Informal Credit in Vietnam: A Necessity Rather Than an Evil. *Journal of Southeast Asian Economies, 31*(1), 147-154. doi:http://www.iseas.edu.sg/flagship-publications/journal-of-southeast-asian-economies

Le Van, C., Nguyen, A. N., Nguyen, N. M., & Simioni, M. (2018). Growth strategy with social capital, human capital and physical capital—Theory and evidence: The case of Vietnam. *Journal of Public Economic Theory, 20*(5), 768-787.

Li, J. (2016). Equity crowdfunding in China: Current practice and important legal issues. *Asian Business Lawyer, 18*(Fall), 59-132.

Li, Y., Cao, H., & Zhao, T. (2018). Factors affecting successful equity crowdfunding. *Journal of Mathematical Finance, 8*(02), 446.

Liao, C., Zhu, Y., & Liao, X. (2015). The role of internal and external social capital in crowdfunding: Evidence from China. *Revista de cercetare si interventie socialâ, 49*(1), 187-204.

Lin, C.-M., Phillips, R. D., & Smith, S. D. (2008). Hedging, financing, and investment decisions: Theory and empirical tests. *Journal of Banking & Finance, 32*(8), 1566-1582.

Lin, L.-H. (2011). Cultural and Organizational Antecedents of Guanxi: The Chinese Cases. *Journal of Business Ethics, 99*(3), 441-451. doi:10.1007/s10551-010-0662-3

Linh, D. H. (2019). Impacts of founder on the success of crowdfunding in vietnam. *Journal of Economics and Business, 2*(2), 356-362.

Löher, J. (2017). The interaction of equity crowdfunding platforms and ventures: an analysis of the preselection process. *Venture Capital, 19*(1-2), 51-74.

Lukkarinen, A., Teich, J. E., Wallenius, H., & Wallenius, J. (2016). Success drivers of online equity crowdfunding campaigns. *Decision Support Systems, 87*(Jul), 26-38.

Mahmood, A., Luffarelli, J., & Mukesh, M. (2019). What's in a logo? The impact of complex visual cues in equity crowdfunding. *Journal of business venturing, 34*(1), 41-62.

Mamonov, S., & Malaga, R. (2018). Success factors in Title III equity crowdfunding in the United States. *Electronic Commerce Research and Applications, 27*(Jan-Feb), 65-73.

McMullen, J. S., Bagby, D. R., & Palich, L. E. (2008). Economic Freedom and the Motivation to Engage in Entrepreneurial Action. *Entrepreneurship: Theory & Practice, 32*(5), 875-895. doi:10.1111/j.1540-6520.2008.00260.x

Menkhoff, L., Neuberger, D., & Suwanaporn, C. (2006). Collateral-based lending in emerging markets: Evidence from Thailand. *Journal of Banking & Finance, 30*(1), 1-21.

Mochkabadi, K., & Volkmann, C. K. (2018). Equity crowdfunding: a systematic review of the literature. *Small Business Economics, 54*(1), 75-118.

Modigliani, F., & Miller, M. H. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *American Economic Review, 48*(3), 261-297.

Mohammadi, A., & Shafi, K. (2018). Gender differences in the contribution patterns of equity-crowdfunding investors. *Small Business Economics, 50*(2), 275-287.

Mokhtarrudin, A., Masrurah, I., & Muhamad, S. (2017). Crowdfunding as a Funding Opportunity for Youth Start-Ups in Malaysia. *Pertanika Journal of Social Sciences & Humanities, 25*(S), 139-154.

Müller, E., & Zimmermann, V. (2009). The Importance of Equity Finance for R&D Activity. *Small Business Economics, 33*(3), 303-318. doi:10.1007/s11187-008-9098-x

Myers, S. C. (1984). The Capital Structure Puzzle. *Journal of Finance, 39*(3), 575-592.

Nguyen, B. (2019). Entrepreneurial Reinvestment: Local Governance, Ownership, and Financing Matter – Evidence from Vietnam. *Journal of Small Business Management, 57*(2), 323-349. doi:https://doi.org/10.1111/jsbm.12475

Nguyen, B., Mickiewicz, T., & Du, J. (2018). Local governance and business performance in Vietnam: the transaction costs perspective. *Regional Studies, 52*(4), 542-557.

Nguyen, T. V., & Rose, J. (2009). Building trust—Evidence from Vietnamese entrepreneurs. *Journal of business venturing, 24*(2), 165-182. doi:10.1016/j.jbusvent.2008.03.004

Nickell, S. J. (1978). *The investment decisions of firms*. Welwyn; Cambridge: Nisbet ; Cambridge University Press.

Niemand, T., Angerer, M., Thies, F., Kraus, S., & Hebenstreit, R. (2018). Equity crowdfunding across borders: A conjoint experiment. *International Journal of Entrepreneurial Behavior & Research, 24*(4), 911-932.

Nishihara, M., & Shibata, T. (2013). The effects of external financing costs on investment timing and sizing decisions. *Journal of Banking & Finance, 37*(4), 1160-1175. doi:http://dx.doi.org/10.1016/j.jbankfin.2012.11.014

Olwen, B. (2011). Giianxi-Buiiding in the Workplace: A Dynamic Process Model of Working and Backdoor Guanxi. *Journal of Business Ethics, 104*(1), 149-158.

Parker, S. C. (2010). *The economics of self-employment and entrepreneurship*. Cambridge: Cambridge University Press.

Pekmezovic, A., & Walker, G. (2016). The Global Significance of Crowdfunding: Solving the SME Funding Problem and Democratizing Access to Capital. *William & Mary Business Law Review, 7*(2), 347-458.

Peterson, P. P., & Benesh, G. A. (1983). A reexamination of the empirical relationship between investment and financing decisions. *Journal of Financial and Quantitative Analysis, 18*(4), 439-453.

Pham, T., & Talavera, O. (2018). Discrimination, Social Capital, and Financial Constraints: The Case of Viet Nam. *World Development, 102*(2), 228-242.

Pindado, J., Rodrigues, L., & de la Torre, C. (2006). How Does Financial Distress Affect Small Firms' Financial Structure? *Small Business Economics, 26*(4), 377-391. doi:http://link.springer.com/journal/volumesAndIssues/11187

Piva, E., & Rossi-Lamastra, C. (2018). Human capital signals and entrepreneurs' success in equity crowdfunding. *Small Business Economics, 51*(3), 667-686.

Rahaman, M. M. (2011). Access to Financing and Firm Growth. *Journal of Banking and Finance, 35*(3), 709-723. doi:http://www.sciencedirect.com/science/journal/03784266

Rau, P. R. (2020). Law, trust, and the development of crowdfunding. *Trust, and the Development of Crowdfunding, SSRN Paper*, 1-49.

Raymond, S. (2015). *Crowdfunding in emerging markets: lessons from East African startups*. Retrieved from

Reeb, D., Sakakibara, M., & Mahmood, I. P. (2012). From the editors: Endogeneity in international business research: Springer.

Savlovschi, L. I., & Robu, N. R. (2011). The role of SMEs in modern economy. *Economia, Seria Management, 14*(1), 277-281.

Schwienbacher, A., & Larralde, B. (2010). Crowdfunding of small entrepreneurial ventures. *Handbook of entrepreneurial finance, Oxford University Press, Forthcoming*.

Scott, D. F. (1972). Evidence of The Importance of Financial Structure. *Financial Management, 1*(2), 45-50.

Stewart, M., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics, 13*(2), 187-221.

Teal, M., & Sivarama Krishnan, V. (2014). IMPLICATIONS OF NEGATIVE RETAINED EARNINGS. *International Journal of Business, Accounting, & Finance, 8*(2), 49-58.

Tran, H. T. (2019). Institutional quality and market selection in the transition to market economy. *Journal of business venturing, 34*(5), 1-27.

Tsai, Y.-J., Chen, Y.-P., Lin, C.-L., & Hung, J.-H. (2014). The effect of banking system reform on investment–cash flow sensitivity: Evidence from China. *Journal of Banking & Finance, 46*(Sep), 166-176. doi:http://dx.doi.org/10.1016/j.jbankfin.2014.04.022

Van Trang, T., Do, Q. H., & Luong, M. H. (2019). Entrepreneurial human capital, role models, and fear of failure and start-up perception of feasibility among adults in Vietnam. *International Journal of Engineering Business Management, 11*(Sep), 1-11. doi:10.1177/1847979019873269

Vismara, S. (2016). Equity retention and social network theory in equity crowdfunding. *Small Business Economics, 46*(4), 579-590.

Vismara, S. (2018). Information cascades among investors in equity crowdfunding. *Entrepreneurship theory and practice, 42*(3), 467-497.

Vismara, S. (2019). Sustainability in equity crowdfunding. *Technological Forecasting and Social Change, 141*(Apr), 98-106.

Vos, A., & Vos, E. (2000). Investment decision criteria in Small New Zealand businesses. *Small Enterprise Research, 8*(1), 44-55.

Vulkan, N., Åstebro, T., & Sierra, M. F. (2016). Equity crowdfunding: A new phenomena. *Journal of Business Venturing Insights, 5*(Jun), 37-49.

Walthoff-Borm, X., Schwienbacher, A., & Vanacker, T. (2018). Equity crowdfunding: First resort or last resort? *Journal of business venturing, 33*(4), 513-533.

Wang, W., Mahmood, A., Sismeiro, C., & Vulkan, N. (2019). The evolution of equity crowdfunding: Insights from co-investments of angels and the crowd. *Research Policy, 48*(8), 103727.

Xu, B., Zheng, H., Xu, Y., & Wang, T. (2016). Configurational paths to sponsor satisfaction in crowdfunding. *Journal of Business Research, 69*(2), 915-927.

Zheng, H., Li, D., Wu, J., & Xu, Y. (2014). The role of multidimensional social capital in crowdfunding: A comparative study in China and US. *Information & Management, 51*(4), 488-496.

Zhou, W. (2013). Political connections and entrepreneurial investment: Evidence from China's transition economy. *Journal of business venturing, 28*(2), 299-315. doi:10.1016/j.jbusvent.2012.05.004

Zhou, W. (2017). Institutional environment, public-private hybrid forms, and entrepreneurial reinvestment in a transition economy. *Journal of business venturing, 32*(2), 197-214. doi:10.1016/j.jbusvent.2016.11.002

Figure 1: U-shaped Function of Personal Capital on Financing Constraints

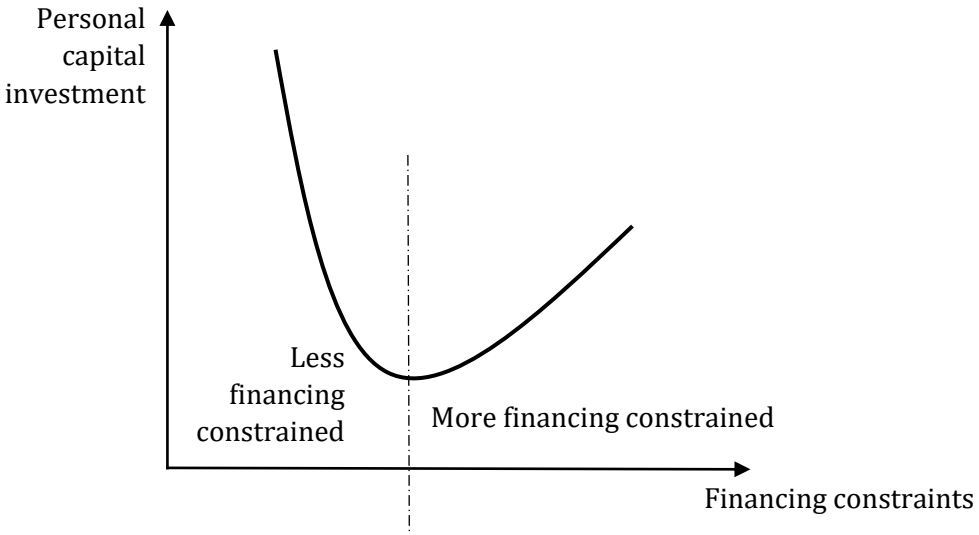

Figure 2: Marginal Effect of Cash Flow Dummies

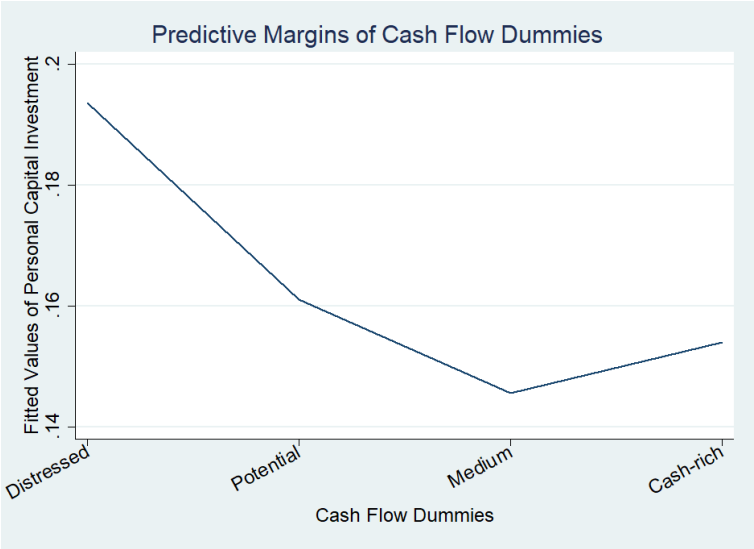

Figure 3: Marginal Effect of Real Asset Dummies

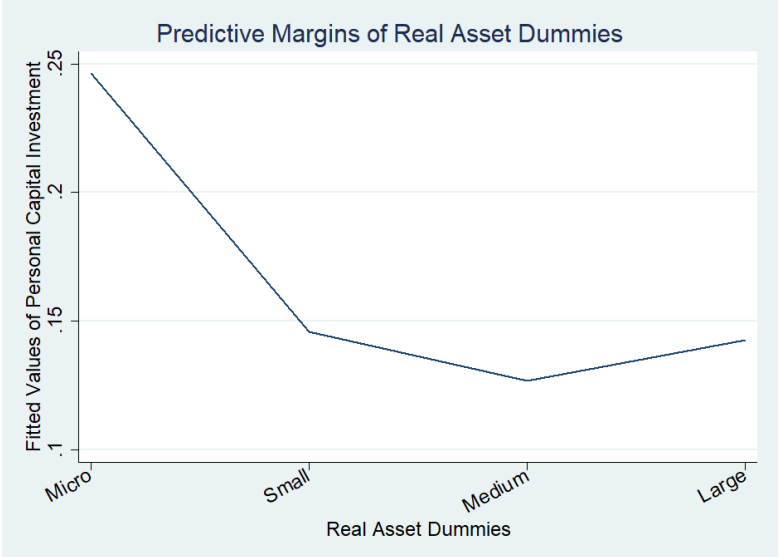

Table 1: Variable Definition and Summary Statistics

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
		Total sample	Internal Financing Constraints				External Financing Constraints			
Variable	Definition	Mean	Distress	Potential	Medium	Cash-rich	Micro	Small	Medium	Large
Personal capital	The ratio of investment value sourced from personal capital over total capital	0.29	0.42	0.28	0.21	0.24	0.53	0.33	0.11	0.22
Firm age	Firm age since establishment	6.07	4.74	6.10	5.76	7.90	5.35	5.33	5.87	7.86
Labour size	Labour size measured by natural log of the number of employees (reported here the number of employees)	16.41	10.53	18.45	15.92	23.84	6.24	9.23	15.70	37.44
Asset structure	The ratio of fixed assets over total assets	0.19	0.14	0.19	0.17	0.29	0.18	0.19	0.19	0.20
Revenue growth	The percentage change of sales revenue between two consecutive years	0.10	-0.13	0.34	0.11	0.24	-0.10	0.10	0.20	0.21
Labour productivity	The ratio of real revenue incomes over the number of employees (million VND/person)	795.31	486.12	1,351.90	753.30	985.24	484.79	608.73	807.24	1,359.73
	Percentage	100	29.95	11.53	33.71	24.81	29.92	23.07	23.18	23.83
	Observations	1,485,520	444,913	171,280	500,769	368,558	444,468	342,709	344,344	353,999

Note: The number of observations is 1,485,520 firm-year in Vietnam in the period 2006-2016. The sample only includes domestic private micro and small and medium-sized enterprises. The firm-level variables are obtained from the Annual Enterprise Survey dataset of Vietnam General Statistics Office (GSO).

Table 2: Regression Results

	Internal financing constraints			*External financing constraints*		
	GMM	***OLS***	***FE***	***GMM***	***OLS***	***FE***
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Lagged dependent variable	0.235***			0.631***		
	(0.0394)			(0.0439)		
Firm age	-9.48e-05	-0.000607***	0.00153	0.00155***	-0.00121***	0.00257**
	(0.000112)	(6.54e-05)	(0.00129)	(0.000213)	(6.35e-05)	(0.00129)
Labour size	-0.0315***	-0.0626***	-0.103***	-0.0254***	-0.0520***	-0.0839***
	(0.00259)	(0.000397)	(0.000862)	(0.00143)	(0.000838)	(0.00134)
Asset structure	-0.0119*	0.0233***	0.0692***	0.0757***	0.0393***	0.0685***
	(0.00687)	(0.00220)	(0.00342)	(0.0288)	(0.00214)	(0.00339)
Labour productivity	-4.90e-06***	-8.70e-06***	-2.80e-07	1.67e-06**	-6.52e-06***	-1.15e-07
	(5.27e-07)	(1.68e-07)	(3.69e-07)	(7.03e-07)	(1.67e-07)	(3.68e-07)
Revenue growth	0.00233***	0.000196	-0.000390	0.00134***	0.000468**	-0.000275
	(0.000403)	(0.000234)	(0.000245)	(0.000488)	(0.000223)	(0.000244)
Distressed	0.0480***	0.0697***	0.0370***			
	(0.00226)	(0.00151)	(0.00156)			
Potential	0.0155***	0.0313***	0.0184***			
	(0.00235)	(0.00162)	(0.00179)			
Cash-rich	0.00847***	0.0126***	0.0106***			
	(0.00134)	(0.000974)	(0.00130)			
Micro				0.119***	0.143***	0.109***
				(0.00403)	(0.00147)	(0.00246)
Small				0.0191***	0.0307***	0.0135***
				(0.00256)	(0.00116)	(0.00181)
Large				0.0158***	0.0163***	0.0262***
				(0.00242)	(0.00130)	(0.00199)
VIF	3.25	3.24	3.25	3.66	3.32	3.33
Observations	1,485,520	1,485,520	1,485,520	1,485,520	1,485,520	1,485,520
R-squared		0.111	0.477		0.159	0.482
AR(2)	0.246			0.187		
Hansen (J)	0.228			0.426		

Note: The dependent variable is personal capital investment. All estimations include full sets of two-digit industry dummies, 17-year dummies, and 6 dummies for regions. All models also control for interaction between year and industry dummies. Standard errors and test statistics are asymptotically robust to heteroscedasticity. The estimator in columns 2 and 5 is OLS. The estimator in columns 3 and 6 is FE. All endogenous variables are lagged 1 year in OLS and FE estimation. The estimator in columns 1 and 4 is SGMM (*xabond2* in Stata). Endogenous variables include the two sets of dummies of financing constraints, labour size, asset structure, labour productivity, and revenue growth. The instruments for the difference equation are the lagged 3 to 4-year level-variables. The instruments for level equation are the lagged 2 to 3-year difference-variables. AR(2) is autocorrelation test under the null that there is no autocorrelation in the transformed equations. Hansen (J) is over-identification test, under the null that the overidentifying restrictions are valid, the statistic is asymptotically distributed as a chi-square variable. VIF is a test of multicollinearity.

Appendix 1: Panel Structure

Year	Frequency	Percentage	Cumulative percentage
2000	5,998	0.40%	0.40%
2001	20,513	1.38%	1.78%
2002	34,775	2.34%	4.13%
2003	36,847	2.48%	6.61%
2004	52,614	3.54%	10.15%
2005	31,408	2.11%	12.26%
2006	83,680	5.63%	17.90%
2007	101,095	6.81%	24.70%
2008	133,298	8.97%	33.67%
2009	43,434	2.92%	36.60%
2010	207,669	13.98%	50.58%
2011	142,974	9.62%	60.20%
2012	257,992	17.37%	77.57%
2013	78,641	5.29%	82.86%
2014	49,943	3.36%	86.22%
2015	186,814	12.58%	98.80%
2016	17,825	1.20%	100%
Total	*1,485,520*	*100%*	

Number of years per firm	Frequency	Percentage	Cumulative percentage
1	318,392	21.43%	21.43%
2	364,342	24.53%	45.96%
3	238,965	16.09%	62.05%
4	165,068	11.11%	73.16%
5	131,260	8.84%	81.99%
6	96,312	6.48%	88.48%
7	66,619	4.48%	92.96%
8	45,464	3.06%	96.02%
9	28,458	1.92%	97.94%
10	16,370	1.10%	99.04%
11	8,481	0.57%	99.61%
12	4,080	0.27%	99.88%
13	1,456	0.10%	99.98%
14	238	0.02%	100%
15	15	0.00%	100%
Total	*1,485,520*	*100%*	

Appendix 2: Robustness check

Continuous variables of financing constraints

In this section, we use cash flow and total real asset variables to measure financing constraints. The use of continuous rather than dummy variables could reduce the level of subjective operationalization on the classification thresholds. The regression results are reported in columns 1 to 3 of Table A2. The coefficients associated with cash flow and real asset variables are negative and statistically significant. Meanwhile, the coefficients associated with the squared terms of these variables are positive and precisely determined. It can therefore be concluded that personal capital is a U-shaped function of cash flow (a proxy of internal financing constraints), and of firm size (a proxy of external financing constraints).

A simple calculation shows that the value of the transition point is 0.097 for cash flow and 466.62 for real assets, indicating that entrepreneurs begin to inject personal capital when their ventures generate cash flow that is less than roughly 10% of total assets, and when the value of their businesses' real assets falls below 466.62 million VND (roughly equivalent to 20,000 USD using the 2018 exchange rate).

Observations with reducing cash flow/real assets

The effect of financing constraints/distress may be stronger on firms that are suffering from financial difficulties than it is on firms with growing momentum. Firms with increasingly healthier cash flow or expanding fixed assets may not need to consider personal capital in their financing portfolio. Therefore, we double check our findings by reducing the sample of observations to only those firms that have a lower value of cash flow or real assets than in the previous year. By doing this, we can identify the sub-sample of firms that are expected to be more sensitive to the use of personal capital.

The statistics show that in the study period 2000 to 2016, 67.08% of firm observations have a lower cash flow value than in the previous year, and the percentage with lower real assets is 70.04%. These statistics indicate that the majority of small businesses suffer from financial difficulties or have to reduce their operations. This is consistent with the conventional viewpoint that new ventures, micro-firms, and

small businesses are vulnerable to competition, and only a very small proportion of the most efficient firms can survive and successfully grow (Jovanovic, 1982).

The regression results are reported in Table 4, columns 4 and 5. The findings are in general consistent with the proposition and fully support our hypotheses.

Before and after the 2008 global financial crisis

Finally, we re-test the hypotheses on split samples, covering before and after 2008. Prior to the GFC, external finance was relatively easy to access because lenders were over-optimistic about their lending opportunities and the repayment ability of their borrowers (firms). However, since the collapse of the financial markets, external lenders became more prudent in their financing decisions, especially when dealing with small businesses. As access to external capital substantially receded after the crisis, it can be expected that personal capital has, post-2008, played a more significant role in small businesses' investments.

The regression results are presented in Table A2, columns 6 to 9. The findings show that, before the 2008 crisis, less financially constrained firms used *less* personal capital to make investments. This is probably because they were able to fund their venturing activities using external finance (e.g., bank loans), which could be obtained at relatively low cost. However, after the crisis, the findings show that less financially constrained firms have used *more* personal capital to make investments. This is probably because access to external finance has become more difficult to obtain.

Nonetheless, it is noteworthy that in both periods the more financially constrained the firms are, the more personal capital entrepreneurs are willing to invest. The gamble for resurrection holds true, regardless of the crisis.

Overall, the empirical results support our proportion that the investment-financing decisions of small owner-managed firms are highly influenced by the degree of financial constraints being experienced by their firms and that these investment decisions follow a specific pattern. Given limited access of entrepreneurs to traditional bank lending and the capital markets, they are disposed to use their personal capital for

investment rather than to reduce the value of their firms' capital structure by liquidating firm assets. However, while the motivation to invest personal capital is less strong for firms that are less financially constrained, the owner-managers of financially distressed firms will, as a last resort, invest their personal capital in an attempt to shore up an otherwise failing company.

Table A2: Robustness check

	Continuous variables of financing constraints			*Reducing cash flow*	*Reducing real assets*	*Before 2008*		*After 2008*	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**
Lagged dependent variable	0.0648***	0.150	-0.103***	0.0848***	0.456***	0.221***	0.145***	0.0512***	1.032***
	(0.00530)	(0.116)	(0.00388)	(0.00778)	(0.0602)	(0.0432)	(0.0530)	(0.00213)	(0.0608)
Firm age	-0.000687***	0.000747***	-0.000722***	0.000156	0.000501**	-0.000515***	-0.00145***	-2.23e-05	0.00699***
	(8.34e-05)	(0.000180)	(0.000103)	(0.000129)	(0.000250)	(0.000191)	(0.000295)	(0.000101)	(0.000533)
Labour size	-0.0440***	-0.238***	-0.0440***	-0.0456***	-0.0396***	-0.0464***	-0.0430***	-0.0592***	0.0540***
	(0.000603)	(0.0329)	(0.00127)	(0.000933)	(0.00199)	(0.00330)	(0.00230)	(0.000741)	(0.00505)
Asset structure	-0.0254***	0.233***	-0.0112	-0.0506***	0.0311	0.0595*	0.0254*	-0.0543*	-0.308***
	(0.00278)	(0.0260)	(0.0234)	(0.00863)	(0.0383)	(0.0347)	(0.0131)	(0.0325)	(0.0514)
Labour productivity	-7.73e-06***	-6.42e-05***	-5.35e-06***	-6.52e-06***	-1.83e-06**	-5.07e-06***	-6.34e-06***	-7.95e-06***	1.30e-05***
	(2.59e-07)	(9.35e-06)	(3.76e-07)	(3.99e-07)	(8.09e-07)	(8.94e-07)	(8.08e-07)	(3.69e-07)	(1.85e-06)
Revenue growth	0.00302***	-0.000481	0.00655***	0.00296***	0.000685	0.00284***	0.00221***	-0.00209***	-0.0344***
	(0.000344)	(0.000946)	(0.000334)	(0.000515)	(0.000619)	(0.000677)	(0.000626)	(0.000358)	(0.00290)
Cash flow	-0.0134**		-0.0133**						
	(0.00589)		(0.00674)						
(Cash flow)²	0.189***		0.191***						
	(0.0121)		(0.0120)						
Real assets		-0.0816***	-0.0200***						
		(0.0161)	(0.00181)						
(Real assets)²		0.0115***	0.000532***						
		(0.00183)	(0.000133)						
Distressed				0.0479***		0.0445***		0.0559***	
				(0.00256)		(0.00403)		(0.00227)	
Potential				0.0167***		0.00162		0.0490***	
				(0.00273)		(0.00323)		(0.00389)	
Cash-rich				0.00504***		-0.0141***		0.0245***	
				(0.00191)		(0.00368)		(0.00270)	
Micro					0.123***		0.158***		0.420***
					(0.00503)		(0.00496)		(0.153)
Small					0.0181***		0.0304***		0.341***
					(0.00307)		(0.00334)		(0.0700)

Large					0.0209***		0.00815**		0.119*
					(0.00288)		(0.00396)		(0.0706)
VIF	3.24	3.24	3.78	3.22	3.18	3.17	3.17	3.22	3.27
Observations	1,485,520	1,485,520	1,485,520	996,487	1,040,458	513,841	513,841	971,679	971,679
AR(2)	0.341	0.325	0.147	0.224	0.268	0.257	0.143	0.341	0.251
Hansen (J)	0.352	0.142	0.662	0.061	0.255	0.074	0.174	0.332	0.104

Note: The dependent variable is personal capital investment. All estimations include full sets of two-digit industry dummies, 17-year dummies, and 6 dummies for regions. All models also control for interaction between year and industry dummies. Standard errors and test statistics are asymptotically robust to heteroscedasticity. The estimator SGMM (*xabond2* in Stata). Endogenous variables include the two sets of dummies of financing constraints, labour size, asset structure, labour productivity, and revenue growth. The instruments for the difference equation are the lagged 3 to 4-year level-variables. The instruments for level equation are the lagged 2 to 3-year difference-variables. AR(2) is autocorrelation test under the null that there is no autocorrelation in the transformed equations. Hansen (J) is over-identification test, under the null that the overidentifying restrictions are valid, the statistic is asymptotically distributed as a chi-square variable. VIF is a test of multicollinearity.

Appendix 3: A Review of Literature on Key Success Drivers of Equity Crowdfunding

The past decade has witnessed the emergence of crowdfunding as a viable alternative form of external finance for new ventures and small businesses. Crowdfunding is described as "*an open call, essentially through the Internet, for the provision of financial resources either in the form of donation or in exchange for some form of reward and/or voting rights in order to support initiatives for specific purposes*" (Schwienbacher & Larralde, 2010). This innovative form of capital formation has emerged and evolved since the 2008 global financial crisis largely because of the difficulties faced by small business enterprises in raising funds via traditional bank lending channel (Best et al., 2013).

Crowdfunding is generally classified into three major categories: donation/reward-based, lending-based (P2P lending) and equity crowdfunding, yet the first and third types attract much research interest. However, reward-based crowdfunding tends to skew toward artistic and often are not associated with an entrepreneurial firm. In contrast, equity crowdfunding is primarily driven by financial motives similar to traditional financiers of entrepreneurship and therefore represents one of the fastest-growing components of the crowdfunding markets (Walthoff-Borm et al., 2018). In other words, equity crowdfunding relates to investment decisions with a prospect of potential return undermining risk-return trade-off. For less than a decade, crowdfunding has gained traction in a number of developed countries and has been attracting considerable interest in the developing world as well (Best et al., 2013).

The literature on equity crowdfunding has been evolving since 2012 (Mochkabadi & Volkmann, 2018) but primarily focused on critical success drivers of crowdfunding campaigns based on signalling theory. Key factors have been considered are social networks, human capital, campaign characteristics and information disclosure (Ahlers, Cumming, Günther, & Schweizer, 2015; Kleemann, Voß, & Rieder, 2008; Lukkarinen, Teich, Wallenius, & Wallenius, 2016; Piva & Rossi-Lamastra, 2018; Schwienbacher & Larralde, 2010; Vismara, 2016). However, the importance of any specific signalling

factor differs significantly across various studies and data sample (see Table 1 for the summary on equity crowdfunding across countries and regions). Whereas crowdfunding markets are evolving in some countries, regulatory framework and institutional issues have temporarily restricted its development in others (Vismara, 2016). Also, Schwienbacher and Larralde (2010) review key factors that influence the use of crowdfunding, including the lack of pre-existing resources, information asymmetries, risk and moral hazard, organisational form, control preferences, regulatory framework and legal issues, and collective wisdom of the crowd. These studies provide compelling explanation about several obstacles that prevent crowdfunding from thriving in developing countries, although there is a sign of fast growth in the foreseeable future.

The contemporary literature mainly investigates crowdfunding data from advanced economies, concentrating in North America and Europe while emerging markets' data have been scantly used. In Panel A of Table 1, we summarise the literature on crowdfunding in developed countries while Panel B review studies using data from international platforms including both developed and developing countries. Data sample from platforms in the UK (Crowdcude and Seedrs) and Germany (Companisto, Innovestment, and Seedmatch) dominate others in advanced economies. In Panel C, we report selected key studies in emerging markets most of which investigate crowdfunding in China as China is among three largest crowdfunding markets while the volume of crowdfunding in other emerging market economies is marginal (Rau, 2020).

From this review of the relevant literature, it is observable that developing markets are lagging in crowdfunding. The literature and empirical observations reveal that several obstacles, especially s*ocio-cultural factors* that prevent crowdfunding from thriving in developing countries. Specifically, investing in developing countries is notoriously risky because the information asymmetry problems are potentially greater (Menkhoff et al., 2006) and legal issues of equity issuance to protect investors are insufficient that affect risk-taking behaviour of the entrepreneurs. According to a 2015 report of the International Organization of Securities Commissions (IOSCO), most small and developing

nations lack equity crowdfunding laws.[9] Using a unique hand-collected sample of crowdfunding volume obtained by surveying over 2,200 crowdfunding platforms worldwide, Rau (2020) finds that regulations and corruption controls are essential in boosting crowdfunding volume. This study also adds that the level of trust individuals has for strangers also affect the development of crowdfunding because such funding relies almost entirely on anonymous donors who have no social or other formal interactions with the recipients.

Meanwhile, in a study about informal institutions and equity crowdfunding using raw data from b*logs, interviews and public statements* of critical decision-makers of equity crowdfunding across countries, Kshetri (2018) shows that incompatibility of "success-obsessed" culture with failures in startup ventures and low social trust (i.e. lack of trust in online transactions and strangers) have hindered the investors' engagement in crowdfunding in Asian Pacific region. Additionally, the lack of a sizable market of early adopters comfortable with supporting equity crowdfunding is also another challenge.

From the demand side, Walthoff-Borm et al. (2018) prove that firms go for equity crowdfunding platforms as a "last resort" – that is, when they lack internal funds and additional debt capacity. Their findings lend support to the pecking order theory of funding preference: internal funds (the so-called "3Fs" – founders, family, and friends), bank lending and then equity source of finance. Additionally, R. Brown et al. (2015) add that demands for equity crowdfunding are higher in innovative young firms led by growth-oriented entrepreneurs who were highly skilled entrepreneurial 'early adopters'. However, in many developing countries, SMEs are dominated by family businesses that suffer from entrepreneurial skill shortage. Raymond (2015), in a study about crowdfunding in East African startups, provides evidence showing that crowdfunding is much more challenging than most entrepreneurs anticipate because it requires significant human, time and

[9] See: https://www.iosco.org/library/pubdocs/pdf/IOSCOPD520.pdf

financial resources. Therefore, while crowdfunding it is now on the verge of becoming a "substitute seed financing source for entrepreneurial ventures" in many advanced economies, it may take longer to gain a foothold in developing countries (Kshetri, 2018).

Table 1 – Literature review on key success drivers of equity crowdfunding

Authors	Research problems/ questions	Data sample and database	Findings
Panel A: Crowdfunding in developed countries			
Ahlers et al. (2015)	Which signals used by entrepreneurs to induce small investors are effective?	104 equity crowdfunding offerings published on ASSOB, the Australian platform during Oct.2006-Oct.2013.	Retaining equity and detailed information about risks together with human capital are interpreted as effective signals. Social and intellectual capital are not important.
Vulkan, Åstebro, and Sierra (2016)	Success drivers of equity crowdfunding	636 campaigns in UK encompassing 17,188 investors and 64,831 investments between 2012 and 2015.	Successful crowdfunding campaign needs to have many backers and at least one big backer who provides large pledges
Lukkarinen et al. (2016)	Success drivers of equity crowdfunding	60 campaigns between May 2012 and Sep2014 conducted through Invesdor Oy (Finland-and investor-based sample): 1,742 investments, of which 76% were successful.	Success is related to pre-selected crowdfunding campaign characteristics and the utilisation of private and public networks and understandability of the targets' products.
Vismara (2016)	The role of equity retention and social network in equity crowdfunding	271 projects listed on the UK platforms Crowdcube and Seedrs in the period 2011–2014	Campaigns launched by entrepreneurs (1) who sold smaller fraction of their companies at listing and (2) had more social capital had higher probabilities of success.
Löher (2017)	The interaction of equity crowdfunding platforms and ventures	Data obtained from interviews with platform-operators, funded startups and external experts from German portals	Platforms' preselection follows a structured process that is based on strong network relationships and active search
Hornuf and Neuenkirch (2017)	Price shares in equity crowdfunding	44 campaigns consisting of 499 backers on German equity crowdfunding portal investment from Nov.2011 to Mar.2014	Campaign characteristics, investor sophistication, progress in funding, herding, and stock market volatility influence backers' willingness to pay in an economically meaningful manner, while geographic distance, learning

			effects, and sniping at the end of an auction have no effect.
Angerer, Brem, Kraus, and Peter (2017)	Success drivers of equity crowdfunding in German	Nine qualitative interviews with startups and crowd-investing platforms	An attractive business model, an appropriate preparation in the pre-campaign period, ongoing activities during the campaign, and corresponding advertising activities have a positive impact on a German startup's crowd-investing campaign's chances of success.
Piva and Rossi-Lamastra (2018)	The effects of diverse human capital signals on entrepreneurs' success in equity crowdfunding	A sample of 284 entrepreneurs who launched 129 campaigns on SiamoSoci between mid-2012 and Feb 2014.	Human capital is a signal driving equity crowdfunding success by reducing information asymmetries faced by crowdfunding investors
Vismara (2018)	Information cascades among investors in equity crowdfunding	132 equity offerings on Crowdcube in 2014	Information cascades among individual investors play a crucial role in crowdfunding campaigns
Mamonov and Malaga (2018)	Which updates during an equity crowdfunding campaign increase crowd participant?	133 projects across 16 crowdfunding platforms (Title III equity crowdfunding in the US).	Market, execution and agency risks affect the success of equity crowdfunding
Hornuf and Schwienbacher (2018)	What determines individual investment decisions in equity crowdfunding?	81 campaigns consisting of 26,967 investment decisions from four German equity crowdfunding portals (Companisto, United Equity, Seedmatch, Innovestment) from Nov.2011 to Aug.2014	Investors base their decisions on information provided by the investment behaviour of other crowd investors. Equity crowdfunding dynamics are L shaped under a first-come, first-served mechanism and U shaped under a second-price auction
Estrin, Gozman, and Khavul (2018)	The evolution and adoption of equity crowdfunding in the UK	Interview data of large and small-scale investors in equity crowdfunding in the UK	Investors appear to understand and appropriately evaluate the risks that they are bearing, and use their communication with peers and entrepreneurs via the ECF platform as a learning tool.
Mohammadi and Shafi (2018)	Gender differences in the contribution patterns of equity-crowdfunding investors	31 campaigns consisting of 2,537 investments and 1,797 investors from the Swedish equity crowdfunding platform FundedByMe from 2012 to Mar.2015	Female investors are less likely to invest in the equity of firms that are younger and high tech and have a higher percentage of equity offerings. Female investors are more likely to invest in projects in which the

			proportion of male investors is higher.
Walthoff-Borm et al. (2018)	Which factors influence firms to search for equity crowdfunding and thus list on equity crowdfunding platforms?	277 UK firms that searched for equity crowdfunding between 2012 and 2015 on Crowdcube	Firms listed on equity crowdfunding platforms are less profitable, more often have excessive debt levels, and have more intangible assets than matched firms not listed on these platforms.
Hornuf, Schmitt, and Stenzhorn (2018)	Determinants of follow-up funding and firm failure after an equity crowdfunding campaign has taken place	Data from 13 different equity crowdfunding portals and 413 firms that ran at least one successful equity crowdfunding campaign in Germany or the United Kingdom between 2011 and 2016.	The number of senior managers and the number of initial venture capital investors both had a positive impact on obtaining post-campaign financing, whereas the average age of the senior management team had a negative impact. The number of initial venture capital investors and the valuation of the firm were significant predictors increasing the hazard of firm failure, whereas the number of senior managers and the amount raised during previous equity crowdfunding campaigns had a negative impact.
R. Brown, Mawson, Rowe, and Mason (2018)	What is the nature of the demand for equity crowdfunding in the UK?	In-depth qualitative interviews with 42 UK-based entrepreneurs who have successfully obtained equity crowdfunding from Crowdcube, Seedrs and SyndicateRoom.	Strong demand for equity crowdfunding from innovative young firms led by growth-oriented entrepreneurs who were highly skilled entrepreneurial 'early adopters'
Niemand, Angerer, Thies, Kraus, and Hebenstreit (2018)	Home bias of equity crowdfunding	Choice-based conjoint experiment with 217 participants in central Europe	Investors show avoidance of foreign currency, while payment methods seem to have no considerable influence on the decision making. Furthermore, participants significantly decided against national legislation in favour of EU legislation.
Kleinert and Volkmann (2019)	The role of investor discussion boards in equity crowdfunding	Panel data of 2,258 funding days of 47 campaigns on Crowdcube	Discussions generally propel investments, yet discussions on topics like market risk and shareholder rights harm funding success
Vismara (2019)	The relationship between sustainability and crowdfunding	345 initial equity offerings in United Kingdom platforms such as Crowdcube and Seedrs in the period 2014–2015	Sustainability orientation does not increase the chances of success or of engaging professional investors,

			but it attracts a higher number of restricted investors.
R. Brown, Mawson, and Rowe (2019)	The role of entrepreneurial networks within the crowdfunding process	Interview of 63 firms that had successfully completed the crowdfunding process via the three main equity platforms in the UK - Crowdcube, Seedrs and Syndicate Room	Networks and social capital play a critical role in the crowdfunding process. Startups leverage, build and draw upon a complex array of network actors and "ties" as they move through the different stages of their crowdfunding journey.
D. Cumming, Meoli, and Vismara (2019)	Does equity crowdfunding democratise entrepreneurial finance?	167 equity offerings in Crowdcube and 99 equity offerings on London's Alternative Investment Market raising between £300,000 and £5 m	Remotely located companies and companies with younger top management team members are both more likely to launch equity crowdfunding offerings than IPOs and have higher chances to successfully complete an equity crowdfunding offering. Female entrepreneurs do not have higher chances to raise funds in equity crowdfunding
Wang, Mahmood, Sismeiro, and Vulkan (2019)	The interaction between angels and the crowd	50,999 unique investors and 1151 unique campaigns from July 2012 to August 2017 on one of UK's leading equity crowdfunding (ECF) platforms	The growth of large campaigns and the presence of angel investors on the ECF platform go hand-in-hand. Angels invest in large campaigns and are essential to their success on the platform
Mahmood, Luffarelli, and Mukesh (2019)	The impact of complex visual cues in equity crowdfunding	Survey and experiment: respondents from Amazon Mechanical Turk Field study: 10,611 actual investments made by 5427 backers across 62 crowdfunding campaigns during the period April 2015 – January 2016	Low validity visual cues, and more particularly logos, can influence backers' behaviour on equity crowdfunding platforms
Blaseg et al. (2020)	The relationship between the quality of entrepreneurs' bank connections and use of ECF	A sample of 363 German ventures, of which 163 ran an ECF campaign during 2008-2015	Young ventures are more likely to use ECF if they are connected to banks that were bailed out by the German government after the financial crisis.
Panel B – Crowdfunding using data from both developed and developing countries			
Zheng, Li, Wu, and Xu (2014)	How does an entrepreneur's social network impact crowdfunding?	515 crowdfunding projects in the US and 270 Chinese projects collected from Kickstarter and Demohour (Chinese platform)	Entrepreneur's social network, obligations to fund other entrepreneurs, and the shared meaning of the crowdfunding project between the entrepreneur and the sponsors had significant effects on crowdfunding

			performance in both China and the US
D. J. Cumming, Leboeuf, and Schwienbacher (2017)	Characteristics of cleantech crowdfunding	20,000 cleantech projects from 81 countries on international crowdfunding platform Indiegogo during 2008-2013.	Cleantech crowdfunding campaigns: ✓ more common when oil price is rising ✓ disclose more information (photos, video, longer text) ✓ as successful as non-cleantech despite their higher funding goals negatively related to individualism
Kshetri (2018)	Effects of informal institutions on entrepreneurs' ability and willingness to engage in efforts to raise equity crowdfunding (ECF)	*Blogs, interviews and public statements* of key decision-makers, policy-makers and related stakeholders involved at crowdfunding in several countries: UK, Japan, Canada, Singapore, India, Vietnam, and Latin American area.	Informal institutions such as perceptions of stigma and humiliation of business failure, thin trust, trust in the Internet, the degree of philanthropic involvement, the existence of regulatory frameworks for ECF, ECF market maturity affect entrepreneurs' willingness to raise funds via ECF.
Rau (2020)	Law, trust, and the development of crowd financing	A database of more than 1,300 crowdsourcing platforms in 152 countries	The introduction of explicit crowdfunding regulation and the general rule of law in the country appear to be significant in explaining financing volume. However, in the poorest countries, social factors such as trust appear to be more strongly related to crowdfunding volume.
Panel C – Crowdfunding in developing countries			
Zheng et al. (2014)	How does an entrepreneur's social network impact crowdfunding?	515 crowdfunding projects in the US and 270 Chinese projects collected from Kickstarter and Demohour (Chinese platform)	Entrepreneur's social network, obligations to fund other entrepreneurs, and the shared meaning of the crowdfunding project between the entrepreneur and the sponsors had significant effects on crowdfunding performance in both China and the US
Liao, Zhu, and Liao (2015)	How does a proponent's internal and external social capital impact crowdfunding performance?	862 projects from ZhongchouNet, a Chinese comprehensive crowdfunding platform	Two types of proponent's external social capital have a significant effect on crowdfunding performance. The effect of internal and external social capital on the success of a campaign is fully moderated by the type of project

J. Li (2016)	Current practice and legal issues of equity crowdfunding in China	53 crowdfunding projects from two leading equity crowdfunding portals, Renrentou and Zhongou8	The utmost task of the contractual terms is to secure investors' rights to return Leading investors of crowdfunding projects are very often served by entities that are related to the founder of the portal.
Xu, Zheng, Xu, and Wang (2016)	The determinant of sponsor satisfaction in crowdfunding	Web survey on the sponsor of crowdfunding projects on Demohour	Sponsor satisfaction in crowdfunding is associated with delivery timelines, product quality, project novelty, sponsor participation and entrepreneur activeness, and sponsor demographics.
Mokhtarrudin, Masrurah, and Muhamad (2017)	The potential role of equity crowdfunding for young Malaysian startups	202 surveys of young Malaysian startups	Young Malaysian startups prefer donation- and reward-based crowdfunding but little supports were received from relevant authorities on promoting crowdfunding.
Abdullah and Oseni (2017)	The potential of equity crowdfunding for halal SMEs in Malaysia	Six platforms registered in Malaysia	Unique Sharīʿah compliant equity crowdfunding for a sustainable halal industry is necessary.
Y. Li, Cao, and Zhao (2018)	Determinants of successful equity crowdfunding	64 successful projects from the website www.dajiatou.com	Financing objectives, assignment of shares, and the number of inquiries have a significant impact on investors' willingness to invest; the minimum initial investment amount and the number of inquiries have a significant impact on financing efficiency, and early investment affects the decision-making behaviour of investors later in the process via the herding effect
Panel D – Crowdfunding in Vietnam			
Linh (2019)	Impact of the founder on the success of crowdfunding in Vietnam	Questionnaire survey from 110 respondents of 40 projects of the reward-based model (25% successful projects and 75% was failed)	Three major factors contributed to the success of crowdfunding are project information, founder's social network, and the founder's funding goal

Crowdfunding Environment in Vietnam

Crowdfunding is a term that has just reached Vietnam within the last years and is therefore still a relatively new concept for the country.

Challenges for crowdfunding in Vietnam

Vietnam faces substantial challenges regarding crowdfunding, which do not exist in Western countries.

Demand-side:

In Vietnam, the perception of failure and the fear of receiving criticism rather than support by the society affects the willingness for people to share their ideas and to ask for investment (Van Trang, Do, & Luong, 2019). Also, personal business relationships play an essential role in the Vietnamese culture (Dell, Lane, & Querubin, 2018), which makes it difficult for people to invest in a 'stranger' over the Internet. Moreover, due to the low level of generalised trust in society (T. V. Nguyen & Rose, 2009), people are unwilling to share their ideas on the Internet. These perceptions reduce their willingness to use crowdfunding.

Supply-side:

The key problem associated with the reluctance to provide funding for innovative projects on the Internet is the lack of generalised trust (T. V. Nguyen & Rose, 2009). The investors have no clues whether the projects are real or not, whether the platform is reliable or not. Another obstacle also is the Vietnamese legal system, which has not defined specific laws about crowdfunding yet.

These institutional and cultural constraints make crowdfunding a less popular funding channel to entrepreneurs, compared to conventional financing such as bank loans.

The biggest crowdfunding platforms in Vietnam

1. **FirstStep** http://firststep.vn/

It was founded in 2014, is a reward-based crowdfunding platform. FirstStep sees itself as a bridge that connects Vietnamese people who have innovative ideas with people who love creativity. However, after a few years of operation, due to the low demand for crowdfunding, the website now focuses on providing startup skills and training courses.

2. **Betado** https://betado.com/

It was founded in 2015, with the goal of creating opportunities for bringing innovative products to the Vietnamese market. It mostly focuses on philanthropy ideas that bring the good for the community. The amount of fundraising is USD 500 on average and is perceived as a contribution to society rather than to help entrepreneurs raise funds for businesses.

3. **Comicola** https://comicola.com/

It is a crowdfunding platform for the Vietnamese comic industry with the aim of helping the young comic artist community in Vietnam to share their products.

4. **Fundstart.vn** http://www.fundstart.vn/

It was founded in 2015, sees itself as a creative house, which incubates small to big projects from different fields such as music, art, design, games or technology. However, similar to the case of FirstStep, after a few projects posted in 2016, there has been no new projects posted since then. The website now focuses more on providing news and training.

After a review of the crowdfunding environment in Vietnam, we conclude that crowdfunding in Vietnam is perceived as a reward-based and donation-based method to obtain a very small amount of money for creative ideas in arts and music. The other types of crowdfunding, such as lending-based and equity-based, are much less popular and are not employed by entrepreneurs as an effective means to call for investment.

https://fintechnews.sg/4376/vietnam/crowdfunding-in-vietnam-an-overview/

https://vietnamnews.vn/economy/421878/crowdfunding-the-next-big-thing-for-businesses-and-investors-in-vietnam.html