

Szerb, László; Terjesen, Siri; Rappai, Gábor

Working Paper

Seeding new ventures: green thumbs and fertile fields ; individual and environmental drivers of informal investment

Jena Economic Research Papers, No. 2007,030

Provided in Cooperation with:

Max Planck Institute of Economics

Suggested Citation: Szerb, László; Terjesen, Siri; Rappai, Gábor (2007) : Seeding new ventures: green thumbs and fertile fields ; individual and environmental drivers of informal investment, Jena Economic Research Papers, No. 2007,030, Friedrich Schiller University Jena and Max Planck Institute of Economics, Jena

This Version is available at:

<https://hdl.handle.net/10419/25644>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



JENA ECONOMIC RESEARCH PAPERS



2007 – 030

Seeding new ventures-- green thumbs and fertile fields: individual and environmental drivers of informal investment

by

**László Szerb
Siri Terjesen
Gábor Rappai**

www.jenecon.de

ISSN 1864-7057

The JENA ECONOMIC RESEARCH PAPERS is a joint publication of the Friedrich-Schiller-University and the Max Planck Institute of Economics, Jena, Germany. For editorial correspondence please contact m.pasche@wiwi.uni-jena.de.

Impressum:

Friedrich-Schiller-University Jena
Carl-Zeiß-Str. 3
D-07743 Jena
www.uni-jena.de

Max-Planck-Institute of Economics
Kahlaische Str. 10
D-07745 Jena
www.econ.mpg.de

© by the author.

Seeding new ventures-- green thumbs and fertile fields: individual and environmental drivers of informal investment

June 2007

László Szerb

University of Pécs, Hungary, szerb@tk.pte.hu

Siri Terjesen

Brisbane Graduate School of Business, Australia
Max Planck Institute of Economics, Germany
siriterjesen@yahoo.com

Gábor Rappai

University of Pécs, Hungary, rappai@tk.pte.hu

Abstract

This study explores individual and country-level environmental drivers of informal “seed” investment. We examine four types of informal investors based on business ownership experience (or no such experience) and close family relationship with investee (or no such relationship): “classic love money”, “outsider”, “kin owner” and “classic business angel” investors. At the environmental level, we are interested in the role of economic development, income tax policies, start-up costs, pro-enterprise government programmes, availability of debt financing, entrepreneurship education and culture. Using Global Entrepreneurship Monitor data from telephone interviews with 257,793 individuals in 31 countries, including 5,960 informal investors, we report drivers for the four types of seed investment. Descriptive statistics are consistent with prior research: informal investors are likely to be older males who work full-time, earn high incomes, perceive start-up opportunities in the environment, and believe that they have the skills to start their own businesses. At the environmental level, we find that countries with higher percentages of informal investors are significantly likely to have higher levels of economic development, higher business start-up costs, higher levels of entrepreneurship education, lower income taxes and lower power distance. Other environmental effects on the four populations of informal investors are reported and discussed, as well as implications for practice, policy and future research.

JEL-classification: L26, E22, M13, N2

Keywords: informal investment, individual drivers, environmental drivers, entrepreneurial careers, business ownership, new venture financing

Contact: Siri Terjesen, Brisbane Graduate School of Business,
B423, 2 George St.GPO Box 2434, Queensland University of
Technology, Brisbane, QLD, Australia, 4001,
Tel: +61-7-3138-1105; E-mail: siriterjesen@yahoo.com

Introduction

As the important contribution of small and medium sized enterprises to economic development has become more understood and appreciated (Audretsch and Acs, 1988; Storey, 1994), there has been a marked increase in government and research interest in the establishment and support of new ventures. Entrepreneurship theory suggests participation in new venture activity requires access to resources, including financial ‘seed’ capital (Wetzel, 1981; Mason and Harrison, 1999). However, due to market failures such as asymmetric information, agency and moral hazard (Stiglitz and Weiss, 1981; Landström, 1992; Storey, 1994; Berger and Udell, 1998), there is a finance gap between those firms seeking financial capital and possible financing sources. Thus, new ventures face liabilities of newness in attempting to attract finance from formal providers and are typically financed by the entrepreneur and a network of friends, family and foolhardy investors (Bhide, 2000; Harrison *et al.*, 2004). These informal investors include private individuals or “business angels” who provide financing directly to unquoted companies in which they have no family connection (Mason and Harrison, 1999) and firms in which they have a family connection.

Informal venture capital plays a key role in the ‘firm size-age finance continuum’ (Berger and Udell, 1998) and is the primary source of external equity finance for entrepreneurs’ new ventures (Bygrave *et al.*, 2003). Among new ventures in the United States, informal investment provides between two and five times more financing than formal venture capital (Van Osnabrugge, 2000) and is estimated at US\$108 billion per annum (Bygrave and Reynolds, 2005). Globally, informal investment contributions average 1.2% of the gross domestic product of thirty-four nations studied (Bygrave and Hunt, 2005).

A growing body of literature explores the phenomenon of informal investment; however, most studies report descriptive statistics, namely investors' individual demographics and personal context. Individuals' demographic and personal context features, such as sex, age, education, income, working status, and entrepreneurial awareness have been found to be important drivers of the decision to invest in others' businesses (Maula *et al.*, 2005; Szerb *et al.*, 2007). Of particular interest is the consistent finding that informal investors tend to have personal experience as entrepreneurs and business owners (Freear *et al.*, 2002; Cowling *et al.*, 2003). For the purposes of this study, we are interested only in those individuals with ownership experience and do not include individuals with management, but not ownership, experience.

To 'seed' new ventures, there is a need for informal investors or 'gardeners' with 'green thumbs,' as well as suitable environments to nourish these activities, e.g. 'fertile fields.' Thus, while the decision to invest in another's business is an individual behaviour, it is embedded in a larger environmental context. However, to date, there has been a lack of investigation into how economic, political and cultural environments impact the level of informal investment. In parallel, there have been calls for research on comparative studies of informal investment (Freear *et al.*, 2002) and career perspectives in entrepreneurship (Dyer, 1994; Terjesen, 2005), particularly informal investment (Sørheim and Landström, Politis and Landström, 2002; Mason, 2006).

[Insert figure 1 about here]

As depicted in figure 1, the informal investment decision is influenced by individual and environmental factors. In this paper, we explore the environmental drivers of the decision

to invest informally in others' businesses. Our approach proceeds as follows. First, we review the relevant literature from entrepreneurial careers, suggesting how business ownership experience may lead to future informal investment behaviour. Acknowledging the diversity of informal investors, we distinguish four types of informal investors based on business ownership experience and kinship between the investor and investee: (1) informal investors with no business ownership experience who finance close family members' businesses, (2) informal investors with no business ownership experience who finance non-family members' businesses, (3) informal investors with business ownership experience who finance close family members' businesses, and (4) informal investors with business ownership experience who finance non-family members' businesses. The first group represents classic "love" money informal investments. The fourth group is characterised by "classic business angels". Little is known about the other two groups, and an important aim of this paper is to identify their main characteristics and drivers of informal investment. We label group two as "outsiders" and group three as "kin owners". See figure 2.

This typology extends previous work which has tended to characterise investors by extent of entrepreneurship experience (e.g. Sullivan, 1991), extent of investor experience, presence of family relationship to investee (e.g. Maula *et al.*, 2005), location (e.g. Avdeitchikova and Landström, 2005), focus on distressed companies (e.g. Visser and Williams, 2001) or some combination of the above (e.g. Freear *et al.*, 1994, Stevenson and Coveney, 1994; Sørheim and Landström, 2001). We also build on previous research by utilizing a 31 country dataset. As it has been suggested that for every one informal investor, there may be as many as five potential investors (Sohl, 1999), creating a typology also facilitates the exploration of specific individual and environmental drivers and related policy implications.

[Insert figure 2 about here]

To our knowledge this is the first study to take a comprehensive approach, examining individual and environmental context on a large population sample of informal investors. We begin our study with a brief review of the literature on informal investment as related to individuals' demographics and personal context. Next, we discuss the role of the environment in motivating informal investment and put forward ten hypotheses. Following a description of the Global Entrepreneurship Monitor (GEM) informal investment data and methodology, the findings are presented and described. Fourth, we discuss our results. The final section offers implications for entrepreneurs, public policy making bodies and future research.

Literature review

Much of the research on informal investment is confined to descriptive demographics of informal investors (Hindle and Rushworth, 1999). An emerging body of research explores the drivers of informal investment, however most of this literature focuses on individual factors (e.g. Maula *et al.*, 2005; Szerb *et al.*, 2007). For example, Maula *et al.*, (2005) find that individuals who have business ownership experience, believe they have the skills to start a business, are personally acquainted with an entrepreneur and are male are more likely to make informal investments. In parallel, studies consistently report that informal investors tend to have some type of entrepreneurial experience (Sullivan, 1991; Landström, 1998; Freear *et al.*, 2002; Cowling *et al.*, 2003). This suggests that experiences from an entrepreneurial career have some impact on the decision to invest informally. While the fields of entrepreneurship and careers have traditionally been separate (Dyer, 1994), there

is evidence that entrepreneurs leverage human capital and social capital from past work experience (Terjesen, 2005). We now review key developments in the entrepreneurial careers literature and discuss implications on individuals' propensity to make informal investments.

Entrepreneurial experience

Careers are accumulations “of information and knowledge embodied in skills, experience and relationship networks acquired through an evolving sequence of work experience over time” (Bird, 1994: 326). Informal investors have “boundaryless careers” consisting of three phases: (1) corporate career, (2) entrepreneurial learning, and (3) integrated investment career (Politis and Landström, 2002). Successful entrepreneurs ‘metamorphose’ into informal investors, and constitute a key source of financial capital and experience for new entrepreneurs (Cowling *et al.*, 2003). These “entrepreneur angels” are the most active of all informal investors and cite enjoyment as a major motivation (Coveney and Moore, 1998). Informal investors are said to wish to emulate earlier achievements through their entrepreneurial investments (Gaston, 1989) and to possess personal characteristics and motives which are similar to entrepreneurs (Duxbury *et al.*, 1996; Sullivan, 1991). As such, informal investors may possess boundaryless careers.

Boundaryless careers are independent from traditional organisations (Arthur and Rousseau, 1996) and have the following characteristics: flexible employment relationships, transferable skills across multiple firms, on-the-job action learning, personal identification with meaningful work, the development of multiple networks and peer learning relationships, and individual responsibility for career management (Sullivan, 1999). In the age of the boundaryless career, individuals must possess personal competencies which are

adaptable to the needs of the workplace (DeFillippi and Arthur, 1994) and portable to new work experiences, including one's own business. To date, boundaryless career research has focused on physical and psychological mobility (Sullivan and Arthur, 2006), rather than the transferability of competence across entrepreneurial opportunities (Terjesen, 2005). Individuals accumulate and apply 'career capital' from work experience (Arthur *et al.*, 1999). Career capital includes both human capital, an individual's competence as encapsulated by formal (e.g. degree courses) and informal (e.g. learning on the job) education, and social capital, an individual's position in a social network of relationships and the resources embedded in, available through or derived from these networks. Access to investors' human capital and social capital is critical to venture success (Bosma *et al.*, 2002).

In this paper, our first focus is on the difference between individuals with and without career capital from business ownership experience. Business owners are four times more likely than non-business owners to make informal investments in others' businesses (Bygrave and Hunt, 2005). Just as venture capitalists provide business advice, governance and networks access (Macmillan *et al.*, 1989; Sapienza, 1992), informal investors are expected to leverage both human capital and social capital in their new ventures.

Entrepreneurs seek informal investors who can provide business expertise based on their knowledge and experience (Sætre, 2003). Individuals with entrepreneurship experience are in a good position to identify and consider investment opportunities. Furthermore, informal investors' previous business ownership experience may enable them to select good investments and control for outcomes (Maula *et al.*, 2005), although there is also

evidence that entrepreneurial experience has no impact on investment performance (Wiltbank, 2005).

In addition to providing “smart money”, investors with entrepreneurial experiences may enable investees to leverage social capital accumulated in this earlier career. Social networks are particularly important because informal investment is hampered by information asymmetries between entrepreneurs and investors (Mason and Harrison, 1999; Bhide, 2000). Equity finance is characterised by close relationships across venture capitalists, business angels and entrepreneurs (Harrison and Mason, 2000; Van Osnabrugge and Robinson, 2000). Informal investors tend to identify investment opportunities through business and personal networks (Wetzel, 1981) and entrepreneurs seek investors who can provide access to social networks (Sætre, 2003). In contrast, individuals who have limited entrepreneurship and ownership experience have been termed “lotto investors” and tend to use the media to identify information (Sørheim and Landström, 2001).

Family context

At least half of all informal investment is provided to family members (Bygrave and Reynolds, 2005). The term “love money” (Bygrave *et al.*, 2003; Mason, 2006) describes individuals’ financing of family members’ ventures. Past research on the drivers of informal investment suggests that individual characteristics and personal context more strongly predict the decision to invest in non-family members’ businesses than in family members’ businesses (Maula *et al.*, 2005). Family-related informal investments differ from those made by classic business angels in another important respect: classic business angels provide additional management expertise, coaching and assistance for new business owners. As the informal investment literature suggests, this additional assistance is not

expected from family members. We now briefly review the extant literature on informal investors' demographics and personal context.

Individual demographics

Past studies provide a great deal of background on informal investors' age, sex, household wealth, education and work status. A consistent finding in first generation research is that informal investors are middle-aged, wealthy males with university degrees (Hindle and Rushworth, 1999; Mason, 2006). Males are more likely to participate in entrepreneurial activity, as entrepreneurs (Reynolds *et al.*, 2004) and as informal investors (Bygrave, 2005; O'Gorman and Terjesen, 2006; Wong and Ho, 2007).

As young people are less likely to have financial capital to share with others, older individuals are more likely to act as informal investors. There is a curvilinear relationship between age and participation in entrepreneurial activities, e.g. starting one's own or investing in others' new ventures (Levesque and Minniti, 2006; Guiso *et al.*, 2003; Maula *et al.*, 2005).

In order to invest in others' businesses, an individual must have sufficient financial resources (Casson, 1982). Informal investors tend to draw financial resources from assets, rather than income, however assets and household income are generally highly correlated. Empirical studies report that individuals with higher household incomes are more likely to act as informal investors (Maula *et al.*, 2005; Szerb *et al.*, 2007). Education qualifications can reduce the constraints imposed by a lack of personal wealth (Casson, 1982).

Higher education degree qualifications open access to employment opportunities, amass personal wealth and access existing institutions and capital. Indeed, higher levels of education are associated with entrepreneurship, particularly opportunity entrepreneurship (Reynolds *et al.*, 2004) and investing in others' ventures (Hindle and Rushworth, 1999; Maula *et al.*, 2005).

An individual's current work status may be linked to the propensity to provide informal investment. Full-time work provides a steady stream of income which can be used to finance investments, including others' businesses. However, current work status may be less important for business owners who have "cashed out" of their successful business(es). When examining the propensity to seed new ventures, it is important to examine both the demographic characteristics and the personal context of these 'gardeners'.

Personal context

Individuals who provide funds to others must possess some degree of confidence in those individuals, their ideas and also the overall economic environment. The ability to perceive opportunities in the environment is linked to the propensity to become an entrepreneur (Reynolds *et al.*, 2004) and an informal investor (Mason and Harrison, 2002a; Sørheim and Landström, 2001; Maula *et al.*, 2005, Szerb *et al.*, 2007).

Moreover, entrepreneurs discuss their career experiences with others, and this vicarious experience impacts others' propensity to engage in entrepreneurial activity (Scherer *et al.*, 1991). Past studies indicate that individuals who are personally acquainted with entrepreneurs are more likely to become entrepreneurs (Reynolds *et al.*, 2004) and to invest in others' businesses (Sætre, 2003; Maula *et al.*, 2005, Szerb *et al.*, 2007; Wong and

Ho, 2007). In contrast, individuals who are not personally acquainted with entrepreneurs are less likely to invest informally (Mason and Harrison, 2002a).

By investing informally, individuals contribute financial capital and are also able to share human capital acquired during previous work experience. Individuals with start-up skills are more likely to invest in others' businesses (Wright and Robbie, 1998). Self-evaluation of such skills also plays a role: individuals who believe in their own abilities to start a new business are more likely to invest informally (Maula *et al.*, 2005; Szerb *et al.*, 2007; Wong and Ho, 2007).

Informal investment is considered riskier than many other investments (Mason and Harrison, 2002b). Individuals who fear failure may be less likely to invest. However, different types of informal investors may consider start-up risk differently. According to Szerb *et al.* (2007), start-up risk is positively and significantly related to non-owners' informal investment decisions, however the effect is negative and significant for business owners. By the nature of their careers, business owners may have a great deal of experience making decisions about risk.

Behavioural features to be more important than demographic characteristics in predicting informal investment activity (Maula *et al.*, 2005; Szerb *et al.*, (2007). These effects vary across populations. For example, Szerb *et al.*, (2007) report significant differences between the characteristics of owner and non-owner informal investors. Informal investors with business experience are most likely to report confidence in their start-up skills; informal investors with no ownership experience are most likely to report a personal acquaintance with an entrepreneur (Szerb *et al.*, 2007).

As the effects of individual demographic and personal context are well developed in prior literature, we use them as control variables and do not discuss their stand-alone effects. We now turn to a discussion and development of hypotheses related to critical environmental characteristics.

Macro-economic environment

Seeding new ventures requires informal investors or ‘gardeners’ and also good environments, e.g. ‘fertile fields’. To date, there have been few studies attempting to link factors in the macro-economic environment with the propensity to make informal investments. We select the following environmental factors to explain the decision to invest informally: economic development (gross domestic product (GDP), GDP growth, foreign direct investment), income tax policy, business start-up costs, pro-enterprise government programmes, debt availability, university levels of entrepreneurship education and culture (entrepreneurship is considered high status, power distance).

Following earlier scholars (e.g. Randolph and Dess, 1994; Specht, 1993), we take the view that the availability of resources in the environment influences entrepreneurial activity levels, including informal investment. An institutional theory lens implies that this environment can be interpreted in terms of normative, regulatory and cognitive institutions (Scott, 1995). For example, cognitive institutions are based on social culture and include aspects such as the status of entrepreneurial careers and the fear of failure (Bruton *et al.*, 2005).

We expect that, due to their career experiences and relations with family members, the four populations of informal investors will be influenced by different sets of environmental variables. We begin by examining three features of national macro-economic environments: GDP, GDP growth and foreign direct investment.

Economic development

The amount of informal investment funding provided is positively correlated with economic development as measured by the per capita GDP of a nation (Bygrave *et al* 2003), however the connection between informal investor prevalence rate and per capita GDP has not been examined. As populations in developed countries are most likely to have opportunity-oriented entrepreneurs (Acs *et al.*, 2005), we expect a positive connection between the development of the country and the level of informal investment:

Hypothesis 1: Countries with higher levels of per capita GDP are more likely to have a greater percentage of their population acting as informal investors.

A great body of entrepreneurship literature explores the positive relationship between economic growth and entrepreneurial activity (e.g. Reynolds *et al.*, 2004; Stel *et al.*, 2005). We expect that individuals will view a growing national economy as a positive sign to invest informally in others' businesses.

Hypothesis 2: Countries with higher real GDP growth rates are more likely to have a greater percentage of their population acting as informal investors.

An emerging body of research suggests a link between foreign direct investment (FDI) and indigenous entrepreneurial activity (Acs *et al.*, 2007). FDI affects indigenous entrepreneurship indirectly via spillover effects (Acs and Varga, 2005). Therefore we expect a pull effect, increasing entrepreneurial activity, including informal investment:

Hypothesis 3: Countries with higher levels of foreign direct investment are more likely to have a greater percentage of their population acting as informal investors.

Income tax policies

There is a wide range of policy instruments that can influence capital investment levels. For example, a 21 country study found that certain tax structures aid the development of private equity and venture capital funding (Jeng and Wells, 2000). The connection between venture capital investment and taxation has been examined in terms of tax incentives. At the individual level, it is generally believed that tax deductions for angel investment will increase the supply of informal investment (Aernoudt, 1999; Christofidis and Debande, 2001; EC, 2002; Mason and Harrison, 2002a), however other studies have questioned its effectiveness (e.g. Carpentier and Suret, 2007). As most informal investment funding comes from individuals' after-tax income, higher income taxes lead to fewer funds available to invest (Bygrave and Hunt, 2005). Thus we expect a negative connection between income tax and informal investment:

Hypothesis 4: Countries with higher levels of income tax are less likely to have a greater percentage of their population acting as informal investors.

Start-up costs

The costs of starting a new business can impact entrepreneurial activity rates (Acs *et al.*, 2005). The World Bank lists several regulatory and financial constraints that are directly linked to business start-ups in countries around the world (World Bank, 2005). High start-up and regulatory costs serve as barriers to entry (Porter, 1980; Klapper *et al.*, 2004), particularly for opportunity-driven entrepreneurs (Ho and Wong, 2007). However, the connection between start-up costs and informal investment has not been previously analyzed. On the one hand, high business start-up costs may increase business owners' incentives to look for additional finance, including informal investment. On the other hand, potential informal investors may be discouraged by high start-up costs that increase venture risk and decrease the likelihood of informal investment. Thus, we propose the following alternative hypotheses:

Hypothesis 5a: Countries with higher business start-up costs are more likely to have a greater percentage of their population acting as informal investors.

Hypothesis 5b: Countries with higher business start-up costs are less likely to have a greater percentage of their population acting as informal investors.

Government programmes

As the contribution of entrepreneurship to economic development is well acknowledged, many governments have established programmes to foster entrepreneurial activity. Indeed, many of these national institutions have been successful in stimulating entrepreneurial activity levels (Lundström and Stevenson, 2002). Policies and programmes that promote entrepreneurship may have spillover effects to other aspects of entrepreneurial activity, including informal investment. Hence, we suggest the following:

Hypothesis 6: Countries with pro-enterprise government programmes are more likely to have a greater percentage of their population acting as informal investors.

Availability of debt financing

Most new firms are typically financed with founders' equity. However, business founders provide only about two-thirds of the required start-up funding (Bygrave and Hunt, 2005). Pecking order theory describes how business owners prefer debt to equity (Myers, 1984; Myers and Majluf, 1983). However banks may prefer not to lend to start-ups and small businesses because of information opacity associated with high agency costs, moral hazard problems and lack of transparency (Berger and Udell, 1998). Outside equity, including informal investment, is often the last and the only available resort to business founders, particularly at early venture stages. Therefore, we expect that the wider availability of debt will have a crowding out effect on informal investment:

Hypothesis 7: Countries with higher availability of debt are less likely to have a greater percentage of their population acting as informal investors.

Entrepreneurship education

The positive role of education in stimulating entrepreneurial activity is well recognised (Reynolds *et al.*, 2004, Acs *et al.*, 2005). Entrepreneurial education contributes to entrepreneurial skill development, awareness of entrepreneurial careers, and individuals' creativity and self-confidence (EEE, 2006; Kuratko, 2003). Universities play an important role in stimulating high-growth potential start-ups through education as well as incubation

and other support. In fact, high growth entrepreneurs are more likely than their low-growth counterparts to hold a university degree (Autio, 2005). Likewise most informal investors have a university education (Hindle and Rushworth, 1999; Maula *et al.*, 2005).

At the country level, we suspect the following:

Hypothesis 8: Countries with higher levels of university-level entrepreneurship education programmes are more likely to have a greater percentage of their population acting as informal investors.

Culture

Culture is “the collective programming of the mind which distinguishes members of one human group from another” (Hofstede, 1984: 51). Culture influences national environments through belief structures and changes in systems. A number of studies point to a direct relationship between the cultural environment and the propensity to engage in entrepreneurial activity. When entrepreneurship is considered a desirable career, individuals are more likely to participate as entrepreneurs (Reynolds *et al.*, 2004). Moreover we expect that informal investors also appreciate the high status of entrepreneurs and are willing to finance more potentially successful ventures. Hence, we suggest the following:

Hypothesis 9: Countries where entrepreneurship is more highly respected are more likely to have a greater percentage of their population acting as informal investors.

Based on research on employees of IBM and other multinational corporations, Geert Hofstede developed five national-level cultural constructs to differentiate attitudes and beliefs, including the concept of ‘power distance’. ‘Power distance’ describes the extent to

which the less powerful individuals in a society accept inequality in power and consider it to be normal. To date, research reports mixed findings with respect to the role of power distance on entrepreneurship. A recent review concluded that low power distance countries are most optimal for the encouragement of entrepreneurship (Hayton *et al.*, 2002). However, other studies report strong and positive correlations between power distance and innovative activities (Shane, 1992), as well as entrepreneurship (Hofstede *et al.*, 2004). In the case of informal investment, we expect countries with higher tolerances for inequality will be less accepting of activities that are perceived as increasing inequalities. Therefore, we suggest:

Hypothesis 10: Countries with higher levels of power distance are less likely to have a greater percentage of their population acting as informal investors.

We now discuss the effect of the environmental variables on the prevalence of different groups of informal investor prevalence. Following Maula *et al.*, (2005) and Szerb *et al.*, (2007), we expect more rational behaviour from those who finance non-family members' businesses and from those who have previous ownership experience. Therefore, the least rational investment decision making and the worst model fit can be expected from "classic love money" informal investors who invest in family members' businesses and who do not have ownership experience. The most rational behaviour and consequently the best model fit can be expected from the "classic business angel" group who invest in non-family firms and have experience as business owners. We believe that business angels make decisions on a more "stand alone" basis, considering the potential of the business and the entrepreneur independently from the environment. Therefore we expect that individuals' personal characteristics are more important than environmental factors. We also expect that environmental factors will play a more important role in the decision-making of the

“outsider” group of non-business owners who finance non-kin businesses. We have no previous expectations about the “kin owner” investors who possess ownership experience but invest only in relatives’ businesses.

Data and methodology

Data

We use population sample data from Global Entrepreneurship Monitor (GEM). In 2001, 2002 and 2003, a standardized survey was conducted of a representative sample of approximately 2,000 people in 31 countries, yielding a total response of 257,793 individuals including 5,960 informal investors. The survey was conducted by telephone except in a handful of countries (e.g. Uganda) where low per capital telephone usage necessitated face-to-face interviews. As the GEM survey was conducted in the same manner each year, we follow our GEM researchers (e.g. Autio, 2005; O’Gorman and Terjesen, 2005) in pooling several years of data. The GEM study is representative of the population and includes 4 billion of the estimated 6.3 billion world population. GEM data is useful for tracking informal investment behaviour (Bygrave *et al.*, 2003; O’Gorman and Terjesen, 2005; Mason, 2006; Wong and Ho, 2007), but has not provided the fine-grained depth of other informal investor specific studies. GEM data is particularly useful. GEM data is particularly powerful when used in combination with other data (Davidsson, 2005).

We separate informal investors into those who have no previous ownership experience and finance close relatives’ businesses (1,738), those who have no previous ownership experience but finance other non-family members’ business (2,057), those who have ownership experience and finance close relative’s business (913), and those who have previous experience as a business ownership experience and finance other than close

relative's business (1,252), and compare with a base group of individuals who do not make informal investments (251,833). We believe that this is the largest and most international dataset yet available on informal investors. The GEM survey requests a broad array of information related to individuals' demographics, perceptions of the country environment for entrepreneurship, attitudes and awareness of entrepreneurship, as well as participation in new business activity as an entrepreneur or as an informal investor. The sample is population-weighted to include only adults aged 18-64. See Reynolds *et al.*, (2005) for a detailed overview of the GEM methodology and approach.

Description of variables

Dependent variable: *Informal investor* is based on a positive response to the following question: 'You have, in the past three years, personally provided funds for a new business started by someone else, excluding any purchases of stocks or mutual funds'. This variable is measured at the individual level for each country. We capture investee relationship (close family or non-close family) and ownership experience (business owner or non-business owner). Individuals with ownership experience are included, however individuals who have management, but not ownership, experience are not included.

Independent variables:

Environment variables: Following the pioneering studies in the field, we made use of a number of environmental variables, however, several are strongly correlated with one another. In order to minimize multicollinearity problems, we reduced the number of variables. We utilize the following ten types of environmental data: economic development (GDP, GDP growth, FDI), income tax policy, start-up costs, pro-enterprise government programmes, debt availability, university levels of entrepreneurship education and culture

(entrepreneurship is considered high status, power distance). The data were gathered from the Organisation for Economic Cooperation and Development (OECD), World Bank, Hofstede's cultural index, and GEM interviews with country experts. The full list of variables and their sources, and the correlation coefficients of the environmental variables can be found in tables 1 and 2, respectively.

Control variables:

Individual demographics: We collect a number of demographic variables at the individual level including *age* (18 to 64 in three categories), *age squared*, *sex* (male, female), *education* (highest level, all other levels), *work status* (full-time, all others), *household income* (top third, all others).

Individual personal context: The respondents were also asked about their awareness of key entrepreneurial indicators including *know an entrepreneur* ('You know someone personally who started a business in the past two years'); *good opportunities* ('In the next six months, there will be good opportunities for starting a business in the area where you live'); *start-up skills* ('You have the knowledge, skill and experience required to start a new business'); and *fear of failure* ('Fear of failure would prevent you from starting a business').

[Insert tables 1 and 2 about here]

Methodology

As described above, the informal investment decision is driven by individuals' demographic and personal context characteristics as well as country level environmental

features. There are several options when combining individual and country level data. The first option is to aggregate the individual variables on the country level. However this aggregation leads to a loss of emphasis on individual decision making. Moreover, the correlation at the macro level does not necessarily indicate correlation at the individual level. A second option is to use hierarchical regression method, with the parameters of the dependent variables estimated based on individual data. The individual-level parameters are then regressed against the country-level variables. A third method is to combine the individual and the environmental country variables within the framework of one model. In this case the environmental variables are disaggregated. This method assigns every individual in a single country the same national value of the environmental variable. As we wanted to utilize GEM's large individual data set and take advantage of individual decision making, the first method was unsuitable. We then tried the second model, using a large number of environmental variables, but the overall results were disappointing.¹ Finally the third "combination" method enabled us to include both individual and country level variables and has been widely applied in regional studies (e.g. Bergmann and Sternberg, 2007).

In this paper we focus on country-level environmental variables. We assume that environmental factors affect the decision to make informal investments differently in each country. We use multinomial logistic regression (MLR) as we distinguish four groups of informal investors which we assume to behave differently to environmental variables. We include all of the individual and environmental variables on an individual basis. MLR allows for the analysis of models of multiple levels of nesting, comparing categories of unordered responses with a reference category. The model then estimates parameters for

¹ The results from hierarchical modelling are available from the authors on request.

the predictor variables for the likelihood of making informal investments by the four groups: (1) “classic love money” informal investors with no business ownership experience who finance family members’ businesses, (2) “outsider” informal investors with no business ownership experience who finance non-family members’ businesses, (3) “kin owner” informal investors with business ownership experience who finance family members’ businesses and (4) “classic business angel” informal investors with business ownership experience who finance non-family members’ businesses.

As described earlier, country level data is disaggregated and highly correlated. The standard error is therefore underestimated. Consequently, the two-tail significance tests are improper and the chi-square test is applied (Imrey *et al.*, 1981, 1982; Koch and Edwards, 1985).

Results

The result of the MLR regressions can be found in table 3 and are reported below.

[Insert table 3 about here]

According to table 3, the proposed model works well, and is significant at the $p < .001$ level.

We now report and discuss the results of our ten environmental context hypotheses.

Our first set of hypotheses explores the role of economic development: GDP, GDP growth and FDI. In the case of hypothesis 1, our findings are generally as expected: countries with higher levels of GDP are more likely to have populations of informal investors, significantly so for “outsider” and “classic business angel” investors. There is one

exception: economic development is negatively related to “kin owner” informal investor populations, however this effect is not significant. Hypothesis 1 is mostly accepted. This finding is particularly interesting as in a venture capital context, past multi-country research on environmental drivers has not identified a relationship between GDP and the growth of the venture capital industry (Jeng and Wells, 2000). Next, we expected GDP growth to be associated with higher levels of informal investor activity, however this effect is only positive and significant in the “kin owner” and “classic business angel” populations. In contrast, GDP growth is negative for “classic love money” and “outsider” populations. Hypothesis 2 is partially accepted. Foreign direct investment was expected to be positively correlated with informal investment, however we found this to be positive and significant in only one case: “outsider” investors. FDI is significantly and negatively related to “kin owner” and “classic business angel” investors. Hypothesis 3 is rejected.

Next we examine the effect of income tax policies. Here we find support for hypothesis 4, that countries with higher income taxes have fewer informal investors. The relationship is significant in all four cases, hence hypothesis 4 is accepted. This finding extends previous work which was principally based on US and European data.

Hypothesis 5 examined the influence of minimum capital requirement, proposing alternative hypotheses. Our first alternative, that countries with higher start-up costs are more likely to have a greater percentage of their population acting as informal investors, is supported in three cases: “classic love money,” “outsider” and “classic business angel” investors. Minimum capital requirements are significantly and negatively related to the “kin owner” population. Hypothesis 5a is mostly accepted.

We also examined the role of government programmes, suspecting that countries with pro-enterprise programmes are most likely to have greater informal investor populations. Enterprise-supportive programmes are positive in three cases, but significant only for “outsider” investors. Government programmes are negatively related to “kin owner” investors, thus hypothesis 6 has only partial support.

Higher availability of debt was expected to be related to lower levels of the population acting as informal investors. We found this to be true in three cases, but significant only in one: “outsider” investors. Again, the effect was in the opposite direction as expected for the “kin owner” population. Thus, hypothesis 7 is also partially supported.

We also considered the effect of high levels of university-level entrepreneurship education in informal investment levels. The relationship is positive for all four groups, and significant for the “kin owner” and “classic business angel” investors. Thus, hypothesis 8 is supported.

Finally, we examined the effect of culture on stimulating informal investment. Our results are extremely mixed in terms of the effect of entrepreneurship as high status on informal investment. “Classic love money” and “outsider” informal investors are negatively related to entrepreneurship as high status, significantly so in the case of the former. In contrast, entrepreneurship as high status is positive for “kin owner” and “classic business angel” investors, significantly so in the case of the latter. Thus, we find mixed support for hypothesis 9. Our hypothesis 10 predicted that countries with high levels of power distance would be less likely to have informal investors. This effect is as expected in all

four populations, and significant for “classic love money,” “outsider” and “classic business angel” investors. Hence hypothesis 10 is supported.

We expected that the model would fit differently for our four groups of informal investors. As expected, the explanatory power is greatest for the “classic business angels” (Nagelkerke R square=.169), and least for the “classic love money” group (Nagelkerke R square=0.073). In addition to the differences in magnitude, we note that the directions of the environmental variables vary across populations, implying that the four populations of informal investors reflect, perceive and act differently to given environments. Our findings are discussed in more detail below.

Discussion

We now explore characteristics and drivers of the four informal investor groups. The “classic love money” group is distinguished by a propensity of females and full-time workers who are personally acquainted with an entrepreneur, but do not see opportunities in the environment. Taken together, these results may indicate that female “love money” investors do not discuss entrepreneurial opportunities with their investees. This is perhaps unsurprising as this group does not have ownership experience. Interestingly, we found that countries in which entrepreneurship is high status are least likely to have “classic love money” investors, but most likely to have “classic business angel” populations. It may be that countries in which entrepreneurship is considered to be high status have well-developed business angel markets. We can also interpret our result as suggesting that in those countries in which entrepreneurship is not considered high status, family members (rather than non-family angel investors) are more likely to encourage and financially support each other’s efforts.

Next we examine the “outsider” investors. These mostly male investors see good opportunities in the environment, but report a significant fear of failure. This group is the most sensitive to pro-enterprise government programmes and is most likely to provide informal finance in developed countries with little available debt financing. Furthermore, “outsider” investors are the least sensitive to cultural factors.

As expected, “kin owner” investors are mostly male, older, highly educated individuals who have high household incomes and see good opportunities but are not currently employed. When debt financing is more available, “kin owners” are most willing to finance family members’ ventures. They are the most likely of the four groups to be found in developing countries experiencing significant economic growth. As “kin owners” are not currently employed, this group of informal investors may welcome the opportunity to assist, at some level, family members’ ventures. They may be eager to see family members explore ownership careers similar to those which they personally enjoyed. Taken together, our results suggest that seeing good opportunities in the environment and having ownership experience, “kin owners” are keen to encourage family members to pursue an entrepreneurial path, especially in dynamically developing countries.

Our model is most robust for the “classic business angel” investors. Here we find a population of mostly male, older individuals with high household incomes who are not currently employed and do not fear failure. These investors are most likely to be found in developed, high growth environments in which entrepreneurship is high status and there is low power distance. In contrast, pro-enterprise government programmes and lack of available debt appear insignificant to this population of classic business angels.

It is also important to examine the relative importance of the individual demographic and personal context and the environmental variables for the four groups. Individual demographics are significant in 20 of 24 instances (83%); personal context is significant in 13 of 16 cases (81%). In contrast, in only 26 of the 40 cases are environmental variables significant (65%). The marginal effects do not reveal a single variable which is most important. For example, some of the most highly significant variables (FDI, income tax and start-up costs) have the lowest marginal effects. Furthermore, entrepreneurship education is the most significant environmental variable, but still only sixth and seventh most important for “classic love money” and “classic business angel” investors respectively. Among “kin owner” investors, GDP growth is the most important environmental variable, but again only sixth overall. Prior studies suggest that informal investors are interested in the individual entrepreneur rather than the idea or the environment. Harrison and Mason (2002:41) refer to this individual focus as a propensity to “bet on the jockey rather than the horse”. This reasoning holds true for our study of individual and environmental factors. The choice to seed new ventures is based largely on green thumbs rather than fertile fields.

Conclusion and policy implications

Extant research suggests that informal investors have certain individual characteristics. Our results confirm earlier findings and offer several new contributions to the existing body of knowledge about informal investment. The informal investors in the 31 countries studied are quite heterogeneous, however we focus on two groups: (1) “classic love money” informal investors with no business ownership experience who finance close family members’ businesses, (2) “outsider” informal investors with no business ownership

experience who finance non-family members' businesses, (3) "kin owner" informal investors with business ownership experience who finance close family members' businesses, and (4) "classic business angel" informal investors with business ownership experience who finance non-family members' businesses.

This paper has explored a number of environmental effects on informal investment decisions. All variables are significant in at least one case. However, the effects are quite diverse across the four distinct groups in terms of both direction and magnitude. Individual personal context (e.g. know an entrepreneur, see good opportunities, have start-up skills, fear failure) are generally far more important determinants of informal investment than are country economic development, pro-enterprise government programmes, start-up costs, availability of debt, favorable income taxation or high levels of entrepreneurship education.

Kin-related informal investment is present in both developed and developing countries, however non-kin investments are most prevalent in developed countries. Economic prosperity is most valued by investors with ownership experience. Individuals who lack ownership experience and do not perceive opportunities are most likely to provide finance in tough economic times. This finding is consistent with theories of decision making under asymmetric information.

Individuals with ownership experience are more likely to be found in countries with high levels of respect for the entrepreneur and entrepreneurship education. Debt availability is negatively associated with informal investment propensity, particularly among non-owners. It may be the case that in countries with limited debt, entrepreneurs must initiate a

more intensive search for informal investment.

Our findings suggest a number of implications for entrepreneurs seeking additional finance. First, in unfavorable economic environments, entrepreneurs are more likely to find informal investors among the non-owner population. This phenomenon is explained by demand and supply side effects. In bad times when there is slow economic growth and limited debt financing, it is probably more difficult to identify potential informal investors. By definition, non-owners have less experience in entrepreneurial careers and thus probably less exposure to information about business opportunities. These non-owners are more apt to provide funding in unfavorable environments. This is particularly true for kin-related informal investments, e.g. “love money” with reduced agency costs. In contrast, “outsider” investors experience greater information asymmetry and agency costs, and are comparatively less likely to invest in these environments.

The role of informal investment in stimulating entrepreneurship is well documented (e.g. Gaston, 1989; Ho and Wong, 2007). Our findings also offer some implications to governments interested in encouraging informal investment. First, income tax reductions result in real increases in the amount of funding available to invest in others’ businesses. However, the marginal effect of this tax is very limited. Decreased start-up costs and minimum capital requirements increase entrepreneurship levels. However, there is also less pressure for entrepreneurs to pursue outside finance options. Supportive, pro-enterprise government programmes appear to have a negligible influence.

As our study indicates that there is no general government policy instrument associated with all four informal investor groups, we suggest selective policies. To date, extant

research on classic business angels reveals that they are likely to focus on high growth potential firms. A tiny percentage of these firms, “gazelles”, create the majority of new jobs and economic growth. In our dataset, classic business angels are most likely to be found in countries with positive economic growth and attitudes towards entrepreneurship. Another overwhelming feature is that these individuals believe that they have good start-up skills. Policies supportive of business angels should focus on increasing potential investors’ entrepreneurial skills by offering training related to start-up skills and opportunity recognition, including at the university level. These initiatives might also result in higher populations of “love”, “kin owner” and “outsider” informal investors. In general, our results confirm the need for government policy to focus on improving individuals’ opportunity recognition, entrepreneurial skills and risk propensity.

Our paper is subject to several limitations. First, as previously discussed, some environmental variables are strongly correlated. We have decreased, but not entirely reduced, the problem of multicollinearity in the dataset. We also acknowledge that there may be other factors which we do not take into account. For example, knowledge spillovers from entrepreneurship are geographically localized (Acs and Plummer, 2005) and informal investors cluster in cities and regions (Avdeitchikova and Landström, 2005). Second, our distinction of career experience is based on past ownership experience. Individuals may have been managers, but not owners, of a firm and have acquired useful entrepreneurial experience. Third, past studies have explored informal investment using funding level, however we focused on investor prevalence rate. These two measures are not always related. For example, among the 31 countries, Uganda has the highest informal investor prevalence rate (13%). However, Ugandans invest an average of just over \$300, and half of the investment is less than \$54. We considered the total amount of informal

investment to be beyond the scope of this paper. Despite these limitations we do believe that our novel picture of the environmental drivers of different types of informal investors has enriched our understanding of the mechanisms and effects of informal investment decision making.

Going forward, this study offers a number of directions for research. Future studies could explore our typology of investors, for example applying agency and altruism lenses on the types' motivations and expectations. Other studies could focus on specific sub-types, such as those who are most active, invest the greatest sums or focus on technology-oriented firms. Extensions to "green thumbs" could include a more comprehensive perspective of investors' career histories. Further "fertile fields" work could incorporate other environmental variables. For example, emerging policies include guarantee and co-investment schemes (Aernoudt *et al.*, 2007). More fine-grained studies could examine, over time, on the relationship between these and other policies on informal investment levels.

Acknowledgments: We are grateful for suggestions from Colin Mason and three anonymous reviewers which significantly improved the quality of this manuscript.

References

Acs, Z., P. Arenius, M. Hay and Minniti, M. (2005) *Global Entrepreneurship Monitor 2004 Global Report Executive Summary*, Babson College and London Business School.

Acs, Z., O’Gorman, C., Szerb, L., and Terjesen, S. (2007) Could the Irish Miracle be Repeated in Hungary? *Small Business Economics*, 27(2): pp. X-X.

Acs, Z. J., and Plummer, L. (2005) Penetrating the ‘Knowledge Filter’ in Regional Economies, *The Annals of Regional Science*, 39(3): 439-456.

Acs, Z.J., and Varga, A. (2005) Entrepreneurship, Agglomeration and Technological Change, *Small Business Economics*, 24(3): pp. 323-334.

Aernodt, R. (1999) Business angels: should they fly own their own wings?, *Venture Capital*, 1(2): pp.187-195.

Aernodt, R., Jose, A.S., and Roure, J. (2007) Executive Forum: Public Support for the Business Angel Market in Europe- a Critical Review, *Venture Capital*, 9(1): pp. 71-84.

Arthur, M.B., Inkson, K., and Pringle, J.K. (1999) *The new careers: Individual action and economic change*. Thousand Oaks: Sage.

Arthur, M.B., and Rousseau, D.M. (1996) *The boundaryless career: A new employment principle for a new organizational era*. New York: Oxford University Press.

Audretsch, D., and Acs, Z. (1988) Innovation in large and small firms. *American Economic Review*, 78(4): pp. 678-690.

Autio, E. (2005) High-expectation entrepreneurship, London Business School.

Avdeitchikova, S., and Landström H. (2005) Informal venture capital: scope and geographical distribution in Sweden. Working paper presented at Babson Kauffman Entrepreneurship Conference, Babson College, Wellesley, Massachusetts.

Berger, A., and Udell, G. (1998) The Economics of Small Business Finance: The Role of Private Equity and Debt Markets in the Financial Growth Cycle. *Journal of Banking and Finance*, 22(6): pp. 613-673.

Bergmann, H., and Sternberg, R. (2007) The changing face of entrepreneurship in Germany: Present policy changes and their regional implication. *Small Business Economics*.

Bhide, A. (2000) *The Origin and Evolution of New Businesses*. New York: Oxford University Press.

Bird, A. (1994) Careers as repositories of knowledge: A new perspective on boundaryless careers. *Journal of Organizational Behavior*, 15: pp. 325-344.

Bosma, N., Van Praag, M., Thurik, R., and de Wit, G. (2002) The value of human capital and social capital investments for the performance of start-ups. *Small Business Economics*, 23(3): pp. 227-236.

Bruton, G.D., Fried, V.H., and Manigart, S. (2005) Institutional Influences on the Worldwide Expansion of Venture Capital, *Entrepreneurship Theory and Practice*, 29(6): pp. 737–760.

Bygrave, W.D., Hay, M., Ng, E. and Reynolds, P. (2003) Executive forum: a study of informal investing in 29 nations composing the Global Entrepreneurship Monitor, *Venture Capital*, 5(2): pp. 101-116.

Bygrave, W.D., and Hunt, S. (2005) Global Entrepreneurship Monitor 2004 Financing Report, Babson College and London Business School.

Bygrave, W.D., and Reynolds, P.D. (2005) Who finances start-ups in the USA? A comprehensive study of informal investors, 1999-2003. *Frontiers of Entrepreneurship Research*.

Carpentier, C., and Suret, J.M. (2007) On the Usefulness of Tax Incentives for Informal Investors, *Venture Capital*, 9(1): pp. 1-22.

Casson, M. (1982) *The Entrepreneur: An Economic Theory*. Oxford: Martin Robertson.

Christofidis, C., and Debande, O. (2001) Financing Innovative Firms through Venture Capital. European Investment Bank Sector Papers.

Coveney, P., and Moore, K. (1998) *Business Angels: Securing Start-Up Finance*. Chichester: Wiley.

Cowling, M., Murray, G., and Harding, R. (2003) The ‘Virtuous Circle’ of Informal Investment Activity: Evidence from the UK. Working Paper.

Davidsson, P. (2005). Nascent Entrepreneurship: Empirical Studies and Developments. *Foundations and Trends in Entrepreneurship*, 2(1): 1-76.

DeFillippi, R.J., and Arthur, M.B. (1994) The Boundaryless Career: A Competency-based Perspective. *Journal of Organizational Behavior*, 15: pp. 307-324.

Duxbury, L., Haines, G., and Riding, A. (1996) A personality profile of Canadian informal investors. *Journal of Small Business Management*, 24: pp. 44-56.

Dyer, W.G. Jr. (1994) Towards a theory of entrepreneurial careers. *Entrepreneurship Theory and Practice*, 19(2): pp. 7-21.

Entrepreneurship Education in Europe (EEE). (2006) Fostering entrepreneurial mindsets through education and learning. COM. Commission of the European Communities, Brussels.

European Commission. (2002) Benchmarking business angels. Report to the European Commission Enterprise Directorate. Geneva. Accessed: http://ec.europa.eu/enterprise/entrepreneurship/financing/docs/benchmarking_ba_en.pdf

Freear, J., Sohl, J.E., and Wetzel, W.E. (2002) Angles on angels: financing technology-based ventures: a historical perspective. *Venture Capital*, 4(4): pp. 275-287.

Gaston, R.J. (1989) *Finding Private Venture Capital for your Firm: A Complete Guide*. New York: Wiley.

Guiso, L., Haliassos, M., and Jappelli, T. (2003) Household stockholding in Europe: where do we stand and where do we go? *Economic Policy*, 36(6): pp. 117-164.

Harrison, R.T., and Mason, C.M. (2000) Venture capital market complementarities: the links between business angels and venture capital funds in the United Kingdom. *Venture Capital*, 2(3): pp. 223-242.

Harrison, R.T., and Mason, C.M. (2002) Backing the horse or the jockey? Agency costs, information and the evaluation of risk by business angels in Bygrave, W. D., B. J. Bird, N. S. Birley, C. Churchill, M. G. Hay, R. H. Keeley and W. E. Jr. Wetzel (eds.), *Frontiers of Entrepreneurship Research*, Wellesley: Babson College, pp. 29-46.

Harrison R.T., Mason, C.M., and Girling, P. (2004) Financial bootstrapping and venture development in the software industry. *Entrepreneurship and Regional Development*, 16(4): pp. 307-346.

Hayton, J.C., George, G., & Zahra, S.A. (2002) National culture and entrepreneurship: a review of behavior research. *Entrepreneurship Theory and Practice*, 26(4): pp. 33-52.

Hindle, K., and Rushworth, S. (1999) The demography of investor heaven: a synthesis of international research on the characteristics, attitudes and investment behavior of business angels. Working paper presented at 'Financing the future: Small Medium Enterprise finance, Corporate Governance and the Legal System,' Sydney.

Ho, Y.-P., and Wong, P.-K. (2007) Availability of Financing, Regulatory Business Costs and National Entrepreneurial Propensity. *Small Business Economics*, 27(2): X-X.

Hofstede, G. (1984) National cultures and corporate cultures. In L.A. Samovar & R.E. Porter (Eds.), *Communication Between Cultures*. Belmont, CA: Wadsworth.

Hofstede, G., N.G. Noorderhaven, A.R.M. Wennekers, L. Uhlaner, A.R. Thurik and R.E. Wildeman (2004), "Culture's role in entrepreneurship: self-employment out of dissatisfaction," in J. Ulijn and T. Brown (eds) *Innovation, Entrepreneurship and Culture: The Interaction between Technology, Progress and Economic Growth*, Cheltenham, UK and Brookfield, US: Edward Elgar: pp. 162-203.

Imrey, P.B., Koch, G.G., and M.E. Stokes. (1981, 1982) Categorical Data Analysis: Some Reflections on the Log-Linear Model and Logistic Regression (Parts I., II.) *International Statistical Review*, 49: pp. 263-283; and 50: pp. 35-63.

- Jeng, L.A., and Wells, P.C. (2000) The determinants of venture capital funding: evidence across countries, *Journal of Corporate Finance*, 6: pp. 241-289.
- Klapper, L., Laeven, L., and Rajan, R. (2004) Business Environment And Firm Entry: Evidence From International Data, NBER Working Paper 10380.
- Koch, G.G., and Edwards, S. (1985) Logistic Regression, in *Encyclopedia of Statistical Sciences*, Vol. V. New York: John Wiley and Sons.
- Kuratko, D. (2003) Entrepreneurship education: Emerging trends and challenges for the 21st century, Coleman Foundation, Chicago, IL, White Paper Series.
- Landström, H. (1992) The relationship between private investors and small firms: An agency theory approach. *Entrepreneurship and Regional Development*, 4: pp. 199-223.
- Landström, H. (1998) Informal Investors as Entrepreneurs, *Technovation*, 18(5): pp. 321-333.
- Levesque, M., and Minitti, M. (2006) The effect of aging on entrepreneurial behavior. *Journal of Business Venturing*, 21(1): pp. 177-194.
- Lundström, A., and Stevenson, L. (2002) Entrepreneurship policy for the future, Swedish Foundation for Small Business Research, Stockholm.
- Macmillan, I.C., Kulow, D.M., and Khoylian, R. (1989) Venture capitalists involvement in their investments: extent and performance. *Journal of Business Venturing*, 4(1): pp. 27-47.
- Mason, C.M. (2006) Informal sources of venture finance in Parker, S. (Ed) *The Life Cycle of Entrepreneurial Ventures: Volume 3. International Handbook on Entrepreneurship*. Springer-Kluwer.
- Mason, C.M., and Harrison, R.T. (1999) An overview of informal venture capital research, *Venture Capital*, 1(2): pp. 95-100.
- Mason, C.M., and Harrison, R.T. (2002a) Barriers to investment in the informal venture capital sector. *Entrepreneurship and Regional Development*, 14: pp. 271-287.
- Mason, C.M., and Harrison, R.T. (2002b) Is it worth it? The rates of return from informal venture capital investments. *Journal of Business Venturing*, 17(3): pp. 211-236.
- Maula, M., Autio, E., and Arenius, P. (2005) What drives micro-angel investments? An examination of determinants of family and nonfamily investments. *Small Business Economics*, 25(5): pp. 459-475.
- Myers, S.C. (1984) The capital structure puzzle. *Journal of Finance*, 39(3): pp. 575-592.
- Myers, S.C., and Majluf, N.S. (1984) Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13(2): pp. 187-221.

O’Gorman, C., and Terjesen, S. (2006) Financing the Celtic Tigress: Venture financing and informal investment in Ireland. *Venture Capital*, 8(1): pp. 69-88.

Politis, D., and Landström, H. (2002) Informal investors as entrepreneurs – the development of an entrepreneurial career, *Venture Capital*, 4(2): pp. 77-101.

Porter, M.E. (1987) *Competitive Advantage*. New York: Basic Books.

Randolph, W.A., and Dess, G.G. (1994) The congruence perspective of organization design: a conceptual model and multivariate research approach, *Academy of Management Review*, 9(1): pp. 114-127.

Reynolds, P.D., Bygrave, W.D., and Autio, E. (2004) Global Entrepreneurship Monitor. 2003 Executive Report. Babson College and London Business School.

Reynolds, P.D., Bosma, N., Autio, E., Hunt, S., De Bono, N., Servais, I., Lopez-Garcia, P., and Chin, N. (2005) Global Entrepreneurship Monitor: Data Collection Design and Implementation 1998-2003. *Small Business Economics*, 24(3): pp. 205-231.

Sætre, A.S. (2003) Entrepreneurial Perspectives on Informal Venture Capital, *Venture Capital*, 5(1): pp. 71-94.

Sapienza, H.J. (1992) When do Venture Capitalists Add Value? *Journal of Business Venturing*, 7(1): pp. 9-27.

Scherer, R.F., Brodzinski, J.D., and Wiebe, F.A. (1991) Examining the relationship between personality and entrepreneurial career preference. *Entrepreneurship and Regional Development*, 3: pp. 195-206.

Scott, W.R. (1995) *Institutions and organizations*. Thousand Oaks, CA: Sage.

Shane, S. (1992) The effect of cultural differences in perceptions of transaction costs on national differences in the preference for licensing. *Management International Review*, 32(10): pp. 295-311

Sohl, J.E. (1999) The early stage equity market in the United States, *Venture Capital*, 1(2): pp. 101-120.

Sørheim, R., and Landström, H. (2001) Informal investors: A categorization, with policy implications. *Entrepreneurship and Regional Development* 13(4): pp. 351-370.

Specht, P.H. (1993) Munificence and carrying capacity of the environment and organization formation, *Entrepreneurship Theory and Practice*, 17(2): pp. 77-86.

Stel, A.V., Carree, M., and Thurik, R. (2005) The Effect of Entrepreneurial Activity on National Economic Growth. [*Small Business Economics*](#), 24(3): pp. 311-321.

Stevenson, H., and Coveney, P. (1994) Survey of Business Angels: Fallacies Corrected and Six Distinct Types of Angels Identified. Templeton College, Oxford, and Venture Capital Report, Ltd., Henley on Thames, UK.

Stiglitz, J., and Weiss, A. (1981) Credit Rationing in Markets with Imperfect Information. *American Economic Review*, 71(3): pp. 393-410.

Storey, D. (1994) *Understanding the small business sector*. Routledge: London and New York.

Sullivan, M.K. (1991) Entrepreneurs as Informal Investors: Are There Distinguishing Characteristics? In N. C. Churchill, W. D. Bygrave, J. G. Covin, D. L. Sexton, D. P. Slevin, K. H. Vesper and W. E. Wetzel Jr. (eds) *Frontiers of Entrepreneurship Research* (Wellesley, MA: Babson College), pp. 456-468.

Sullivan, S.E. (1999) The Changing Nature of Careers: A Review and Research Agenda. *Journal of Management*, 25(3): pp. 457-484.

Sullivan, S.E., and Arthur, M.B. (2006) The Evolution of the Boundaryless Career Concept: Examining Physical and Psychological Mobility. *Journal of Vocational Behavior*, Forthcoming.

Szerb, L., Rappai, G., Makra, Z., & Terjesen, S. (2007) Informal investments in transition: the motivations, characteristics and classification of informal investors in Croatia, Hungary and Sweden. *Small Business Economics*, 27(2): X-X.

Terjesen, S. (2005) Senior Women Managers' Transition to Entrepreneurship: Leveraging Embedded Career Capital. *Career Development International*, 10(3): pp. 246-259.

Van Osnabrugge, M. (2000) A comparison of business angel and venture capitalist investment procedures: an agency theory-based analysis. *Venture Capital*, 2(2): pp. 93-110.

Van Osnabrugge, M., and Robinson, R.J. (2000) *Angel investing: Matching start-up funds with start-up companies: the guide for entrepreneurs, individual investors and venture capitalists*. Jossey-Bass, San Francisco.

Visser, R., and Williams, R. (2001) Prospecting for Gold: How Dutch Informal Investors Appraise Small Businesses in Trouble. *Venture Capital*, 3(1): pp. 1-24.

Wetzel, W.E. (1981) Informal risk capital in New England, in: Vesper, K. H. (ed.), *Frontiers of Entrepreneurship Research*, Babson College, Wellesley: pp. 217-245.

Wiltbank, R. (2005) Investment Practices and Outcomes of Informal Venture Investors. *Venture Capital*, 7(4): pp. 343-357.

Wong, P.K., and Ho, Y.P. (2007) Characteristics and Determinants of Informal Investment in Singapore. *Venture Capital*, 9(1): pp. 43-70.

World Bank. (2005) Doing Business in 2005: Removing Obstacles to Growth, Washington: World Bank.

Figure 1: Model of individual and environmental drivers of informal investment decision

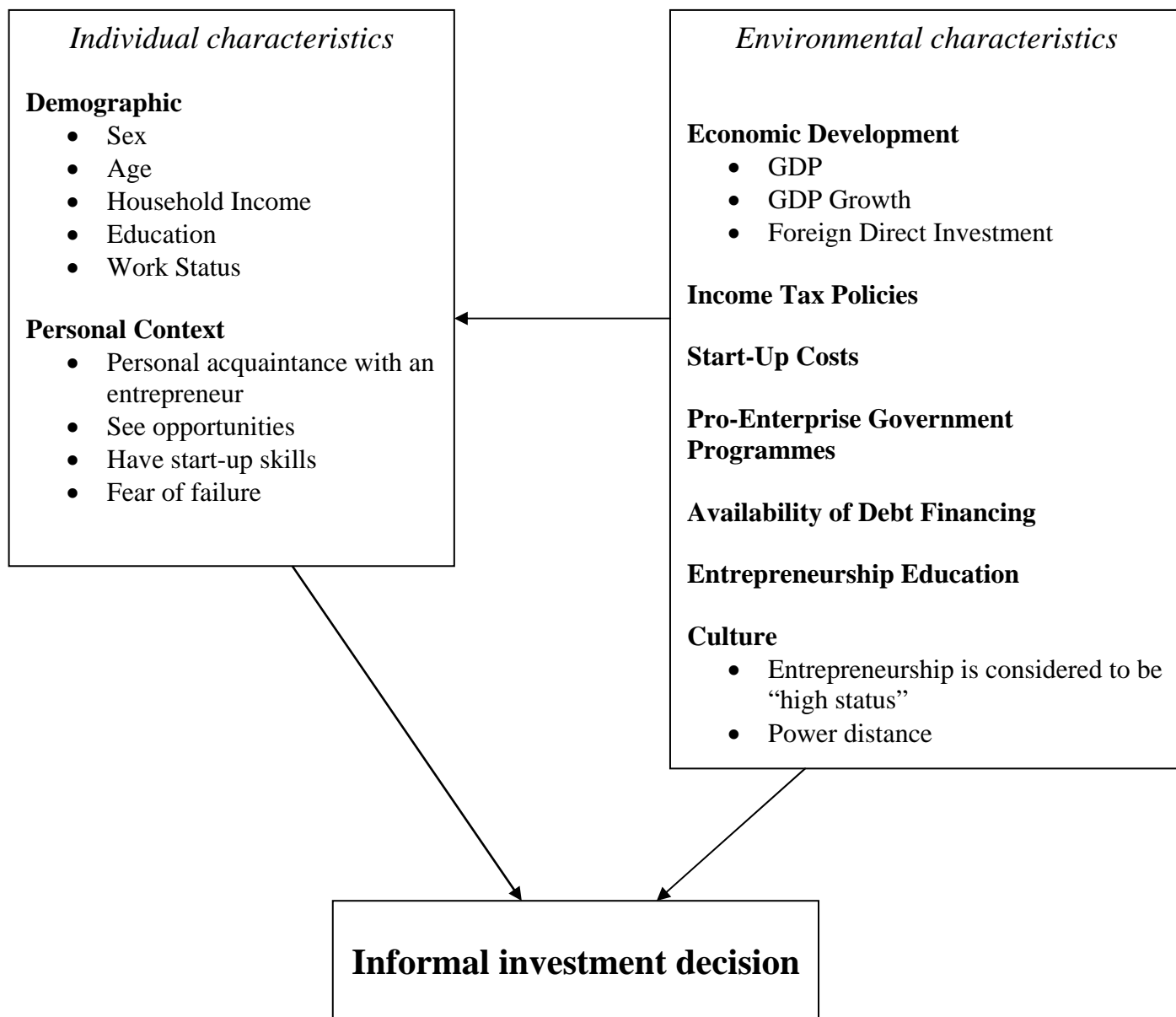


Figure 2: Typology of Informal Investors

Relationship To Investee	Close Family	<p>“Kin owner”: Close Family Member, Owner Investors 913 (15%)</p>	<p>“Classic love money”: Close Family Investors with no Ownership experience 1,738 (29%)</p>
	Non-Close Family	<p>“Classic business angel”: Non-close family, Owner Investors 1,252 (21%)</p>	<p>“Outsider”: Investors with no business experience and no close family ties to investees 2,057 (36%)</p>
		Past Experience	No Experience
Business Ownership Experience			

Figure 3: Informal Investor Prevalence in 31 Countries: as percentage of population (2001-2003)

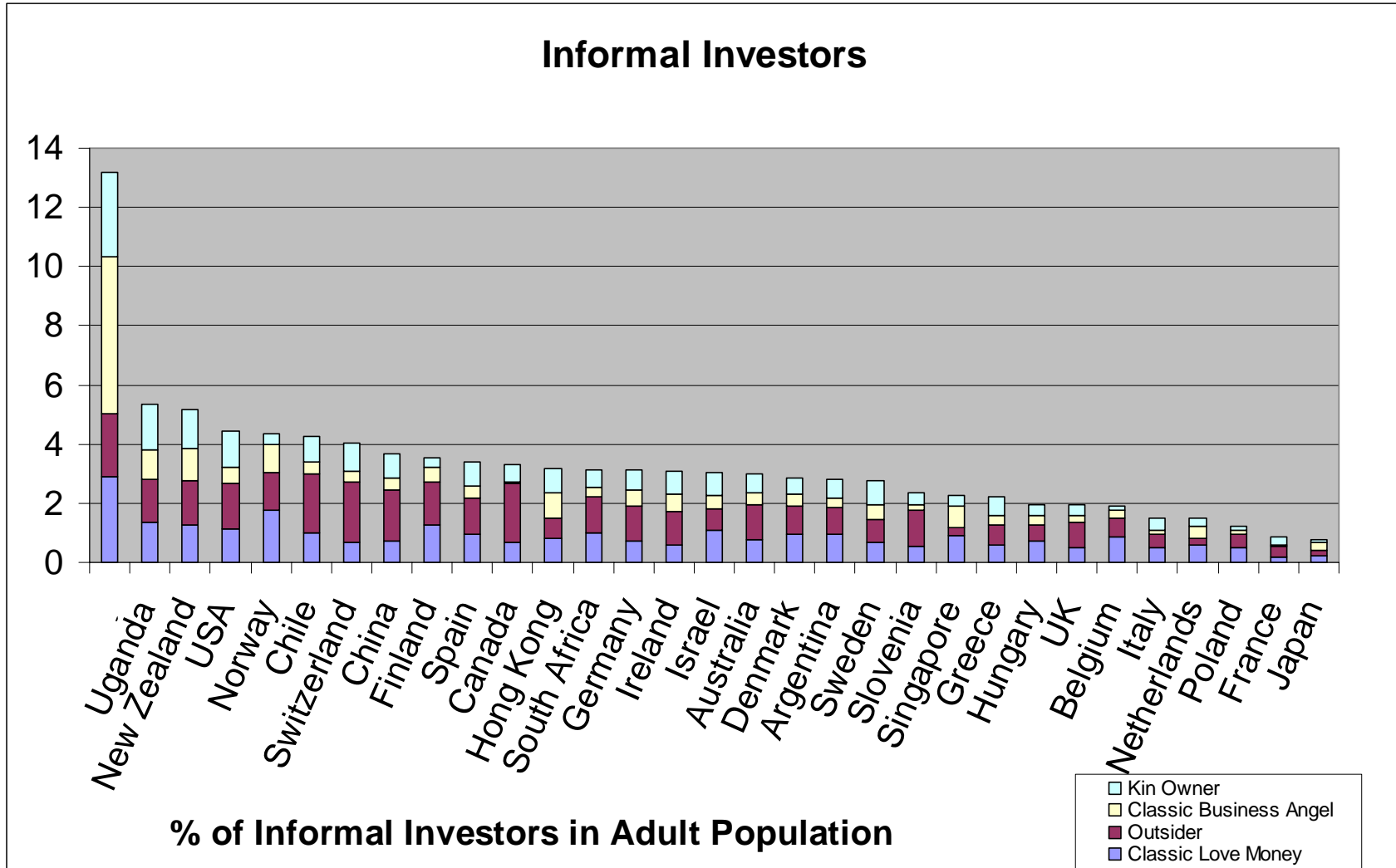


Table 1: Description of Variables

Name	Type	Source of data	Definition
Informal Investor	Categorical (Dependent)	GEM Adult Population Survey (GEMAPS)	0: Has not invested in a new business owned by someone else in the last 3 years 1: Is an informal investor invested in close family business but has no ownership experience "Classic love money" 2: Is an informal investor invested in not close family business but has no ownership experience "Outsider" 3: Is an informal investor invested in close family business and has ownership experience "Kin owner" 4: Is an informal investor invested in not close family business and has ownership experience "Classic business angel"
Sex	Dummy	GEMAPS	0: Male, 1: Female
Age 3 Categories	Categorical	GEMAPS	Age at the time of the interview in three categories: 1: 15-34, 2: 35-54, 3: 55 and up
Age Square	Categorical	GEMAPS	The square of age
Household Income	Dummy	GEMAPS	0: Household income does not belong to the upper third, 1: Household income is among the upper third
Work Status	Dummy	GEMAPS	0: Not employed, 1: Employed
University Degree	Dummy	GEMAPS	University education: 0: no university (graduate degree), 1: graduate degree
Know Entrepreneur	Dummy	GEMAPS	0: Do not know anyone who started a business in the last two years 1: Know someone who started a business in the last two years
See Opportunities	Dummy	GEMAPS	0: Do not see good start up opportunities in a region where she/he lives 1: Sees good start up opportunities in a region where she/he lives
Have Skills	Dummy	GEMAPS	0: Do not feel that she/he (self) possesses the knowledge and skills to start a business 1: Feels that she/he (self) possesses the knowledge and skills to start a business
Fear Failure	Dummy	GEMAPS	0: Do not feel a fear of failure that prevents him/her from starting a new business 1: Feels a fear of failure that prevents him/her from starting a new business
GDP	Categorical	OECD	Country development measured by the real PPP. GDP in four categories: 1: GDP < US\$15000; 2: US\$15000 <GDP< US\$25000; 3: US\$25000 <GDP< US\$29000; 4: GDP> US\$29000
GDP Growth	Continuous	OECD	GDP growth average 2001-2003
FDI	Continuous	OECD	Average amount of foreign direct investment in thousand \$US 2001-2003
Income Tax	Continuous	OECD	Income tax revenue as a percentage of GDP 2002
Start-Up Costs	Continuous	World Bank	Minimum capital requirement % of income per capita 2003
Pro-Enterprise Govt. Programmes	Categorical	GEM expert	In my country, there are an adequate number of government programmes for new and growing businesses
Availability of Debt Funding	Categorical	GEM expert	In my country, there is sufficient debt funding available for new and growing firms
Entrepreneurship Education	Categorical	GEM expert	In my country, colleges and universities provide good and adequate preparation for starting up and growing new firms
Entrepreneurship is "High Status"	Continuous	GEMAPS	In this country, those successful at starting a new business have a high level of status and respect, country averages 2003-2004
Power Distance	Continuous	Hofstede	Extent to which less powerful individuals in a society accept inequality

Table 2: Data description and correlation coefficient of the environmental variables

		Number of cases	Minimum	Maximum	Mean	Std. Deviation	Correlations									
							1	2	3	4	5	6	7	8	9	10
1	GDP	31	1	4	2.48	1.09	1	-0.28	0.29	0.51	-0.28	0.29	0.58	-0.02	-0.21	-0.53
2	GDP Growth	31	-2.2	8.2	2.05	1.91		1.00	-0.07	-0.02	-0.05	0.24	0.02	-0.01	0.26	0.31
3	FDI	31	0.01	10.92	1.08	2.09			1.00	0.18	0.09	0.20	0.18	0.04	-0.15	0.06
4	Income Tax	27	2.62	26.45	9.80	5.02				1.00	-0.53	0.11	0.46	-0.13	-0.18	-0.67
5	Start-Up Costs	31	0	38657	28563.64	17114.58					1.00	-0.25	-0.36	0.03	-0.15	0.40
6	Pro-Enterprise Govt Programmes	31	1.37	2.97	2.13	0.43						1.00	0.39	0.26	-0.09	-0.03
7	Availability of Debt	31	1.63	4.03	2.83	0.49							1.00	0.25	-0.20	-0.50
8	Entrepreneurship Education	31	1.87	3.23	2.58	0.35								1.00	0.14	0.04
9	Entrepreneurship is 'High Status'	28	25.15	83.83	60.68	14.67									1.00	-0.01
10	Power Distance	31	13	80	48.00	18.11										1.00

Note: **Bold: 5% significance level**; Normal: not significant

Table 3: Multinomial regression results of informal investment decision

	“Classic love money”: Non-owner, close relative			“Outsider”: Non-owner, not close relative			“Kin owner”: Owner close relative			“Classic business angel”: Owner not close relative		
	Parameter	Chi-Square	Marginal effect	Parameter	Chi-Square	Marginal effect	Parameter	Chi-Square	Marginal effect	Parameter	Chi-Square	Marginal effect
Intercept	-5.8210	126.2536		-7.1041	234.3378		-9.1032	182.1795		-10.2037	288.3641	
Sex	-0.1301	6.4787	0.8780	0.7595	245.2074	2.1372	0.1866	7.6118	1.2051	0.7825	149.4066	2.1870
Age 3 Categories	0.1020	0.2062	1.1074	<i>0.3258</i>	2.9700	1.3852	0.7531	7.5296	2.1236	0.7145	9.1091	2.0432
Age Square	0.0650	1.4245	1.0671	-0.1077	5.0784	0.8979	-0.1589	5.4749	0.8531	-0.1778	9.0213	0.8372
Household Income	<i>0.1020</i>	3.2658	1.1074	0.2221	20.6202	1.2487	0.3163	20.4068	1.3721	0.5792	93.9731	1.7845
Employment	0.1222	3.8840	1.1299	-0.0132	0.0452	0.9869	-0.5672	33.9770	0.5671	-0.9615	85.1076	0.3823
Education	0.2422	17.9171	1.2741	0.3648	54.2289	1.4403	-0.0687	0.8813	0.9337	0.1987	10.2370	1.2198
Know Entrepreneur	1.6678	859.9109	5.3004	1.3447	697.6600	3.8371	1.3779	331.8166	3.9664	1.3915	422.0026	4.0211
See Opportunities	-0.0141	0.0682	0.9860	0.1575	10.8581	1.1706	0.3671	28.8241	1.4435	0.2367	15.8447	1.2671
Have Start-up Skills	0.3610	41.3726	1.4347	0.4589	81.4465	1.5823	1.3978	265.1026	4.0463	1.7135	451.5393	5.5483
Fear Failure	0.3109	30.4042	1.3646	0.1671	10.5805	1.1819	0.0167	0.0437	1.0168	-0.0747	1.0947	0.9280
GDP	0.0571	2.0141	1.0588	0.1672	21.1103	1.1820	-0.0146	0.0739	0.9855	0.1099	5.7628	1.1161
GDP Growth	-0.0018	0.0090	0.9982	<i>-0.0321</i>	3.4975	0.9684	0.1650	38.1491	1.1794	<i>0.0426</i>	3.6624	1.0435
FDI	-0.0592	2.4431	0.9425	0.0858	7.6852	1.0896	-0.3083	32.2013	0.7347	-0.1335	9.6734	0.8750
Income Tax	-0.0210	21.1375	0.9792	-0.0295	53.3964	0.9709	-0.0205	11.0665	0.9797	-0.0193	12.8933	0.9809
Start-up Costs	0.0009	4.7557	1.0009	0.0031	79.5240	1.0031	-0.0014	7.8044	0.9986	0.0027	37.0133	1.0027
Pro-Enterprise Programmes	0.0395	0.3220	1.0403	0.1968	10.9774	1.2176	-0.0316	0.0876	0.9689	0.1121	1.7285	1.1186
Debt Available	-0.0257	0.0879	0.9746	-0.1533	4.3280	0.8578	<i>0.2147</i>	3.2183	1.2395	-0.0062	0.0041	0.9938
Entrepreneurship Education	0.1033	0.9874	1.1088	0.0871	0.9085	1.0910	0.2975	4.5269	1.3464	<i>0.2091</i>	3.2135	1.2326
Entrepreneurship is ‘High Status’	-0.0057	4.6736	0.9943	-0.0019	0.6104	0.9981	0.0016	0.2414	1.0016	0.0114	13.2049	1.0114
Power Distance	-0.0061	4.8284	0.9939	<i>-0.0048</i>	3.7336	0.9952	-0.0033	0.8674	0.9967	-0.0124	15.1506	0.9877
# Informal investors	1641			2043			966			1264		
Log likelihood	8843			9793			5428			5896		
Nagelkerke R square	0.073			0.093			0.123			0.169		

Note: **Bold: 1% significance level; Bold Italic: 5% significance level; Italic: 10% significance level; Normal: not significant**