ANALYSIS OF INFORMAL INVESTMENT IN SINGAPORE: CHARACTERISTICS OF INVESTORS AND DETERMINANTS OF PROPENSITY TO INVEST

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Since Wetzel (1982, 1983) identified the business angel as a primary source of risk capital, there has been increased interest in the role of informal investors in the formation of new business ventures. Unlike in the developed OECD nations, little is understood about informal investors in fast developing economies such as Singapore. This present paper will further understanding of informal investment in the context of Singapore. It analyses the informal investment landscape in Singapore in two ways. Firstly, Singaporean individuals who have made informal investments in entrepreneurial ventures are profiled. Secondly, the paper examines factors that differentiate individuals who become informal investors from those who do not make informal investments. In particular, we examine if these factors differ depending on the relationship between the investor and entrepreneur. We also investigate the differences between determinants of higher and lower value investment propensities. The findings reveal that knowing entrepreneurs personally was the factor with the strongest influence on informal investing propensity. Other findings suggest that informal investing propensity in Singapore is less influenced by demographic factors and income, and more by prior entrepreneurial experience and self-perceived skills with new business formation.

Keywords: Informal Investment, Entrepreneurial Ventures, Business Angels
INTRODUCTION

The role of informal investors in the formation of new business ventures has been of increasing interest to researchers and policy makers since Wetzel’s (1982, 1983) seminal studies identified the business angel as a primary source of risk capital. Recent studies by Bygrave et al. (2002), Autio et al. (2003) and Ho and Wong (2005) have found that informal investments contribute to entrepreneurial activity at the national level. Several studies have also estimated that the market for business angel capital is several times the size of the formal venture capital industry, as documented for specific countries such as the US (Benjamin and Margulis, 1996; Wetzel and Freear, 1988) and the UK (Harrison and Mason, 1992) as well as in a cross-national context (Reynolds et al., 2002). This has led to interest in the individual investor as the unit of analysis, with several studies compiling the profile of business angels, usually in terms of demographics (Mason and Harrison, 1992; Wetzel, 1983) and more selectively, in terms of psychological profiles (Duxbury et al., 1996) and attitudes and behaviour (Aram, 1989; Landström, 1995; Prowse, 1998).

While these studies have done much to shed light on the characteristics of informal investors, they are mainly based on samples of informal investors in the industrialised OECD countries. Little is understood about informal investors in fast developing economies such as Singapore. Other than Wong and Ho’s (2003) profile of 140 Singaporean informal investors covered by the Global Entrepreneurship Monitor (GEM) survey from 2000 to 2002, Hindle and Lee’s (2002) study of a small sample of 29 business angels is the only prior study focusing on informal investors in this country. The first part of this paper will further our understanding of the informal investment landscape in Singapore by profiling a larger sample of Singaporean informal investors. This is made possible by drawing on data collected over 5 years of Singapore’s participation in the GEM project, from 2000 to 2004.

Wright, Westhead and Sohl (1998) spelt out the need to compare the attitudes, behaviour and characteristics of potential and active angels to identify differences and devise strategies to mobilize potential investors. While we have a good grasp on the profile of a “typical” angel investor, especially in advanced countries, there is little definitive research on what explains individuals’ propensity to become business angels. The work of Maula et al. (2005) using data on Finnish adults represents a first attempt to identify the determinants of angel investing propensity, focusing on distinguishing between family and non-family investors. Wong et al.
(2005b) extended the framework used by Maula et al. to include concepts related to trust and risk in decision-making (Dibben, 2000). Applying the framework to a large, multi-nation sample of adults from 17 countries, Wong et al. investigated if the determinants of angel investing propensity differ according to the degree of familiarity between the business angel and the entrepreneur who is the recipient of the investment.

In the second part of this paper, we draw on the work of Maula et al. (2005) and Wong et al. (2005b) and additionally introduce the concept of social networks as another dimension of the propensity to become informal investors. Using this expanded framework, we examine the factors that differentiate Singaporeans who become informal investors from those who do not make informal investments. In particular, we examine if these factors differ depending on the relationship between the investor and entrepreneur. We also investigate the differences between determinants of higher and lower value investment propensities.
LITERATURE REVIEW

The first part of this literature review will focus on the relevant entrepreneurship research pertaining to business angels; in particular studies on the characteristics of individual informal investors. While these are almost entirely descriptive in nature, they are helpful to identify possible determinants of angel investing propensity. The subsequent sections will explore selected areas in the fields of psychology, sociology, economics, and finance, focusing on theoretical and empirical studies that have bearing on explaining decisions and behaviours in the process of making informal angel investments.

Entrepreneurship Literature on Informal Investors

The literature on informal investors has usually focused on the subset categorised as business angels. Wetzel’s (1983) influential study on American business angels identified this group of investors as one which plugs the capital gap by financing entrepreneurial firms that other investors are reluctant to fund. This seminal study emphasized that business angels are a source of risk capital (thereby excluding the “love money” financing provided by family and friends) and was the first to profile the demographic characteristics, preference patterns and expectations of business angels. It paved the way for future research by establishing several parameters of interest in the study of business angels: investment history, venture life-cycle preference, involvement in investee companies, geographic patterns, industry preference, risk perceptions and exit expectations.

Subsequent studies have built upon the Wetzel’s work on establishing the characteristics of business angels, sometimes classifying such investors as “informal venture capitalists”. This choice of terminology emphasised that the informal investors being studied were regarded primarily as individuals who make investment decisions associated with risks. Where business angels are not specified as the sample being analysed, studies have tended to make no distinction between business angels and the broader class of informal investors that include family investors.

Researchers have studied the characteristics of business angels in various countries such as USA (Aram, 1989), UK (Harrison and Mason, 1992), Sweden (Landström, 1993), Canada (Farrell, 1998; Riding et al., 1993), Japan (Tashiro, 1999), Australia (Hindle and Wenban,
These studies have established and consolidated our present understanding of the typical business angel to be male, of high net-worth, middle-aged and with entrepreneurial experience.

The first generation of business angel studies did not specifically address the motivations for informal investment, focusing instead on the criteria used to make investment decisions, including characteristics of the entrepreneur and the proposed investment project (Mason and Rogers, 1996; Riding et al., 1993). It was implicitly understood that the primary motive for angel investors is one of economic benefits, although early work by Wetzel (1981, 1983) identified participation in the entrepreneurial process as a potential non-financial motivation. Sullivan and Miller (1996) used social psychological factors to empirically formalize a schema that identified three categories of motivations for business angels: economic, altruistic and hedonistic. Van Onasbrugge and Robinson (2000) also found that while reasons for angel investment vary, they fit into three categories: opportunity for financial gain, playing a role in the entrepreneurial process and other non-financial factors (such as a sense of social responsibility).

While the literature has explained the motivations of business angels, very little work has focused on differentiating between business angels and non investors. Duxbury et al. (1996) departed from the norm of business angel research by contrasting the personality profiles of investors with those of non-investors. In another study, Freear, et al. (1994) examined the difference between business angels and high net worth individuals with no venture investment history and attempted to understand the propensity of the latter group to join the fold.

Only two previous studies have specifically focused on the social demographic determinants of the propensity of individuals to invest their personal wealth in entrepreneurial ventures. Maula et al. (2005) tested a series of hypothesized determinants of informal investment propensity developed from two theoretical bases, Ajzen’s (1988, 1991) theory of planned behaviour and the financial economics theory of household portfolio allocation. Using data on Finnish adults, Maula et al. confirmed that factors such as age, education, income and gender predict likelihood of individuals becoming angel investors. Additionally, social psychological factors such as opportunity perception and personal networks were also found to be significant predictors. Using an extended framework applied to business angels and
excluding family investors, Wong et al. (2005b) generalised the findings of Maula et al. (2005) by analysing a large sample of adults from 17 nations. This study also found that the determinants of investing propensity were different for investments in ventures owned by acquainted entrepreneurs and ventures owned by strangers.

**Social Psychological Theory of Planned Behaviour**

Ajzen’s (1988, 1991) work on the theory of planned behaviour provides a theoretical framework for understanding the decision of individuals to make informal investments. The theory of planned behaviour deconstructs human behaviour as being guided by three constituent belief elements: beliefs about the likely consequences of the behaviour (behavioural beliefs), beliefs about the expectations of other people (normative beliefs) and beliefs about the presence of factors that may affect performance of the behaviour (control beliefs). Behavioural beliefs produce attitude towards the behaviour, normative beliefs produce a subjective norm and control beliefs produce perceived behavioural control. The combination of attitude, subjective norm and perceived behavioural control forms a behavioural intention. When the adequate degree of actual control and opportunity is present, individuals will be able to act upon this intention and perform the behaviour.

The great contribution of the theory of planned behaviour is the introduction of perceived behavioural control as a construct. This is an enrichment to the theory of reasoned action (Fishbein and Ajzen, 1975) from which the theory of planned behaviour was derived and in which human behaviour is assumed to be under volitional control. The theory of planned behaviour recognises that non-volitional elements are potentially inherent in all behaviours. Perceived behavioural control accommodates these elements of uncertainty that are beyond the individual’s volition. This element is of particular importance in the study of business angels because angel investments are associated with risks and uncertainty.

Ajzen (1998) acknowledged the great debt that the theory of planned behaviour owes to the concept of self-efficacy that has received in-depth treatment in the work of Bandura (1977, 1989, 1997). In a recent paper, Ajzen (2002) showed self-efficacy and controllability to be separable components of perceived behavioural control, although the latter can be considered an unitary latent variable. Self-efficacy is not new to the entrepreneurship literature, having
been verified empirically as an antecedent for entrepreneurial behaviour (Chen et al., 1998; Krueger et al., 2000). There is no equivalent tradition in linking self-efficacy to angel investment behaviour. Compared to the case of entrepreneurs, it may be argued that angel investors have a lower level of volitional control. The investment behaviour is dependent on the actions and attributes of the entrepreneur, as well as factors internal to the investor. Self-efficacy takes on even greater importance in this context. Additionally, the other component of perceived behavioural control, controllability (beliefs about the extent to which performing the behaviour is up to the investor) also assumes a significant role in the behaviour of investors.

Ajzen (2002) explains that perceived behavioural control refers generally to people’s expectations regarding their ability to perform a given behaviour. In Maula et al. (2005), Wong et al. (2005b) and in the present study, effort is made to operationalise the factors that have an impact on how these expectations are shaped.

**Sociological Theory of Social Networks**

In recent years, the entrepreneurship literature has highlighted the significance of social networks/capital in the creation and growth of new ventures (Huggins, 2000; Shane & Cable, 2002; Florin et al., 2003, Zhang et al., 2003). For simplicity in this study, we assume that both social network and social capital are synonymous, although the literature has demonstrated the distinctiveness of each term (Jack, 2002). Social capital refers to the actual and potential resources individuals obtain from knowing others, being part of a social network with others, having a good reputation, or merely from being known to others (Nahapiet & Ghoshal, 1998).

The role of social capital in influencing entrepreneurial propensity is well established. While less often explored in the context of informal investment, many of the concepts are similarly applicable. Social capital assists individuals in their pursuits of entrepreneurial goals by providing them with critical information, and other crucial resources such as capital, skills, and labour to start business activities (Burt, 1992; Lin, 1999). Social capital also confers a “perception of credibility”, as described by Shapero (1984). According to Shapero, the decision to start a business is contingent upon the individual’s perception of credibility, and
an individual will perceive the act of starting a business as credible if s/he sees business start-ups by people whom s/he can identify, such as a friend, family member, business associate or merely an acquaintance. As Bygrave (1994) phrased it, “knowing entrepreneurs makes the act of becoming one much more credible”. It is anticipated that this perception of credibility would similarly influence an individual’s propensity to invest in an entrepreneur’s new venture.

Furthermore, social capital plays an important role in people’s opportunity discovery process by diffusing new and different ideas to them, and providing them with a wider frame of reference (Aldrich & Zimmer, 1986). As identified by Shane & Venkataraman (2000), the opportunity discovery process is made possible by the asymmetrical and limited information held by people, and as a result of this asymmetry, people with high levels of social capital are more likely to discover opportunities than others. Therefore, when effectively leveraged by individuals, social capital provides them with considerable resources to facilitate the identification, evaluation, and exploitation of opportunities (Aldrich & Zimmer, 1986).

**Socio-Psychological Theories of Interpersonal Trust**

Social interaction is inherent in all acts of entrepreneurship and small-business formation. At the heart of all social interactions is the concept of trust, as expounded in the fields of sociology (Giddens, 1990) and philosophy (Baier, 1986). In economics, trust is a precondition for rational choice (Loasby, 1997). McKnight et al. (1998) provide an overview of trust literature that is widely diffused in various fields of study. Explaining the importance of personal networks in the entrepreneurial process, Dubini and Aldrich (1991) describe trust as the element that determines the solidity and permanence of a relationship, reducing the risks for involved parties. In the context of investment decisions in the presence of perceived risk, Ryan and Buchholtz (2001) demonstrated the role of trust as an antecedent to the risk evaluation inherent in investment decisions. This has direct parallels to the case of informal investments.

Dibben (2000) argues that one should focus the unit of analysis to that of the individual when trust concepts are studied in the small-business setting. Hence, the issue becomes one of interpersonal trust rather than organisational trust. Rather than focusing on trust attributable
to individual character traits (dispositional and learnt trust), Dibben’s work focused on situational trust, in which trust level is dependent on comprehensible situational cues (CSQ). One approach to typologise situational trust in work relationships is based on familiarity with a particular situation and the amount of information available about the situation (Boisot, 1987; Clark and Payne, 1997). In contrast, Lewicki and Bunker (1995, 1996), Boon and Holmes (1991) and Shapiro et al. (1992) typologise trust by focusing on familiarity of individuals with each other. To operationalise interpersonal situational trust, Dibben (2000) combined these two typologies and identified four types of trust: dependence based, comprehensible situational cue (CSQ) reliance based, familiarity reliance based and confidence based. Confidence based trust is the highest level of interpersonal trust, based on high level of familiarity with the individual and high knowledge level of the situation.

Harrison et al. (1997) and Dibben et al. (1999) conducted exploratory studies, later extended by Dibben (2000), on the role of trust in the decision making process of informal investors. They studied how different types and levels of trust relate to the criteria used by investors to establish their cooperation threshold, which is the point at which individuals decide commit to an investment. Simplistically, two aspects of the investor’s knowledge are of concern here: the investor’s familiarity with the individual entrepreneur and the investor’s knowledge of the venture and the surrounding circumstances. These may be paralleled with familiarity reliance based trust and CSQ reliance based trust. These studies found that the level of CSQ reliance based trust is usually low in informal investment scenarios. Angel investors attempt to use familiarity reliance based trust in the absence of CSQ based trust. This influences the criteria that investors use to form their cooperation threshold, with self-competence (or self efficacy) emerging as an important determinant. An investment decision is arrived at if the actual trust level is sufficient to overcome the criteria threshold.

**Economic Theory of Household Portfolio Allocation**

As defined by Wetzel (1983), informal investment is a class of risk capital for the recipient company. Correspondingly, informal investment is a type of risk asset from the viewpoint of the investor, more so in the case of business angels than family investors. Researchers in the fields of economics and finance have been studying how economic agents allocate investments into risky assets for more than half a century. Portfolio theory has its roots in the
seminal paper by Markowitz (1952) who modelled risk and expected returns. After Tobin (1958) introduced the idea of a risk-free asset, Sharpe (1964) extended the model into the now well now Capital Asset Pricing Model (CAPM). Early models of portfolio allocation were driven by interest in asset pricing rather than approaching household wealth as the starting point. Refinements to the theory later allowed researchers to investigate portfolio decisions in more realistic situations, such as multiple-period decision making (Samuelson, 1969), risk preference of household (Jorion and Goetzmann, 2000) and presence of labour income (Merton, 1971).

More recent developments in modelling household portfolios have predicted that various household characteristics have an impact on the allocation of portfolios to risky assets. Among the factors that have been empirically proven include age, financial wealth, income and education (Banks et al., 2002; Cocco, 2000; Guiso et al., 2002). These findings inform our present efforts to identify factors that may affect individuals’ propensity to make risky informal investments in entrepreneurial businesses.

**PROFILE OF INFORMAL INVESTORS IN SINGAPORE**

Informal investment is an important aspect of venture financing in Singapore. In 2004, total informal investment in Singapore amounted to approximately 1.6% of GDP, considerably higher than in many other countries (Figure 1). The relative size of the informal investment market was many times larger than the market for formal VC investments, which amounted to 0.1% of GDP.

(Insert Figure 1 Here)

The analysis of informal investors presented in this paper is based on a sample of Singaporean adults surveyed in the annual Global Entrepreneurship Monitor (GEM) project (Reynolds et al., 2002) over a 5-year period from 2000 to 2004. Informal investors are identified as those individuals who have in the last 3 years invested in an entrepreneurial business venture started by someone else, excluding the purchase of publicly traded shares or mutual funds. In all, there are 11,019 individual Singaporean adults surveyed in the 5 year period, with 276 of them being identified as informal investors. This represents a much larger
sample than the 29 informal investors that formed Hindle and Lee’s (2002) sample of 29 business angels.

The rate of informal investment in Singapore has fluctuated in the last 5 years and is generally correlated with the rate of entrepreneurial activity, as measured by the TEA rate\(^1\) (Table 1). After falling from 3.6\% to 1.6\% between 2002 and 2003, the rate of informal investment increased again to 2.7\% in 2004. This reflects both the increase in entrepreneurial activities generally and the success of government schemes, such as the Startup Enterprise Development Scheme (SEEDS), which are aimed at promoting investments in entrepreneurial ventures. While the prevalence of informal investment is on the rise in Singapore, the participation rate is still below that of countries such as USA and other Asian countries such as Taiwan, China, Korea and Thailand (Reynolds et. al. 2002).

(Insert Table 1 Here)

Informal investors may be categorised as either “family investors” or “business angels”. Wetzel’s (1983) study made an important distinction between the two by emphasising that business angels are a source of risk capital and therefore excludes the “love money” financing provided by family and friends. In Singapore, 42\% of informal investors are classified as family investors, as they are related to the entrepreneurs whose ventures they invest in (Table 2). The remaining 58\% are business angels, with most being friends or neighbours of the entrepreneurs. Only a very small proportion of informal investors, 2\%, have invested in ventures owned by entrepreneurs with which they are not personally acquainted.

(Insert Table 2 here)

The typical Singaporean informal investor is likely to be male, in his or mid 30’s, and possessing a tertiary qualification (Table 3). The age and education profile are consistent with findings from studies such as Aram’s (1989) and Harrison and Mason’s (1992). However, Singaporean informal investors are somewhat younger than found in other studies, where informal investors have been profiled to be in their 40s or 50s. Family investors are found to be slightly older and less highly educated than business angels. The most obvious disparity
between the two groups of informal investors is in the gender profile. 43% of family investors are female, while the proportion is a much lower 22% amongst business angels.

Consistent with findings from other studies, informal investors tend to be high-net-value individuals. In Singapore, over 40% of informal investors earn incomes that place them among the one third of households in the population (Table 3). A slightly higher proportion of business angels (43%) belong in the high-income percentile compared to family investors (41%). Additionally, the analysis shows that over three-quarters of informal investors are employed, with the proportion of employed individuals being higher for business angels (82%) than for family investors (77%).

The value of informal investments ranged from small amounts below S$5,000 to over S$1 million. The majority of investments were below $20,000 in value, with median investment value being $15,740. Family investors invested smaller amounts, with fewer than 5% investing above $100,000, compared to 10% of business angels. The median investment value for family investors was correspondingly lower at $14,750, contrasting with a higher median value of $16,666 for business angels.

(Insert Table 3 here)

In Table 4, the characteristics of Singapore investors established in the present analysis is compared with the profile arrived at by Hindle and Lee (2002) in their study of 29 business angels in Singapore. With a larger sample, we established that female investors form a significant proportion of the informal investor community, although still outnumbered by men. Unlike Hindle and Lee, we found that 72% of investors are not current entrepreneurs. We also found the average value of informal investment to be much lower than the average amount of $350,000 reported by Hindle and Lee. This discrepancy may be explained by the sample used in that earlier study, which was focused on high-value business angel investors.

(Insert Table 4 here)
RESEARCH QUESTIONS AND HYPOTHESIS

The second part of this paper has two broad aims. The first is to determine if the determinants of informal investing propensity identified in Maula et al. (2005) and Wong et al. (2005b) similarly explain informal investing propensity in Singapore. The second is to investigate if the determinants are different under different conditions of risk perception. Two situations of high and low risks are contrasted: family investments (low risk) versus business angel investment (high risk) and low-value investment (low risk) versus high value investment (high risk).

Determinants for Informal Investing Propensity

Entrepreneurial and Managerial Experience – Following Ajzen (1991), having relevant entrepreneurial and managerial experience confers upon the investor a greater sense of perceived behavioural control. The investor will have a stronger belief in his own ability to target good investments and contribute to company performance. This corresponds to descriptive findings that business angels typically have managerial or entrepreneurial experience (Freear et al., 1994; Landström, 1993; Mason and Harrison, 2000).

H1: Individuals with entrepreneurial and managerial experience have a higher propensity to become informal investors

Skills to Start a New Business – A significant proportion of informal investors are value-added investors as they contribute their personal skills to help young businesses in the early-stage processes (Freear and Wetzel, 1989; Freear et al., 1995; Mason and Harrison, 1996). For some investors, this is a motivation for becoming angel investors (Van Osnabrugge and Robinson, 2000). Applied to the theory of planned behaviour, having start-up skills gives the investor a stronger sense of belief in his ability to contribute to a new venture.

H2: Individuals with skills to start a new business have a higher propensity to become informal investors
Knowing Entrepreneurs Personally – Researchers such as Delmar and Gunnarsson (2000), among others, have shown that vicarious experience increases the likelihood of individuals engaging in entrepreneurial activity. Vicarious experience also moderates planned behaviour (Ajzen, 1998) of informal investors by influencing the subjective norm surrounding the investment behaviour. Knowing entrepreneurs personally help investors to see informal investment in entrepreneurial activities as acceptable by others. Furthermore, Aldrich and Zimmer (1986) shows that social networks play an important role in the opportunity discovery process by diffusing new and different ideas and providing a wider frame of reference. For potential informal investors, social networks involving entrepreneurs provide resources to facilitate the identification, evaluation, and exploitation of opportunities.

H3: Individuals who know entrepreneurs personally have a higher propensity to become informal investors

Education – The theory of planned behaviour suggests that education increases the likelihood of informal investing. Higher levels of education are associated with higher levels of self-efficacy and perceived behavioural control. Empirical evidence from portfolio studies shows that households with higher education allocate more to risky assets (Guiso et al., 2002). The typical business angel has also been found to be highly educated (Aram, 1989; Freear et al., 1994), as was similarly observed in Singapore, as shown earlier in Table 3.

H4: Individuals who have higher level of education have a higher propensity to become informal investors

Work Status – In the household portfolio literature, Merton (1971) found that having an income from steady employment pushed financial portfolios further into risky assets. Being employed reflects income security and this is associated with greater propensity to make risky investments (Gollier, 2002) as well as reduced perception of risk.

H5: Individuals who are employed have a higher propensity to become informal investors

Income – Similar to work status, income level is also an indication of security and reduced risk perception. Various studies on household portfolios (Guiso et al., 2002, 2003) have
found household wealth to be a major determinant of allocation towards risky assets. This corresponds with findings in the entrepreneurship literature (Freear et al., 1994; Harrison and Mason, 1992) that business angels are typically high net worth individuals with high income levels. Earlier in this paper, it was also established that informal investors in Singapore earn higher than average incomes compared to the general population.

\[ H6: \text{Individuals who earn higher level of income have a higher propensity to become informal investors} \]

\textbf{Gender} – In many countries, informal investors have been found to be predominantly male, including the UK (Harrison and Mason, 1992) and Japan (Tashiro, 1999). In the case of Singapore, two thirds of informal investors are male, as described earlier in this paper. It may be speculated that in such a male dominated arena, being a female would likely affect the subjective norm of investment behaviour; making such behaviour by females appear socially unusual, if not actually unacceptable. Females may also perceive less behavioural control in an environment where female participation is under-represented.

\[ H7: \text{Individuals who are male have a higher propensity to become informal investors} \]

\textbf{Age} – Maula et al. (2005) predict an inverted U shaped relationship between age and propensity to make informal investments. Perceived behavioural control is expected to be low among young people and those of advanced years, as they should feel less adequately prepared to make proper investment decisions and contribute to the start-up process of new ventures. This is consistent with the descriptive evidence that business angels are typically middle-aged, between 40 to 60 years of age (Freear et al., 1994; Harrison and Mason, 1992; Landström, 1993).

\[ H8: \text{Individuals who are middle aged have a higher propensity to become informal investors than individuals who are younger and older} \]
Determinants for Angel Investing in Ventures in High Risk Perception versus Low Risk Perception Situations

1) Family Investors (low risk perception) versus Business Angels (high risk perception)

Harrison et al. (1997), Dibben et al. (1999) and Dibben (2000) found that CSQ-reliance-based trust is more important than familiarity-based trust in the context of informal investments. However, it was also found that CSQ based trust is more difficult to develop in the informal investor-investee relationship. In our stylised representation, we may equate angel investing to a situation requiring high CSQ-based trust, whereas family investing requires a lower level of CSQ-based trust, in the presence of inherent familiarity based trust. The primary difference between the two types of informal investment is the degree of CSQ-based trust required for an investment decision to be made. Following Wong et al. (2005b), we operationalise antecedents of CSQ-based trust and associated decision criteria and posit that these will be of greater importance as determinants of propensity to become business angels compared to family investors.

It is envisaged that the criterion for self-efficacy is higher for investments by business angels than for investments by family investors. Because the investor is not related to the investee, he would need to more greatly rely on his own abilities to develop a sufficient degree of trust in the viability of the business proposal. This is also in line with the idea that such arms-length investments are likely to be motivated by economic gains and investors would as such be mostly concerned with objective assessment of risk potential. Here, we operationalise self-efficacy using managerial experience, the level of education and having start-up skills. In addition to conferring a higher degree of self-efficacy in assessing proposed investments, perception of start-up skills also increases the degree of confidence that a business angel has in his ability to influence the performance of the venture he invests in. Unlike family investors, business angels are more likely to desire contributing their personal skills to a new venture (Freer and Wetzel, 1989) and therefore, having greater control over the degree of risk assumed in their investment.

H9: Managerial experience is a stronger determinant of propensity to become angel investors than to become family investors.
H10: Higher educational level is a stronger determinant of propensity to become angel investors than to become family investors.

H11: Having skills to start a new business is a stronger determinant of propensity to become angel investors than to become family investors.

Another way in which an investment commitment may be made is that investors lower their cooperation threshold so that the required level of CSQ-based interpersonal trust is lowered. This may happen in the case of investors who are in the position to be more risk-seeking. We posit that angel investors are likely to have higher risk tolerance, operationalised by having higher sense of security in the form of secured employment and higher income levels.

H12: Employment status is a stronger determinant of propensity to become angel investors than to become family investors.

H13: Higher Income level is a stronger determinant of propensity to become angel investors than to become family investors.

2) Low value investment (low risk perception) versus High value investment (high risk perception)

High value investments are associated with a higher level of perceived risk. Factors that enable individuals to take on more risk will discriminate between the propensities to make high value investments versus low value investments. Higher risk tolerance is operationalised firstly by a higher degree of perceived behavioural control or self-efficacy. Potential investors with higher risk tolerance believe themselves to be able to make informed decisions regarding higher-risks investments, following the theory of planned behaviour. Such belief in their own abilities is manifested by managerial experience, education and perception of entrepreneurial skills.

H14: Managerial experience is a stronger determinant of propensity to make high value investment than low value investment.
H15: Higher educational level is a stronger determinant of propensity to make high value investment than low value investment.

H16: Having skills to start a new business is a stronger determinant of propensity to make high value investment than low value investment.

Higher risk tolerance would also be exhibited by individuals with income security and greater wealth. In the literature on household portfolios, individuals with income from steady employment allocate larger portions of their portfolios to risky assets (Merton, 1971). Guiso et al. (2002, 2003) also found that household wealth affected the allocation towards risky assets. As such, we expect that employment status and income level to be two factors that will feature more prominently as determinants of high-value investment propensity compared to low-value investment propensity.

H17: Employment status is a stronger determinant of propensity to make high value investment than low value investment.

H18: Higher Income level is a stronger determinant of propensity to make high value investment than low value investment.

DATA AND ANALYSIS METHODOLOGY

Hypothesis testing is done using data from a sample of Singaporean adults that were surveyed as part of the Global Entrepreneurship Monitor (GEM) research project from 2000 to 2004. Wong et al. (2001, 2003, 2004, 2005a) provide detailed information on the GEM research framework, and benchmark indicators on Singapore’s entrepreneurial development in each year that Singapore participated in GEM. In all, there are 11,019 individual Singaporean adults surveyed in the 5-year period. The measures used for all dependent and independent variables are drawn from the GEM Adult Population Questionnaire administered to Singaporean adults as part of the GEM research process. Descriptions of the measures used follow, with descriptive statistics of all dependent and independent variables being presented in Appendix Table A.
Estimation Equation

The estimation equation used for hypothesis testing closely follows the framework proposed in Maula et al. (2005) and Wong et al. (2005b). A measure of Risk Aversion used in the Finnish study is not adopted here by Wong et al and is similarly dropped here. The binary variable for Risk Aversion in the Finnish study gauged whether individuals agree that fear of failure would prevent them from starting a business. This is omitted as it is relatively weak proxy for risk aversion in the context of making a risky informal investment. Additionally, we have also excluded a measure of Opportunity Perception that was used by both Maula et al. (2005) and Wong et al. (2005b). The measure of Opportunity Perception assessed if individuals felt that there will be, in the next six months, good opportunities to start a business in the area where they live. This is a measure of entrepreneurial opportunities more directly applicable to potential entrepreneurs and is not of direct relevance to potential informal investors.

The estimation equation is as follows:

\[
\text{Informal Investment} = \alpha + \beta_1 \text{Entrepreneurial Experience} + \beta_2 \text{Start-Up Skills} \\
+ \beta_3 \text{Know Entrepreneurs} + \beta_4 \text{Educational Level} \\
+ \beta_5 \text{Work Status} + \beta_6 \text{Income Level} + \beta_7 \text{Gender} \\
+ \beta_8 \text{Age} + \beta_9 \text{Age}^2
\]

Dependent Variables

Three different types of informal angel investments are investigated and are alternated as the dependent variable in the estimation equation. In all cases, the measure of angel investment is a binary variable, taking on a value of zero if the individual did not make any informal investment.

Overall Informal Investment Propensity – This dependent variable is used to test the first 8 hypotheses. The measure of overall informal investment takes on a value of 1 if the individual respondent had in the past 3 years personally provided funds for a new business started by someone else, excluding the purchase of publicly traded shares or mutual funds.
The owner of the new business may be a family member, relative, friend, acquaintance, work colleague or a total stranger.

*Business Angel Investment Propensity* – This dependent variable, in conjunction with Family Investment Propensity, is used to test Hypotheses 9 to 13. This measure takes on a value of 1 if the individual had in the past 3 years provided funds for a new business started by a friend, colleague, other acquaintance or total stranger.

*Family Investment Propensity* – This measure takes on a value of 1 if the individual had in the past 3 years provided funds for a new business started by a close family member or relative.

*High Value Investment Propensity* – This dependent variable, in conjunction with Low Value Investment Propensity, is used to test Hypotheses 14 to 18. This variable takes on a value of 1 if the individual had in the past year made an informal investment valued above the median investment value of S$15,740, described earlier in Table 3.

*Low Value Investment Propensity* – This variable takes on a value of 1 if the individual had in the past year made an informal investment valued below the median investment value of S$15,740.

**Independent Variables - Predictors**

*Entrepreneurial Experience* – This is a binary variable that takes on value 1 if the individual is an owner of a company that he helps to manage.

*Start-Up Skills* – This is a binary variable that takes on the value of 1 if the respondent assessed himself to have the knowledge, skill and experience required to start a new business.

*Know Entrepreneurs* – This is a binary variable that takes on the value of 1 if the individual personally knows someone who has started a business in the past 2 years.

*Educational Level* – This is a binary variable given the value of 1 if the respondent has received post-secondary education.
**Work Status** – This is a binary variable that takes on the value of 1 if the respondent is employed full time.

**Income Level** – This is a binary variable that takes on the value of 1 if the respondent’s household income places him among the top one third of the national household income distribution.

**Independent Variables – Control**

**Gender** – This is a binary variable that takes on the value of 1 if the respondent is female.

**Age and Age squared** – These variables are measured using absolute age in years and age in years squared. The squared term is included to test the hypothesis that age is related to investment propensity in the shape of an inverted U curve. A respondent’s age is computed on the basis of his year of birth.

**Data Analysis Methodology**

As all the dependent variables are in binary form, we utilise logistic regression to assess the strength and significance of the coefficients on the proposed determinants. The share of informal investors in the total sample is minute, at only 276 out of 11,019 valid cases in the dataset spanning 5 years. Statistical estimation of binary dependent variable models in such a case is problematic, resulting in biased estimates of coefficients. We apply the correction proposed by King and Zeng (2000), using their procedure for Rare Events Logistic Regression.

To test hypotheses 9 to 13 and hypotheses 14 to 18, comparing strength of determinants for different types of informal investments, we alternate the dependent variable and compare the size of the estimated coefficients across the different equations using the Wald chi-squared statistic.
RESULTS

The logistic regression results for informal investment propensity are presented in the first three columns in Table 6. Like Maula et al (2005) and Wong et al. (2005b), knowing entrepreneurs personally was the factor with the strongest influence. Having start-up skills and entrepreneurial experience were also significant explanatory factors, emphasising the importance of self-efficacy in making informal investment decisions. Unlike the other two studies, the results for Singapore did not find support for factors such as age, gender, income and educational levels.

Table 6 also compares the determinants of business angel investment propensity and family investment propensity. For both, knowing entrepreneurs personally was the most important explanatory factor. This was followed by perception of having start-up skills for business angel investing, while for family investors, managerial experience was the second most important factor. The bias towards male investors is less apparent for family investments, where gender was not a significant explanatory factor. The estimated coefficients on education, income, employment status and skills perception, were found to be higher for business angel propensity than family investing propensity. However, only skills perception emerged as significantly different between the two types of informal investment propensity, lending support only to Hypothesis 11 of the set of Hypotheses 9 to 13.

The difference between determinants of high and low value investment propensities are shown in the last few columns of Table 6. In both cases, knowing entrepreneurs personally was again the factor with the strongest influence, followed by possession of start-up skills and entrepreneurial experience. The determinants of high and low value investment propensities mainly differ in the demographic factors. The propensity to make high value investment is related to age in the shape of an inverted U-shaped curve. On the other hand, age is not a significant factor for low value investment propensity. Women are much less likely to make high value investments compared to their male counterparts, in contrast to the scenario of low value investments where the gender bias is statistically not significant. We also observe that having post-secondary education is a significant determinant of high value investment propensity, but not for low value investment propensity, lending support to Hypothesis 11. However, the analysis did not support the other hypotheses differentiating high and low investment propensities.
DISCUSSION AND CONCLUSION

Our empirical findings on informal investing propensity in Singapore show that the influencing factors differ from those in the global sample of 17 countries studied by Wong et al. (2005b) and bore more similarities to the Finnish sample of Maula et al. (2005). In the global study, almost all the hypotheses were supported, while in the Finnish study, hypotheses based on household portfolio theories were not as strongly supported. While knowing entrepreneurs personally was the most important factor in Singapore, as was also found in the other two studies, factors such as age, education and gender were found to be insignificant. Even omitting family investors and comparing the findings for Singapore business angel propensity with business angel propensity in Finland and the global sample, the Singapore findings are notable for the lack of significance of the demographic variables. Informal investing in Singapore appears to be less influenced by demographic factors and more by entrepreneurial networks, experience and skills. This may imply a negative circular effect in Singapore, as the level of informal investment is dependent on the level of entrepreneurial capacity and vice versa. The fact that there is a relatively low level of entrepreneurial propensity here may constrain the propensity of informal investing, which in turn leads to low entrepreneurial propensity.

Wong et al. (2005b) distinguished the determinants of angel investing into ventures owned by acquainted entrepreneurs versus strangers. The findings supported the idea that certain angel investors may be prepared to invest in a venture even if they are not personally acquainted with the entrepreneurs, provided they are able to evaluate the worth and risk of the investment, hence establishing the required level of CSQ-based trust. However, as observed earlier in Table 2, very few informal investors (2.4%) in Singapore made such investments. This suggests that entrepreneurs and business angels in Singapore are strongly reliant on social networks for identifying opportunities and forming business relationships. Familiarity-based trust, rather than CSQ-based trust, governs the business angel-investee link in Singapore.
The dominance of familiarity-based trust also in part explains why the determinants of business angel propensity and family investing propensity do not significantly differ in Singapore, unlike in Finland. Business angel investment in Singapore appears to be still largely driven by friendship and presumably less by business or economic concerns, emphasising the similarities of angel investments to family investment. This is borne out by the relatively small difference in the average size of investments made by family investors (S$14,750) and by business angels ($16,666). The main difference between the two types of informal investors is that having start-up skills is a more important factor for business angels than family investors. It is also similarly observed that the determinants of high versus low value investment propensity do not significantly differ, except in terms of age and education profiles. These findings suggest that informal investing in Singapore is still largely undeveloped in terms of professionalism and the ability to make higher-risks investments.

To boost business angel investment as a source of risk capital for entrepreneurs, as distinct from “love money” provided by family investors, there is a need to boost the level of professional expertise in the business angel community in Singapore. This would entail developing skills such as doing due diligence, structuring investment deals and mentoring. As social networks have emerged as an important factor, one way to accelerate the development of the angel investment community in Singapore is through the formation of business angel investment groupings like the Band of Angels and the International Angel Investor Institute (IAII) in the US. One step taken in this direction is the establishment of Business Angel Network (Southeast Asia) in 2001 as a forum for professional exchange and educational development among the business angel investment community in Singapore.

The finding on the importance of personal familiarity with other entrepreneurs as a determinant of angel investing propensity is consistent with the growing literature on the role of social networks in facilitating angel investing (Van Osnabrugge and Robinson, 2000). In particular, it implies that entrepreneurs seeking to raise informal capital should try to seek the help of other entrepreneurs who are known or connected to the potential investors to provide introduction, i.e. they should try to exploit indirect ties to potential investors as well as direct ties (Zhang et. al., 2004). Our findings also suggest that they should also target potential investors with prior managerial experience and start-up skills, as not only are they more likely to invest, but these investors are likely to provide the often much needed mentoring and coaching.
The findings on the importance of social networks also lend support for the potential efficacy of policy measures that promote the matching of entrepreneurs and potential investors through the creation of angel networks targeted at higher net-worth individuals with entrepreneurial/managerial experience and start-up skills. By increasing social networking between entrepreneurs and the potential investors, such angel networks help to facilitate the likelihood of angel investing in ventures started by people who are otherwise strangers to the potential investors. An increase in angel investment in ventures where the investors and entrepreneurs are not family-related would also mean an increase in the involvement of people with managerial experience in advising and helping the operations of new businesses. This could contribute to partially alleviate the problems of high failure rates in new inexperienced start-ups.

Like Wong et al. (2005b), the Singapore results show that women are much less likely to become business angels, in contrast to investing in family-related ventures where the gender bias is less pronounced. This could be related to the fact that knowing entrepreneurs is a key determinant to angel investment propensity, and the fact that male entrepreneurs outnumber female entrepreneurs by two to one in Singapore (Wong et al., 2004, 2005a). This suggests that educational and social networking based policy measures should be actively targeted to women in particular in order to tap the whole potential pool of informal venture capital.

In conclusion, this study contributes to the literature on angel investing by providing new empirical evidence on several key determinants of angel investing propensity in a small, fast developing economy like Singapore. Additionally, this study has contrasted the determinants of investment propensity in situations with low versus high risk perception, allowing several implications to be drawn on the policy needs to boost angel investment in Singapore.

1 The TEA rate was developed by the GEM project (Reynolds et al., 2002) and measures the proportion of a nation’s adult population that is engaging in entrepreneurial activities in one of two ways: in the process of starting-up a business or running a newly formed business less than 3.5 years old.
REFERENCES


**Figure 1**  Informal Investment and Classic VC as % of GDP

**Table 1**  Rate of Informal Investment in Singapore, 2000-2004

<table>
<thead>
<tr>
<th>Year</th>
<th>Informal Investment Rate (% of Adult Population)</th>
<th>Total Entrepreneurial Activity (TEA) Rate (% of Adult Population)</th>
<th>Number of Informal Investors in Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>1.3</td>
<td>4.2</td>
<td>30</td>
</tr>
<tr>
<td>2001</td>
<td>2.0</td>
<td>6.6</td>
<td>37</td>
</tr>
<tr>
<td>2002</td>
<td>3.6</td>
<td>5.9</td>
<td>73</td>
</tr>
<tr>
<td>2003</td>
<td>1.6</td>
<td>5.0</td>
<td>31</td>
</tr>
<tr>
<td>2004</td>
<td>2.7</td>
<td>5.7</td>
<td>105</td>
</tr>
</tbody>
</table>

**Table 2**  Relationship of Entrepreneur to Informal Investors in Singapore

<table>
<thead>
<tr>
<th></th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Related (Family Investors)</td>
<td>41.7</td>
</tr>
<tr>
<td>Close Immediate Family</td>
<td>31.0</td>
</tr>
<tr>
<td>Other Relative</td>
<td>10.7</td>
</tr>
<tr>
<td>Non Related (Business Angels)</td>
<td>58.3</td>
</tr>
<tr>
<td>Work Colleague</td>
<td>5.2</td>
</tr>
<tr>
<td>Friend/ Neighbour</td>
<td>49.6</td>
</tr>
<tr>
<td>Stranger</td>
<td>2.4</td>
</tr>
<tr>
<td>Other</td>
<td>1.2</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 3  Profile of Informal Investors in Singapore

<table>
<thead>
<tr>
<th>Age Profile of Informal Investors</th>
<th>Family Investors</th>
<th>Business Angels</th>
<th>Informal Investors</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 and below</td>
<td>9.5</td>
<td>7.5</td>
<td>8.3</td>
</tr>
<tr>
<td>25 to 34</td>
<td>31.4</td>
<td>41.5</td>
<td>37.3</td>
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<tr>
<td>35 to 44</td>
<td>27.6</td>
<td>21.8</td>
<td>24.2</td>
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<tr>
<td>45 to 54</td>
<td>21.0</td>
<td>23.1</td>
<td>22.2</td>
</tr>
<tr>
<td>55 and above</td>
<td>10.5</td>
<td>6.1</td>
<td>7.9</td>
</tr>
<tr>
<td>Median Age</td>
<td>37.5</td>
<td>34.8</td>
<td>35.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender Profile of Informal Investors</th>
<th>Male</th>
<th>Female</th>
<th>Informal Investors</th>
</tr>
</thead>
<tbody>
<tr>
<td>57.1</td>
<td>77.6</td>
<td>69.0</td>
<td></td>
</tr>
<tr>
<td>42.9</td>
<td>22.4</td>
<td>31.0</td>
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</tr>
<tr>
<td>100.0</td>
<td>100.0</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Educational Profile of Informal Investors</th>
<th>No Formal Education</th>
<th>Some Secondary</th>
<th>Secondary Degree</th>
<th>Post Secondary</th>
<th>Grad Experience</th>
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<tr>
<td>2.1</td>
<td>1.5</td>
<td>9.3</td>
<td>33.9</td>
<td>13.2</td>
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<tr>
<td>12.6</td>
<td>6.8</td>
<td>34.1</td>
<td>41.9</td>
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</tr>
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<td>33.7</td>
<td>34.1</td>
<td>33.9</td>
<td>41.9</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>40.0</td>
<td>43.2</td>
<td>41.9</td>
<td>41.9</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>11.6</td>
<td>14.4</td>
<td>13.2</td>
<td>13.2</td>
<td>100.0</td>
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</tr>
<tr>
<td>100.0</td>
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<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Income Profile of Informal Investors</th>
<th>LOWEST 33% Tile of Households</th>
<th>MIDDLE 33% Tile of Households</th>
<th>UPPER 33% Tile of Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>29.6</td>
<td>26.7</td>
<td>27.9</td>
<td></td>
</tr>
<tr>
<td>29.6</td>
<td>30.8</td>
<td>30.3</td>
<td></td>
</tr>
<tr>
<td>40.7</td>
<td>42.5</td>
<td>41.8</td>
<td></td>
</tr>
<tr>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Employment Status of Informal Investors</th>
<th>Working either Full or Part Time</th>
<th>Not Working</th>
<th>Retired or Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>76.6</td>
<td>82.4</td>
<td>80.0</td>
<td></td>
</tr>
<tr>
<td>10.6</td>
<td>9.2</td>
<td>9.8</td>
<td></td>
</tr>
<tr>
<td>12.8</td>
<td>8.4</td>
<td>10.2</td>
<td></td>
</tr>
<tr>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Investment Value S$</th>
<th>Less than $5000</th>
<th>$5,000 to $20,000</th>
<th>$20,000 to $100,000</th>
<th>$100,000 to $1 million</th>
<th>More than $1 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.7</td>
<td>22.6</td>
<td>34.6</td>
<td>33.1</td>
<td>7.5</td>
<td>2.3</td>
</tr>
<tr>
<td>40.2</td>
<td>34.6</td>
<td>33.1</td>
<td>7.5</td>
<td>2.3</td>
<td>1.8</td>
</tr>
<tr>
<td>33.7</td>
<td>33.1</td>
<td>33.1</td>
<td>5.8</td>
<td>1.8</td>
<td>1.8</td>
</tr>
<tr>
<td>3.3</td>
<td>7.5</td>
<td>5.8</td>
<td>5.8</td>
<td>5.8</td>
<td>5.8</td>
</tr>
<tr>
<td>1.1</td>
<td>2.3</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
</tr>
<tr>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Median Investment Value</td>
<td>$14,750</td>
<td>$16,666</td>
<td>$15,740</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 4  Summary of Characteristics of Singapore Informal Investors

<table>
<thead>
<tr>
<th></th>
<th>GEM Singapore 2000-2004</th>
<th>Hindle and Lee, 2002</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Overall</td>
<td>Family investors</td>
</tr>
<tr>
<td>Median Age</td>
<td>36</td>
<td>38</td>
</tr>
<tr>
<td>% Male</td>
<td>69%</td>
<td>57%</td>
</tr>
<tr>
<td>% Managing own business</td>
<td>29%</td>
<td>28%</td>
</tr>
<tr>
<td>Average Investment</td>
<td>$15,740</td>
<td>$14,750</td>
</tr>
</tbody>
</table>
Table 5  Logistic Regression: Informal Investment in Singapore

<table>
<thead>
<tr>
<th>DEPENDENT VARIABLE =&gt;</th>
<th>Informal Investment Propensity</th>
<th>Business Angel vs Family Investors</th>
<th>High vs Low Value Investments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Business Angel Investment Propensity</td>
<td>Family Investment Propensity</td>
</tr>
<tr>
<td></td>
<td>B  Sig</td>
<td>B  Sig</td>
<td>B  Sig</td>
</tr>
<tr>
<td>CONTROLS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-5.957 0.000</td>
<td>-6.959 0.000</td>
<td>-5.838 0.000</td>
</tr>
<tr>
<td>Age</td>
<td>0.057 0.224</td>
<td>0.048 0.435</td>
<td>0.019 0.792</td>
</tr>
<tr>
<td>Age Squared</td>
<td>-0.001 0.230</td>
<td>-0.001 0.418</td>
<td>0.000 0.886</td>
</tr>
<tr>
<td>Male Gender</td>
<td>0.258 0.153</td>
<td>0.534** 0.032</td>
<td>0.001 0.996</td>
</tr>
<tr>
<td>PREDICTORS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post Secondary Education</td>
<td>0.144 0.427</td>
<td>0.243 0.302</td>
<td>0.152 0.601</td>
</tr>
<tr>
<td>High Income</td>
<td>-0.050 0.788</td>
<td>-0.118 0.618</td>
<td>-0.047 0.875</td>
</tr>
<tr>
<td>Employed</td>
<td>-0.101 0.589</td>
<td>0.100 0.691</td>
<td>-0.325 0.264</td>
</tr>
<tr>
<td>Start up Skills</td>
<td>0.815** 0.000</td>
<td>1.132** 0.000</td>
<td>0.433 0.148</td>
</tr>
<tr>
<td>Know Entrepreneur</td>
<td>1.744** 0.000</td>
<td>1.884** 0.000</td>
<td>1.690** 0.000</td>
</tr>
<tr>
<td>Have Entrepreneurial Experience</td>
<td>0.798** 0.000</td>
<td>0.743** 0.003</td>
<td>0.796** 0.019</td>
</tr>
<tr>
<td>Nagelke R sq (Model)</td>
<td>0.174</td>
<td>0.198</td>
<td>0.101</td>
</tr>
</tbody>
</table>

** significant at 5% * significant at 10%
Note: Difference between estimated coefficients from separate regression results is ascertained using the Wald-chi-squared statistic
### Appendix Table A: Pearson Correlation Coefficients between Dependent and Independent Variables

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Informal investor</td>
<td>0.035</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Business Angel</td>
<td>0.013</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Family Investor</td>
<td>0.021</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 High value investment</td>
<td>0.015</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Low value investment</td>
<td>0.017</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Age</td>
<td>40.364</td>
<td>-0.010</td>
<td>0.001</td>
<td>-0.011</td>
<td>0.031</td>
<td>-0.046</td>
<td>1</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>7 Age squared</td>
<td>1785.2</td>
<td>-0.014</td>
<td>0.000</td>
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<td>8 Gender</td>
<td>0.524</td>
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<td>0.064</td>
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<td>9 Post Secondary education</td>
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<td>-0.043</td>
<td>-0.024</td>
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<td>10 Top 33% household income</td>
<td>0.288</td>
<td>-0.039</td>
<td>-0.017</td>
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<td>-0.032</td>
<td>-0.016</td>
<td>0.032</td>
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<td>11 Employed</td>
<td>0.611</td>
<td>-0.025</td>
<td>0.002</td>
<td>-0.036</td>
<td>-0.023</td>
<td>-0.009</td>
<td>0.001</td>
<td>0.027</td>
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<td>0.188</td>
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<td>12 Skills to start up</td>
<td>0.307</td>
<td>-0.153</td>
<td>-0.068</td>
<td>-0.144</td>
<td>-0.123</td>
<td>-0.091</td>
<td>0.011</td>
<td>0.021</td>
<td>-0.160</td>
<td>0.136</td>
<td>0.124</td>
<td>0.088</td>
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<td>13 Know entrepreneurs personally</td>
<td>0.283</td>
<td>-0.198</td>
<td>-0.111</td>
<td>-0.169</td>
<td>-0.137</td>
<td>-0.131</td>
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<td>0.132</td>
<td>0.124</td>
<td>0.077</td>
<td>0.305</td>
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<td>14 Entrepreneurial Experience</td>
<td>0.092</td>
<td>-0.134</td>
<td>-0.067</td>
<td>-0.118</td>
<td>-0.115</td>
<td>-0.063</td>
<td>-0.067</td>
<td>-0.054</td>
<td>-0.134</td>
<td>0.032</td>
<td>0.102</td>
<td>0.115</td>
<td>0.332</td>
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