

## TYPOLOGIES OF INFORMAL VENTURE CAPITAL INVESTORS IN SWEDEN

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### **Abstract**

Earlier research has indicated that the informal venture capital market is highly heterogeneous, and that there are several different kinds of investors. However, only a handful of authors have tried to develop typologies of informal investors, to reach a deeper understanding of markets characteristics and functioning. The purpose of this study is to estimate the size of informal venture capital market in Sweden and to analyze its structure by making a categorization of informal investors and identifying differences and similarities between those categories. The aspiration is to determine the distinguishing characteristics of different types of informal venture capital investors in term of background characteristics and investment behaviour. This study is the first to be based on a large representative sample of a countries population, allowing robust categorization and statistical nationwide generalizations.

## INTRODUCTION

Informal venture capital, i.e. private individuals who invest risk capital directly in unquoted companies in which they have no family connection, has gained a major significance in the financing of the entrepreneurial start-ups and growth firms. The Global Entrepreneurship Monitor Report recognizes informal venture capital as the single most important source of new ventures financing, filling the gap between founders, family and friends, and institutional venture capital funds (Reynolds, 2003). In the United Kingdom informal venture capital investors make ten times as many investments and invest four times as much capital as the institutional venture capital investors. Apart from investing money, informal investors contribute their commercial skills, entrepreneurial experience, business know-how and contacts taking a hands-on role in the company (Mason and Harrison, 1995).

Informal investors often undertake the investments that institutional venture capitalists find unattractive, due to high uncertainty and small size of investments. Informal investors are only partly motivated by financial rewards, and therefore can make more risky investments. Furthermore, the transactions costs can be minimized due to the administration costs being small, which makes it justifiable to invest smaller sums of money (Landström, 1993a). Few venture capital firms are prepared to make investments under one million dollars, meanwhile much smaller resources are needed to finance an entrepreneurial start-up and early stage expansion. According to an analysis of the Inc500 “America’s fastest growing private companies” in 2000, 16 per cent of those firms started with less than \$ 1 000, 42 per cent with \$10 000 or less, and 58 per cent with \$ 20 000 or less (Reynolds, 2003). Most of the fastest growing firms in US have therefore started without any financing from institutional venture capital funds.

Several attempts have been made to estimate the size of informal venture capital market, most of them in the US (e.g. Wetzel, 1986; Arum, 1987, Gaston and Bell, 1988; Gaston, 1989), but some even in Canada (Riding and Short, 1987) and in the UK (Mason and Harrison, 2000a). Those studies have provided useful insights in the scale of informal venture capital market in those countries. The estimates have however been based on components like the number of start-ups that supposedly needed external financing and the proportion of informal investors in the population, and the result vary considerably dependant on the assumptions made (Gaston and Bell, 1988). Therefore the more reliable approaches to estimate the scale of the market are needed (Mason and Harrison, 2000a).

In addition, earlier research has indicated that the informal venture capital market is highly heterogeneous and that there are several different kinds of investors (see Gaston, 1989; Coveney and Moore, 1998; Sørheim and Landström, 2001). However the researchers have been mainly interested in one particular group of informal investors, namely the so called “business angels” – investors with high investment activity that contribute considerable resources to the companies they invest in. Thus we have no deeper knowledge about informal investors other than “business angels”, i.e. those investors who make a small number of investments, and those who contribute small amount of resources to the investment object. They are nonetheless the prevalent group of informal investors that have been largely neglected in previous research (Reynolds, 2003). Mason and Harrison (2000b) point out the importance of separating the different types of informal investors from each other, to reach a better understanding of the market. Sørheim and Landström (2001) claim correspondently that by dividing informal investors into several categories, one achieves a more exhaustive picture of informal investors than by viewing them as one homogenous group.

## AIMS AND CONTRIBUTIONS

Despite a long history of research on the informal venture capital in the US and several European countries, the scope and the structure of the market is still a highly unexplored matter (Mason and Harrison, 2000b). Only a handful of authors have looked into the structure of informal venture capital market and tried to develop typologies of informal investors. The classifications are however eclectic, and the methodology used has not been elaborated. The lack of studies on typologies of informal investors can be explained by the difficulties involved in identifying the investors, which makes it problematic to create sufficiently large representative samples (Mason and Harrison, 2000a). In this study informal investors are identified by screening a large random sample of adult population in Sweden. This method of identifying the informal investors is rather costly and time-consuming, and the method is rarely used in studies of informal investors. Based on this methodological approach, the purpose of this study is to estimate the size of informal venture capital market in Sweden and to analyze its structure by making a categorization of informal investors and identifying differences and similarities between those categories.

The aspiration is to determine the distinguishing characteristics of different types of informal venture capital investors in term of background characteristics and investment behaviour, and to quantify the impact of each investor group on the Swedish market. This study is the first to be based on a representative sample of a country population, allowing robust categorization and statistical nationwide generalizations. Further, it gives a more exhaustive and nuanced picture of informal venture capital market structure, functioning and characteristics.

Mason and Harrison (1997) argue that such an analysis could make a significant practical contribution by making it easier to advocate the introduction of specific public and private

measures, which can positively affect the efficiency of the informal venture capital market. A more detailed picture of this market also could help entrepreneurs with the decisions about which type of informal investor to search for.

This paper contains seven sections. In the following section I will present the frame of reference of the study, followed by a description and discussion of the method used. Thereafter the introduction to Swedish market is presented to give a picture of context of the study. The empirical findings are presented in the subsequent section, including description of the sample, categorization, analysis of categories and extrapolation of the result to the Swedish population of informal investors. The final section contains the conclusions and the discussion of results.

## **FRAME OF REFERENCE**

We have a rather good understanding of the characteristics of so called “business angels” through 20 years of research within the field. The first attempt to describe the extent and character of the business angel market was made in the beginning of 1980s by William Wetzel at the University of New Hampshire in the US. After a couple of years Wetzel’s research was followed by a number of other studies from USA (Arum, 1987; Haar et al., 1988; Gaston and Bell, 1988). Informal investors started attracting international attention in the late 1980s and the beginning of 1990s, and research surveys were carried out in Canada (Short and Riding, 1989), the UK (Mason et al., 1991) and in Sweden (Landström, 1992). On the base of this research some international comparisons have been made on the later stage, primarily focusing on the characteristics of “business angels” in different countries (Harrison and Mason 1992, Landström, 1993a). This is what Mason and Harrison (2000b) call “first generation studies”.

In the recent years the research has become more extensive and sharply focused. The “second generation studies” are characterized by an increased interest in the informal venture capital process (Riding et al., 1993, Mason and Rogers, 1997), and a stronger focus on policy issues (Mason and Harrison, 1995, Wetzel and Freear, 1996), but we have also seen an introduction of theoretical approaches in the research such as portfolio management theory (Norton, 1990, Harrison and Mason, 1991), decision-making theory (Landström, 1995, Feeney et al., 1999), agency theory (Landström, 1993b, Fiet, 1995) etc.

### **The scope of informal venture capital market**

The first attempt to estimate the size of informal venture capital market was made by Wetzel (1986) on the US data. Wetzel used what came to be called the *market-based approach*, and based his estimation on two assumptions. On the one hand he estimated the proportion of the start-up companies that needed external financing to 5 per cent, and the amount raised by those companies to \$ 200 000 each. On the second hand, he estimated the proportion of informal investors in the population by looking at the Forbes 400 Richest People in America. He further assumed that those investors would make one investment every two years, and that the average amount invested is \$ 50 000. This gave a total number of 100 000 investors who invested \$ 5 billion. Wetzel (1986) himself acknowledged that the calculations were crude, based on the extrapolation of fragmentary data. However this estimates played an important role in establishing the informal venture capital market as a legitimate field of study, and draw much attention from policymakers (Mason and Harrison, 2000a).

Arum (1987) and Gaston (1989) tried a different approach of quantifying the informal venture capital market called *firm-based approach* (Mason and Harrison, 2000a). A random sample of

SMEs in US was taken to identify those that had raised finance from informal investors. The percentage share of firms raising informal venture capital was extrapolated to the total number of firms in the US, and then multiplied by the total number of investors per firm. The amount invested was calculated using the average size of investment from the initial sample, and further divided by the investment holding period to obtain the annual amount of investment. The final estimation of the number of informal investors in the US was 720 000, and the annual flow of informal venture financing was estimated to be \$ 32.7 billion (Gaston, 1989).

A third approach to estimating the size of informal venture capital market is the *capture-recapture approach* used by Riding and Short (1987). The method is based on measuring the number of times each investor in the sample is mentioned by other investors. The number of informal investors in the studied region (Ottawa-Carleton) was estimated to 87 investors. This is however a very problematic approach in several senses. Due to the regional nature of informal venture capital market, the result cannot be extrapolated to the national level. Further, the approach does not provide information on the number of investments made or the funds invested by the identified population of informal investors (Mason and Harrison, 2000a). Finally, the result depends on the willingness of the investors to give the names of other investors known to them (Lumme et al., 1998).

Finally, Mason and Harrison (2000a) introduced a different approach to measuring the scope of the informal venture capital market. They looked at the “visible part” of the informal investors – those registered in the business angels networks. After calculating the registered number of investors (5 651 in 1999-2000), they made an adjustments for over- and undercounting, and estimated the percentage share of all informal investors that are members in the business angels network. The assumptions made in those adjustments are however crucial for the result. Dependent on the

estimated proportion of registered investors, the results varied between 20 000 informal investors that invested £ 500 million, and 80 000 informal investors that invested £ 2 billion.

### **Typologies of informal investors**

All these studies are however largely concentrated on the group of “business angels”, and we have rather limited knowledge about the informal venture capital market as a whole. Some attempts have however been made to explore and analyze the diversity of informal investors. Gaston (1989) was the first one to identify different kinds of informal investors. He suggested that the informal venture capital investors can be divided into ten distinctive groups based on their background and investment behaviour. Gaston looked especially into investors’ personal characteristics, market activity, investments portfolios and investment goals. However it is not clear what method the author uses to identify those ten groups.

Coveney and Moore (1998) segment informal investors market and identify six groups of informal investors, four active and two passive. The authors choose investment activity, in terms of number of investments and total funds invested, and investors financial and business background as primary criteria to distinguish between the four active types of investors. Another two of identified groups are “virgin” and “latent angels” – those that either never have made investments in unquoted companies, or that currently are not making investments. Coveney and Moore create the detailed profiles of different types of informal investors, allowing for entrepreneurs seeking funds to identify the most appropriate investor. Yet the authors neither describe how the groups are identified, nor do they show the relative distribution of the investors among those groups.

The most recent effort to segment informal venture capital market was made by Sørheim and Landström (2001). Authors identified four types of informal investors by dividing the investors according to their investment activity and competence. The investment activity level is measured as number of investment made and the funds invested, including both former and planned investment. The competence is measured as education and professional and entrepreneurial experience. The empirical findings show that there are considerable differences between the four identified groups of informal investors, regarding among other things the information sources used in the decision process, the level of involvement in the investment, investment horizons etc.

From previous research on diversity of informal venture capital investors we can conclude that several distinctive types of informal investors can be identified, where investment activity level is often used as one of the segmenting variables, together with some background variable(s) of the informal investors. Another common feature of the previous studies is that they suffer from the same methodological shortcomings. In their review of Mason and Harrison (2000b) was concluded that “the single most important methodological problem in undertaking research on the informal venture capital market arises from the great difficulty in finding business angels” (p. 228). The studies have mainly been based on “sample of convenience” whose representativeness could not be verified. The existing estimates of the informal venture capital market are based on extrapolation of fragmentary data (see e.g. Wetzel, 1986; Gaston, 1989), so the more robust estimates of the informal venture capital market are needed.

## METHOD

### Data collection

In this study the data on individuals' investment propensity has been gathered from the large random sample of Swedish population. There are two main purposes with the research design in this study. First, due to statistically random sample being used, both the size and the characteristics of informal venture capital market in Sweden can be determined. Second, there are no pre-requisitions in choosing the investors (e.g. no minimum investment or involvement activity requirement), which makes it possible to capture the variety of investors.

The study started with a random survey of 24 166 private individuals between 18 and 79 years to determine the number of informal venture capital investors in this group. The purpose was to find out how many individuals have within the last five years made non-collateral investments in unquoted companies to which they do not have any family connections; the number of investments made and the amount invested, as well as some background information. The survey was carried out externally by RUAB (Swedish Radio Surveys) and completed March the 31st, 2004. This is the largest sample ever been used in studying informal venture capital investors, and due to its statistical representativeness, the results are extrapolated to the whole population of informal venture capital investors in Sweden.

After the preliminary survey we were able to identify some 861 (3.56 per cent) persons that claimed to have made informal venture capital investments. Each individual were then asked if they were willing to participate in a longer telephone interview. Those 548 who agreed to participate in the second phase of this study were contacted during summer and fall 2004, to get detailed

information about their investments. Out of these, it was possible to establish contact with 396 individuals (72.3 per cent response rate). From this group, 114 did not fulfil the criteria for the informal investors. Some of them have never made investments in unquoted companies; others made investments through intermediaries (such as investment banks and insurance companies) or invested money in a family member's company. 28 individuals did not want to participate, and finally 254 (64.1 per cent) were qualified as informal venture capital investors (see Table 1).

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Table 1 about here  
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### **The survey**

All the interviews were made by phone and the structured set of questions was used. The questionnaire consisted of three major sections: general investment activity, three recent investments and background information. After the data were gathered and screened for missing values and data quality, following items were decided on for further analysis (see Table 2).

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Table 2 about here  
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## The cluster analysis

Cluster analysis classifies objects (respondents) so that each object is very similar to others in the cluster with respect to some predetermined selection criterion (Hair et al., 1998). Cluster analysis was chosen as a tool for categorization of informal investors in accordance with the purpose of the study.

Based on the previous research (Gaston, 1989, Coveney and Moore, 1998, Sørheim and Landström, 2001) I have chosen to use the informal investors' level of activity as a main dimension for the analysis. As a second segmenting dimension I have chosen the investors' activity in the company that they invest in. According to the definition, "business angels" are hands-on investors (Mason and Harrison, 1995) with high investment activity that contribute considerable resources to the companies they invest in (Sørheim and Landström, 2001). This implies that investment activity, in terms of number of investments made and the contributed resources, and the investor's involvement in the object of investment are central for distinguishing between "business angels" and other informal investors (see Table 3).

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Table 3 about here

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For the purpose of the analysis I will make a distinction, between who the informal investors are, i.e. background characteristics, and what they do, that is investment behaviour. In the first stage of the analysis the informal investors will be divided with respect to the segmenting variables, and in

the second stage the groups will be compared on the basis of investors' background and investment behaviour, to analyze differences between groups.

As shown in the Table 3 there are two items describing investment activity level (total funds invested and total number of investment) and only one item describing investors involvement in the firm. Therefore the items that describe investment activity level are translated into an index ranging from low (0) to high (2), while investor's involvement can have a value of either (0) or (1). Both variables were standardized before the clustering procedure to make sure that they have the same impact on the formation of clusters.

Selecting the number of clusters is central for the outcome of the analysis. The hierarchical clustering procedure shows the process of cluster formation. In the first step the N-1 cluster solution is produced, where N is the number of objects. In each subsequent step, the number of clusters decreases by one, finally resulting in one cluster (Norusis, 1992). The process of cluster formation can be illustrated in the dendrogram, which shows the construction of the hierarchy (Hair et al., 1998). The dendrogram indicates that the most appropriate number of clusters, which in this case showed to be four.

The selection of number of cluster can also be based on the theoretical or intuitive conceptual assumptions (Hair et al., 1998). The four-cluster solution seems most appropriate since there are two variables ranging from low to high activity that can be combined in four possible ways.

Therefore, using the knowledge on previous categorizations, and to enhance the comparability to other studies (Coveney and Moore, 1998; Sørheim and Landström, 2001) I have decided to accept the four cluster solution.

After the cluster analysis was completed and the four groups were formed, the remaining issue was to make a comparison between groups with respect to those variables that were not used in the clustering. Values in each group were compared in pairs with Independent Samples T-test, using cluster membership as a grouping variable.

### **Strengths and weaknesses of the study**

This study's strength lies in the fact that it is based on a large random sample of informal investors. This is a first study within the area of informal venture capital conducted on a representative sample of a countries population. This means that the results can be extrapolated to the whole population of informal venture capital investors in Sweden. The categorization captures the whole variety of informal investors in Sweden and reflects their actual characteristics.

Another methodological strength is that the data gathering was conducted through telephone interviews. The response rate is very high (64.1 per cent) compared with similar studies in other countries (Sørheim and Landström, 2001, Harrison and Mason, 1992). Furthermore, the personal contact with the respondent reduces risk for the misinterpretation of the questions.

Finally, all data on investment behaviour is based on the actual investment history rather than hypothetical assumptions. This enhances the objectivity and reliability of the data.

The weakness of this study is that the data are gathered solely from the respondents own words. Neither the investment activity nor the background information has been double-checked with the tax authorities. I chose this way of gathering data because of my belief that not all investment

activity is registered, and because of the difficulties to gain access to non-public information through tax authorities.

## **THE SWEDISH CONTEXT**

### **Entrepreneurship and Swedish economy**

Small firms dominate Swedish business and industry, and 99 per cent of all firms have less than 50 employees. The SME sector accounts for 59 per cent of total turnover and employ 58 per cent of the private sector workforce. SMEs have become an increasingly important source of employment and growth as large enterprises no longer create the same number of jobs due to globalization and rationalization of operations (Lundström, 2003).

However, even if small firms are important for Swedish economy, the number of new firms is quite low. The 2003 Global Entrepreneurship Monitor ranked Sweden 31 out of 37 nations in its Entrepreneurial Activity Index (TEA). About 2 per cent of adults in Sweden are currently trying to start a business, and 2.1 per cent are involved in the ownership of a new firm that is less than 42 months old (Reynolds, 2003). Sweden's overall TEA index puts it in the group of low entrepreneurial nations. It is therefore a high priority for Swedish government to support the SME sector, to ensure a stable level of employment and long-term economic growth. The lack of access to finance is considered to be one of the important obstacles to the establishment and development of entrepreneurial ventures.

## **SME financing in Sweden**

A Swedish study by Landström and Winborg (1995) shows that the majority of small firms are reluctant to external equity financing, and that banks are the most important external financial source for small businesses in Sweden. The study is based on the financial data from 320 companies and shows that 86 per cent of the firms rely on bank financing, capital from family and friends are used by 10 per cent of the companies, institutional venture capital by 5 per cent, and only 3 per cent of all companies used to some extent the informal venture capital financing. This implies that Swedish firms rely on venture capital to a lesser degree than their counterparts in the US (Landström and Winborg, 1995).

The difference between Sweden and the US regarding the extent of venture capital reliance can be explained by the fact that the financial systems in those countries are based on two different traditions. Sweden along with Germany, Austria and France has a credit-based financial system which implies a high reliance on debt financing, unlike the US and the UK that represent capital market-based system and are much more equity-oriented (Gerschenkron, 1966 in Zackrisson, 2003).

The difference in use and supply of venture capital, especially the informal venture capital, in Sweden and US can also be explained by philanthropy, which is seen as a part of the American spirit (Acs and Phillips, 2002). While entrepreneurship is the creation of wealth, the informal venture capital investments can be seen as the reconstitution of wealth. This is consistent with Acs and Phillips (2002:190) definition of philanthropy as “giving money or its equivalent away to persons and institutions outside the family without definite or immediate quid pro quo for purposes traditionally considered philanthropic”. Given the high risk associated with informal venture capital

investments, philanthropy can at least partly explain the scope of informal venture capital in the US.

## EMPIRICAL RESULTS

### Data set

Individuals in the final data set have an average age of 47 years (min=18, max=79), 77 per cent are married and nearly half have children under age of 20. The percentage share of men in the data set is 80 per cent. Individuals are quite highly educated, as 86 per cent of them have graduated from high school (Swedish average = 47 per cent), and 62 per cent have some kind of higher education (university or corresponding) (Swedish average = 29 per cent).

About half (49 per cent) of the individuals in the data set are entrepreneurs, some of them with multiple start-up experience, so called “habitual entrepreneurs” (MacMillan, 1986, Westhead and Wright, 1998). Average number of start-ups for those with entrepreneurial background is 1.92 venture (min = 1, max = 15) (see Table 4).

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Table 4 about here

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Individuals' potential to make investments is dependent on their disposable income and wealth. Wealth and income is quite moderate within the group, where 80 per cent of households<sup>1</sup> have assets worth less than \$ 267 000, and 77 per cent have income less than \$ 100 000 per year. The median wealth is \$ 67 000 – 133 000, and the median income is \$ 67 000 – 100 000 per year.

Investment activity varies substantially between individuals in the data set. The majority of the individuals (58.5 per cent) are fairly low active investors with only one investment, and only 4 per cent have made more than ten investments (see Table 5). The majority of investors have invested between \$ 1 000 and \$ 9 999 (see Table 6).

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Table 5 about here

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Table 6 about here

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The informal investors in the group are mostly passive investors. Only 27 per cent of all investors have taken an active role in at least one of companies that they invested in. Regarding the most recent investment made by the individuals in the data set, their involvement in the company is reflected in Table 7.

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<sup>1</sup> Household's rather than individual's income and wealth is measured because of my belief that this is a better estimate of capital available for the investment purposes.

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Table 7 about here  
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Finally, an important factor to consider when analyzing investments is individuals' risk propensity. It has been previously stated that informal venture capital investors make more risky investment than venture capital funds (Landström, 1993a). Consequently, prevailing number of investments is expected to take place in the early stages of company development, when the risk for failure is the largest. As illustrated in Table 8, 57 per cent of all investments are made in the seed, start-up and early development stages, and very few investments are made in the established and stable companies.

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Table 8 about here  
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### **Extrapolation of the empirical results**

To calculate the total number of investors in Sweden, the number of investments made and the total funds invested, the results from the sample were extrapolated to the adult population of Sweden. According to Statistics Sweden, the adult population of Sweden at the end of 2004 measured as number of individuals in the age of 18 to 79 years was approximately 6 590 000 individuals.

Out of 396 people that were interviewed 114 were not investors. Under the assumption that the same proportion of people who answered “yes” to the screening question in reality were not investors, the actual number of investors within the sample would be 613 or 2.54 per cent, which is also an estimate of the percentage share of informal venture capital investors in adult population of Sweden. The confidence interval has been calculated to approximately 2.34 - 2.73 per cent, and the number of informal investors in Sweden was estimated to between 154 000 and 180 000. The total funds invested by each group are calculated by multiplying the average investment with the total number of investments in each group. The total amount invested by all categories of informal investors is between \$ 11.65 and 13.6 billion, as showed in Table 9. This is about 40 - 45 per cent of the total funds managed by institutional venture capital funds in Sweden, which at present are around \$ 31 billion (SVCA, 2004).

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Table 9 about here  
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### **Categorization of informal venture capital investors**

According to the purpose of this study this section presents the categorization of informal investors. The results of the cluster analysis yielded in the following informal investor categories (Figure 1).

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Figure 1 about here  
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The definitions of different categories of informal investors on the basis of Figure 1 are following:

- (1) “Micro investors” are characterized by low investment activity and low involvement in the company that they invest in. This means that they make few informal investments, invest small amounts of money and otherwise do not make any sufficient contributions to the investment object in terms of skills and expertise.
- (2) “Fund managers” show high investment activity in terms of funds invested and number of investments made, but have mostly a passive role in the companies that they invest in. This means that they provide considerable financial resources, but otherwise do not take any active roll in the investment company.
- (3) “Mentors” have a low investment activity level, but are actively involved in the companies that they invest in. They contribute with professional expertise and entrepreneurial experience, but their financial contribution is rather small.
- (4) “Business angels” are the most active of all informal investors. They contribute both knowledge and skills to the companies that they invest in, and they show high investment activity in terms of funds invested and number of investments made.

### **Analysis of categories of informal venture capital investors**

Looking at the demographic characteristics of informal investors we can see some major differences between the identified groups of informal investors (see Table 10). There is a considerable difference in the percentage share of men between groups. Among “mentors” and

“business angel” there is a significantly higher proportion of men (96 per cent) than in the “micro investors” group (73 per cent). There are also variations between groups regarding age of the investors. “Fund managers” showed to be older than both “micro investors” and “mentors” with a median age of 52.5 years, compared to respectively 45.5 and 45 years.

Informal investors appear to be rather highly educated, with 62 per cent having some form of higher education. The analysis showed that “business angels” are considerably higher educated than the three other groups of informal investors with a median value of the “university degree”, while there was no difference in the education level among the remaining three groups.

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Table 10 about here

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Informal investors have as expected quite high entrepreneurial activity, where about half of investors have entrepreneurial experience from one or several start-ups. The entrepreneurial activity range from 44 to 60 per cent between groups, which didn't show to be a significant variation.

“Business angels” and “fund managers” are better-off than other informal investors groups with a significantly higher net worth than both “micro investors” and “mentors”. Further, both “business angels” and “mentors” have significantly higher income than “micro investors”. Moreover “business angels” also have higher income than “fund managers”.

Differences and similarities between groups regarding their investment behaviour can in many cases be explained by variables “investment activity” and “involvement in the company” used in

the cluster analysis. Yet, there are relations that have not been captured during the clustering process.

“Micro investors” together with “mentors” have low investment activity measured as number of investments made and funds invested, in opposite to “fund managers” and “business angels” who have high investment activity, as predicted by cluster analysis. “Business angels” however invest considerably more money than “fund managers”, while “mentors” invest more money than “micro investors” and make more investments than them (see Table 11).

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Table 11 about here

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Table 11 shows that all four categories of informal investors tend to make investments in rather early stages of development, with start-up or early development as median values. Furthermore, Table 11 indicates that “business angels” tend to invest in earlier stages of development than both “mentors” and “micro investors”. The T-test showed however that difference is significant only in relation to “micro investors”, but not to the other groups.

The overall “investor involvement” level is 27 per cent, and according to the definition of the groups, “mentors” and “business angels” take an active role in the companies that they invest in, while “micro investors” and “fund managers” do not. Yet there is a difference in what role the “active” investors take. Analysis showed that “business angels” are involved in the companies that they invest in mostly as members of the board, while “mentors” generally take consultant positions.

The categories of informal investors can be summarized in the following way:

(1) Micro investors:

- are typically young (median = 45.5 years), have a largest percentage share of women (27 per cent) and tend to have a lower income and net worth than other investor types;
- have the lowest investment activity, take no part in the companies that they invest in and tend to invest in the early development stage of company development.

(2) Fund managers

- are the oldest group of investors (median = 52.5 years), have a near median percentage share of women (21 per cent) and have high net worth and moderate income;
- have high investment activity level but do not take any active role in companies that they invest in and tend to invest in the start-up stage of the company development.

(3) Mentors

- are the youngest (median = 45 years) and male-dominated (96 per cent men) group of investors with low net worth and moderate income;
- have low level of investment activity, but are actively involved in the companies that they invest in, usually taking a consultant position and tend to invest in the early development stage of company development.

(4) Business angels

- have an age near median and are a male-dominated group (96 per cent men) with high net worth, high income and a higher education level than the other categories of investors;

- have high investment activity level, take an active role in the companies that they invest in, usually as members of the board, and tend to invest in start-up stage of company development.

I was not able to identify any differences in level of entrepreneurial experience between groups.

## **CONCLUSIONS AND IMPLICATIONS**

### **Theoretical contribution**

The major contribution of this study is the estimation of the size of informal venture capital market in Sweden, and the categorization of informal investors. The number of informal investors was estimated to 2.34 – 2.73 per cent of adult population in Sweden, or between 154 000 and 180 000 investors. Those individuals have totally invested between \$ 11.65 and \$ 13.6 billion.

Four distinctive groups of informal investors were identified based on their level of investment activity and involvement in the companies in which they invest. The differences and similarities between groups were analyzed with respect to background and investment behaviour variables. By including such variables as gender and age, the important background characteristics of investor categories were captured. The categorization captures the whole variety of informal investors due to absence of methodological pre-requisitions when identifying the investors.

## **Policy implications**

Given the credit-based nature of the financial market in Sweden, the scope of informal venture capital market is surprisingly large. This means that informal investors should be considered important suppliers of start-up and growth financing in Sweden, and that their investment activity should be supported and stimulated.

Different informal investors categories are expected to respond differently to public and private efforts introduced to stimulate the informal venture capital market (Sørheim and Landström, 2001). Establishing the “arenas” where entrepreneurs and investors could meet might be beneficial for the investors with high level of investment activity, i.e. “business angels” and “fund managers”, as they may be interested in gaining access to a larger range of investment opportunities, thereby reducing their search costs. The introduction of “match-making” services might be beneficial even for “mentors” that take interest in investments that they make, but do not seem to fully use their investment potential. “Micro investors” however appear to be very little interested in the access to new investment opportunities judging by their low investment activity and no involvement in their investments. They can be stimulated by tax incentives which make investments in unquoted new ventures more attractive.

## **Acknowledgements**

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## TABLES

Table 1. The sample developmental process

<i>Category</i>	<i>Total</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Individuals randomly sampled	24 166	100%		
Number of “Yes” answers to the screening question	861	<b>3.56%</b>		
Agreed to participate	548	2.27%	100%	
Failed to establish contact	-152		27.7%	
Interview completed	396		<b>72.3%</b>	100%
Not investors	-114			28.8%
Refused to participate	-28			7.59%
Informal venture capital investors	254			<b>64.1%</b>

Table 2. The questionnaire

Section	Items
General investment activity	Investment potential Total number of investments made Total funds invested
Three recent investments	<i>Last investment</i> The year of the last investment The funds invested The stage of development of the firm The information source used The investment decision-making criteria The industry of the firm Investors involvement in the firm <i>Second last investment</i> ... <i>Third last investment</i> ...
<b>Background information</b>	Entrepreneurial experience Wealth Income Civil status Number of children under age of 20

Table 3. Operationalization of investment activity level and investor’s involvement

Variables	Items	Measurement
Investment activity level	Total funds invested \$67 000 or more	No = 0, Yes = 1
	Total number of investments 4 or more	No = 0, Yes = 1
<b>Investor’s involvement</b>	Investors involvement in the firm	No = 0, Yes = 1

Table 4. Entrepreneurial background

Number of start-ups	Frequency	Percent
0	128	50.6 %
1	72	28.5 %
2-3	28	15 %
4 or more	15	5.9 %
<b>Total</b>	253	100 %

Table 5. Number of investments per individual

Number of investments	Frequency	Percent
1	148	58.5 %
2 – 3	66	26.0 %
4 – 9	29	11.5 %
10 or more	10	4.0 %
<b>Total</b>	253	100 %

Table 6. Funds invested per individual

Funds invested	Frequency	Percent
\$ 0 – 999	35	13.9 %
\$ 1 000 – 9 999	124	49.4 %
\$ 10 000 – 99 999	69	27.5 %
\$ 100 000 or more	23	9.2 %
<b>Total</b>	251	100 %

Table 7. Investors' involvement in the company (the last investment).

Investors role	Frequency	Percent
CEO	7	2.8 %
Member of the board	21	8.3 %
Management position	8	3.2 %
Consultant	21	8.3 %
Passive	196	77.5 %
<b>Total</b>	253	100 %

Table 8. Investments in the different stages of company development

Stage of development	Frequency	Percent
Seed	45	17.8 %
Start-up	51	20.2 %
Early development	49	19.4 %
Expansion	78	30.8 %
Established and stable company	30	11.9 %
<b>Total</b>	253	100 %

Table 9. Extrapolation of empirical results

Category of investor	Total number of investors in Sweden	Total number of investments	Total amount invested
Micro investors	95 000 – 111 500	125 000 – 146 500	\$ 600 – 700 Million
Fund managers	17 500 – 20 000	111 500 – 130 000	\$ 1 300 – 1 550 Million
Mentors	28 000 – 33 000	47 000 – 55 000	\$ 400 – 450 Million
Business Angels	13 500 – 16 000	78 500 – 92 000	\$ 9 300 – 10 900 Million
<b>Total</b>	154 000 – 180 000	362 500 – 424 000	\$ 11 650 – 13 600 Million

		Investor's involvement	
		Passive	Active
Investment activity	High	<b>(2) Fund managers</b> 11% of the investors	<b>(4) Business angels</b> 9% of the investors
	Low	<b>(1) Micro investors</b> <b>62% of the investors</b>	<b>(3) Mentors</b> 18% of the investors

Figure 1. Categorization of informal investors

Table 10. Demographic characteristics of the informal venture capital investors (\*=median)

Variables	Total	Micro investors N=154	Fund managers N=28	Mentors N=45	Business angels N=22
Gender(1)	80 % men	73 % men	79 % men	96 % men	96 % men
Age*(2)	47	45.5	52.5	45	47.5
Education*(3)	Some university	Some university	University degree	Some university	University degree
Entrepreneurial background(4)	49 %	44 %	52 %	60 %	59 %
Wealth*(5)	\$ 67 000 – 133 000	\$ 67 000 – 133 000	\$ 133 000 – 267 000	\$ 67 000 – 133 000	\$ 267 000 – 533 000
<b>Income*(6)</b>	\$ 67 000 – 100 000	\$ 33 000 – 67 000	\$ 67 000 – 100 000	\$ 67 000 – 100 000	\$ 100 000 – 133 000

- (1) Significant difference between group 1 and groups 3 and 4 on 0.05 level. Significant difference between group 2 and group 3 on 0.05 level.
- (2) Significant difference between group 2 and groups 1 and 3 on 0.05 level.
- (3) Significant difference between group 4 and groups 1, 2 and 3 on 0.05 level.
- (4) Difference not significant.
- (5) Significant difference between group 2 and groups 1 and 3 on 0.05 level. Significant difference between group 4 and groups 1 and 3 on 0.05 level.
- (6) Significant difference between group 1 and groups 3 and 4 on 0.05 level. Significant difference between group 2 and group 4 on 0.05 level.

Table 11. Investment activity and involvement in the company (\*=median)

Variables	Total	Micro investors N=154	Fund managers N=28	Mentors N=45	Business angels N=22
Number of investments(1)	2.4	1.3	6.4	1.7	5.8
Funds invested(2)	\$ 75 000	\$ 6 000	\$ 76 000	\$ 14 000	\$ 686 000
Stage of development*(3)	Early development	Early development	Start-up	Early development	Start-up
<b>Involvement in the company*(4)</b>	27 %	No	No	Consultant	Member of the board

- (1) Significant difference between all groups on 0.05 level except group 2 and 4.
- (2) Significant difference between all groups on 0.05 level.
- (3) Significant difference between group 1 and group 4 on 0.05 level.
- (4) Significant difference between group 3 and group 4. Groups 1 and 2 are not active by definition.

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