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The informal venture capital market in Europe: an analysis of the business angels co-operating with the EAF and their investments



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Summary

The informal venture capital market is formed by individuals who invest their money, time and expertise mainly in young and unquoted companies, for both financial and non-financial reasons: they are called business angels and represent one of the main funding sources for seed and start-up firms. There is a wide and exhaustive literature about them, started more than 35 years ago, in the 1980s: several authors studied this market in its different aspects, describing the investors features, their investment methods and attitudes, the entities and organizations surrounding and interacting in it, and its problems.

Nevertheless, the market is continuously evolving, suggesting the need for new studies to be performed.

The aim of this study is to provide a description about the personal features and investment characteristics of the angels group which co-operate with the European Angel Fund, one of the European initiatives created to support the informal venture capital market. Data mainly derive from Crunchbase, LinkedIn and business angels' personal sites; based on these sources, a database on Excel was created and it was used to perform the analysis.

The work is divided in five chapters: the first chapter presents a market description and includes a literature review on the main aspects regarding business angels profile and their investment process; in chapter two, the study examines the markets problems and the public support initiatives addressing them, with a focus on EIF and EAF initiatives; the third chapter describes the data collection process, the database structure and the problems encountered during the research; the fourth chapter presents the analysis conducted on the sample, results and comparisons with literature; the final chapter presents the conclusions inferred from the work and proposals for further investigations.

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Chapter 1

1. *The informal venture capital market*

Business angels play a fundamental role in the economy, providing both financing resources and managerial experience to young start-ups, and representing in many countries the largest source of external finance for venture companies newly founded (Business Angels Report, CSES, 2012). In the following pages a description of business angels market will be traced, concerning where they operate, how extended is the phenomenon, problems existing and features characterizing their profiles and their investment activity.

1.1. *Business angels phenomenon*

It is well established that business angels are one of the most important source of equity finance for entrepreneurial businesses, in particular when these firms are in their start-up and growth stages; founders, indeed, have already consumed their personal money and those lent by family and friends, which represent the 3Fs: Founder-Family-Friends, defined as “the most frequent source of capital for start-up businesses” (Morrissette, 2007); at the same time, the financial support required by companies is not yet big enough to be attractive for venture capital funds.

Despite their importance is well-known and established by studies and literature produced during the years, there are several factors which make it difficult to find information about the market (as its size, scope, types of firms which draw angel capitals) and its investor types (Prowse, 1998). Among factors there are:

- ❖ The informal nature of the market: business angels act in a market involving transactions in private equity securities; this kind of transactions are very personal, private and not publicized, and they are not subjected to the disclosures requirements that other markets instead need (e.g. public equity market). Therefore, it is difficult to trace and find information about them (Prowse, 1998), statistical information are not

unified, and the studies conducted concern only small samples of data (Morrisette, 2007);

- ❖ The investors nature: business angels often have a strong desire of anonymity and they are not willing to easily reveal information about them and their investment activity (Business Angels Report, CSES, 2012); this is an additional feature contributing to the difficulty of tracing their profiles and investments, and that complicates the researches.

Therefore, the fact that they care so much about their privacy and anonymity (Wetzel, 1981; Benjamin and Margulis, 1996), that they are reluctant to respond to surveys (Haar et al., 1988) and that there are no directories of business angels and no public records of their transactions (Wetzel, 1981), makes them a largely invisible population (Mason and Harrison, 2000). Even if there are clear difficulties in the estimation of business angels market, undeniable progresses have been made over time.

Wetzel in 1983 made one pioneering study on the business angels market in the US, where it was underlined the importance of the informal risk capital market: it was declared that, even if the market was almost invisible and inefficient, there were at the same time evidences about its volume that could make it “the largest pool of risk capital in the country” (Wetzel, 1983). A survey made by SEC in 1980, regarding over \$1BN of private placements under Rule 146, reported that 87% of corporate issues buyers were individual investors or personal trusts; it must be underlined that issues reported under Rule 146, did not represent the total transaction volume of the informal risk capital market, but only a part of it. The same survey, in 1981, reported that individuals and personal trusts represented 93% of the over \$3BN private placements by noncorporate issuers. There are other empirical data in Wetzel’s work that can confirm the importance of business angels market. A survey made by Charles River Associates (CRA), looking at the composition of external funds received by STBFs (Small Technology-Based Firms) between 1870 and 1974, showed that “unaffiliated individuals” represented 15% of the funds, and the percentage raised to 17% if only the sub-sample of start-up companies was considered. The finding was confirmed by David Brophy’s study, about financial support for STBFs incorporated and operating between 1965 and 1970: the study reported that in a sample of Boston-area firms, private individuals represented 14% of total financing. Even though some basic information about the market begun to be found, in

the work it was still reported that the total population of investors was “unknown, and probably unknowable” (Wetzel, 1983).

Wetzel subsequently tried to estimate business angels number in the US in 1986, using a market-based approach: through an analysis of both demand and supply side of the market, Wetzel estimated that the US market in early 1980s was formed by about 100.000 individuals, who invested \$5BN in 25.000 firms. Successively, Wetzel revised his data: in 1987 he suggested that the companies funded by business angels were between 20.000 and 50.000 each year, with an aggregate investment between \$5BN and \$10BN; then, in early 1990s, reflecting the market growth, he suggested that there were about 250.000 angels in the US, investing an amount of money between \$10BN and \$20BN every year, in more than 30.000 venture firms (Wetzel 1987; Wetzel 1994). Wetzel was the first who tried to provide data about business angels market and to demonstrate how much larger it was than the institutional venture capital market (Mason and Harrison, 2000).

After Wetzel’s work, different authors tried to estimate the population and the market of business angel using different techniques.

Gaston(1989a) and Arun (1987) tried to estimate the volume of the US informal venture capital market through a more rigorous approach than Wetzel’s one: a firm-based approach involving a statistical analysis based on the US Small Business Administration microdata file (a complete listing of firms in the US) and a survey. Gaston found that in the US there were 720.000 business angels, 87.000 firms raising venture capital, and an annual flow estimated in \$32,7BN. The amount found was eight times larger than the amount of institutional informal venture capital investments and it almost exceeded all other formal sources of external equity in the US. If loans and loan guarantees were added (\$22.9BN), the total amount became 70% greater, and if the potential money that business angels wanted to invest were added too (estimated to be \$19,3BN), the total amount was estimated to be \$74,9BN.

Authors themselves recognized that this approach had a weakness: the low response rate of the surveys providing the basic information used for their further evaluations (Mason and Harrison, 2000).

Riding and Short (1987) used a statistical method, the capture-recapture approach, to estimate the number of investors in a geographical area. The analysis, performed in a sample of business angels in Ottawa-Carleton, was based on the number of times each one of the 50

investors was nominated by other investors of the sample. The estimated population resulted to be composed of 87 investors. Despite of the ingenuity of the approach, it can't be used in a larger scale because some limitations regarding it:

- ❖ It is best suited for cities and regions, and not for the entire national market;
- ❖ It can't be used to estimate the overall volume of finance involved in the investments;
- ❖ The technique relies on the identification of a business angels sample sufficiently wide to generate meaningful estimates of the population, but the basis for doing so is not clear;
- ❖ The method presumes the existence of one single population of investors, well connected one to another, and willing to share the names of other business angels related to them: if there are separated sub-populations or the investors do not want to share information, the method does not work (Mason and Harrison, 2000).

Mason and Harrison tried to estimate the UK business angels market size in 2000. They used an alternative approach based on the study of BANs (Business Angel Networks): in fact, due to the establishment of BANs (which are intermediary organisations founded to reduce the informal venture capital market inefficiency, and operating as a communication channel between investors and entrepreneurs seeking venture capital for their activity (Harrison and Mason, 1996)), a small part of the business angel market became visible, and the phenomenon boosted studies and researches on informal capital market. At the time, there were 48 BANs in the UK, listed in a directory which included also information about the number of investors of each BAN. After some adjustments and assumptions, mainly regarding the number of business angels not registered to BANs, and the over, or under, counting of BANs members, authors calculated that there were about 20.000 business angels in the U.K. between 1998 and 1999, who invested £500M in about 3.000 companies (Mason and Harrison, 2000).

Even though all these studies are scattered during the years and they examine different countries in different stage of development, all of them tend to underline how important and how large is the informal venture capital market.

Today, the situation is lightly changed: even though some problems are still unresolved (for example, difficulties encountered to evaluate the invisible market are still a fact), the great mole of literature produced over time, the evolution of business angels phenomenon, alongside the creation and spreading of more organized groups, as the Business Angels

Networks, and the support provided by the States, contributed to the creation of an amount of data and information leading through more complex and precise insights. In Europe, one of the most active organizations in studying and monitoring the informal venture capital market, is the EBAN (the European Trade Association for Business Angels, Seed Funds and Early Stage Market Players), which annually produces the Statistic Compendium: it represents one of the most extensive researches on business angels activity and networks, that provides information on early stage market, ways through which business angel networks operate and their investment attitudes. Data are collected through European business angels networks, federations of BANs, individual business angels, governmental co-investment funds, fiscal incentive reports, and also through web sites as Crunchbase, Dealroom, Zephyr database, Startup Watch, and other organisations which study angel investments. In the Statistic Compendium 2017, it is reported that the size of visible and invisible market (which, even though representing the biggest part of the market, can only be estimated, due to the lack of data; in this case, based on previous studies and reports, the estimation is considering it 10 times bigger than the visible market) reaches the amount of €7,3BN, with a 9% increase than 2016, and comprehends 337.500 investors and 39.990 deals closed in the year. It is considered the main equity market for early stage SMEs and start-ups. To make a comparison, the US market is estimated reaching a volume of about \$23.9BN, more than three times bigger than the European one. If other early stage investors are considered too, as early stage VCs, the equity crowdfunding sector, and the capital raised through ICOs, the market reaches an amount of €13.2BN (EBAN Statistic Compendium, 2017).



Figure 1: Main areas of early stage investment in Europe, in €BN (Source: EBAN Statistic Compendium, 2017)

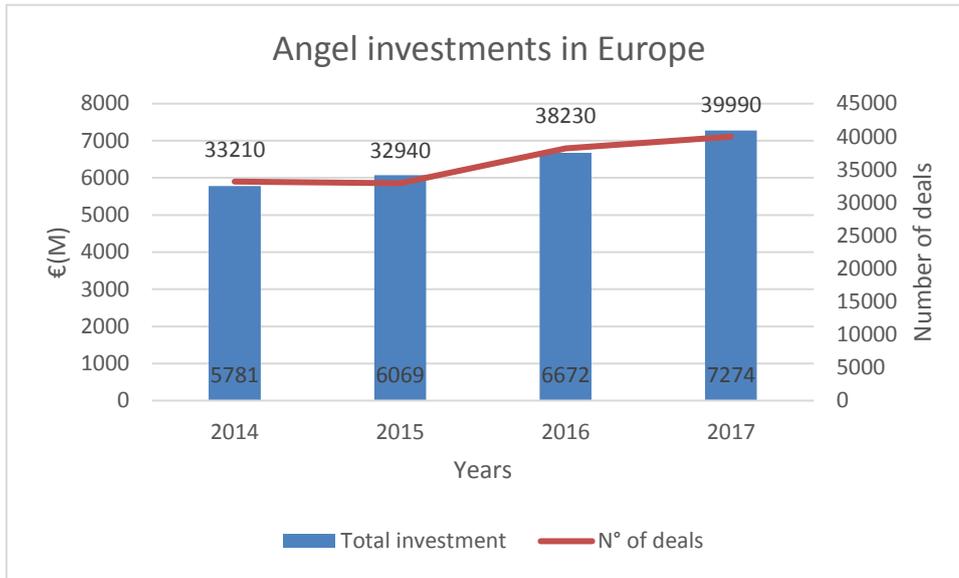


Figure 2: Total investment amount and number of deals of both visible and invisible market in Europe, for the years between 2014 and 2017. Investment values in €M

The following graph shows angel investments in the top three positions countries and in Italy, during the years 2014-2017: the UK is clearly the leader, followed by Germany and France; Italy is in the 19th position.

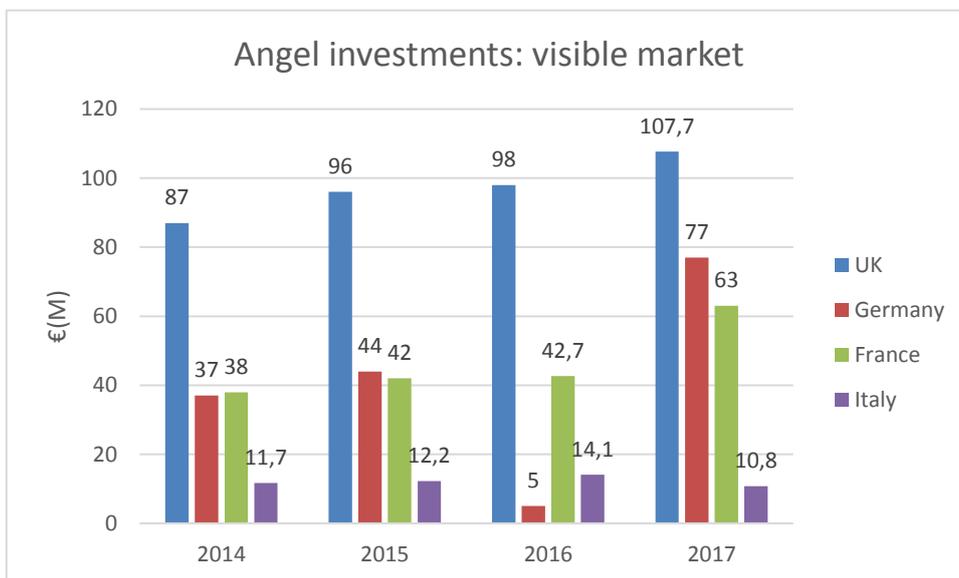


Figure 3: Angel investments sorted by country, regarding only the visible market, for the years between 2014 and 2017. Data are in €M

After business angels importance have been underlined and data and evidences about their market volume and problems have been presented, the following part of the study will present several features characterizing business angels activity and investment attitudes.

1.2. *Business angels profile*

According to the definition provided by DG Enterprises (the organization under the European Commission control), a business angel is defined: “A knowledgeable private individual, usually with business experience, who directly invests part of his or her personal assets in new and growing unquoted businesses. Besides capital, business angels provide business management experience for the entrepreneur.” (DG Enterprises)

The definition is similar to the following, in which it is said that business angels are “high net worth individuals who invest their own money, along with their time and expertise, directly in unquoted companies in which they have no family connection, in the hope of financial gain.” (Mason, 2005)

A more elaborated description is proposed by the EBAN, recalling the principles of the just cited ones, but at the same time adding and explaining better some points. For the EBAN “A business angel is an individual investor (qualified as defined by some national regulations) who invests directly (or through his/her personal holding) his/her own money predominantly in seed or start-up companies with no family relationships. Business angels make their own (final) investment decisions and are financially independent, i.e. a possible total loss of their investments will not significantly change the economic situation of their assets. BAs invest with a medium to long term set time-frame and are ready to provide, on top of their individual investment, follow-up strategic support to entrepreneurs from investment to exit. They respect a code of ethics including rules for confidentiality and fairness of treatment (vis-à-vis entrepreneurs and other BAs), and compliance to anti-laundering.” (EBAN)

In the following pages, several business angels key aspects will be examined.

Age: there isn't a clear concordance concerning their age, due to the regional extension that the great part of the studies has, but some conclusions can be extracted. Surely, they are middle-aged individuals, mostly with more than 45 years (Mason and Harrison, 1995), and around 50s (Morrissette, 2007). Then, regional studies indicate different age distributions in their samples.

During a survey conducted in Germany, aiming to investigate the German market and to compare Germany to other countries, a questionnaire was distributed to a sample of business angels, and the following percentages were found: 24% of the investors had less than 40 years, 29% had more than 55 years, and 47% had an age included between 40 and 55 years (Stedler et al, 2003).

Other studies found different age distributions in different countries: the investor's average age (median) was found to be 40 year in Australia, 42 or 47 in US, 47 in Norway, 53 in UK, 54 in Sweden, 60 in Japan; in Finland, a research found that 67% were between 40 and 60 years old. An interesting study underlines the existence of an inverted U-shaped relationship between an individual's age and the propensity to make informal investments: the explanation given is that, according to the theory of planned behavior, very young and old individuals tend to believe they are not much capable to make investments in start-up companies, and to contribute to the success of them; findings about the typical business angels' age, go in this way (Maula et al, 2005).

Recent surveys tend to confirm past literature, as can be seen in the following graph showing the average business angels' age in several European areas.

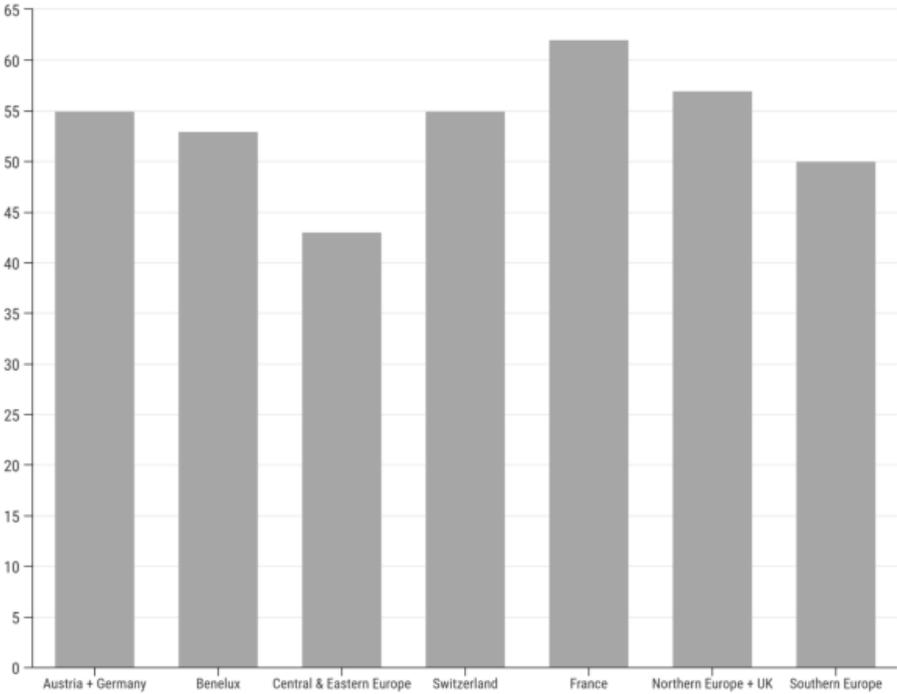


Figure 4: BA investors distribution by average age in 2017 in Europe (Source: EBAN Statistic Compendium, 2017)

One of the explanations concerning business angels' age, is that it reflects the time needed to accumulate the necessary amount of wealth for their investments; there is also a theory suggesting that it is the age range in which individuals, who often were entrepreneurs or had a successful business career, retire from work: becoming a business angel can be a way to stay active in an economic way, exploiting the personal knowledge raised during their work period. Entrepreneurs that cashed out during their 40s or 50s often, indeed, reported that becoming a business angel was a way to contrast the boring of retired life (Mason, 2005).

Gender: business angels are typically male individuals and all the studies quite agree on this point; Mason and Harrison affirmed they are “almost exclusively male” (Mason and Harrison, 1995), relying on findings reported in Appendix A.

The study of Stedler et al. about German angels market, confirmed they are prevalent males, finding that 95% of the sample was composed by male individuals, and only 5% by females (Stedler et al, 2003).

Generally speaking, all the studies agree on the fact that percentage of male angels is 95% or more; this is probably due to the small number of women who founded successful companies as entrepreneurs or hold high positions in big companies (Mason, 2005); it is important to underline that, even though in minority, women belonging to angels population share the same characteristics of men (Harrison and Mason, 2005).

Today's results indicate that the number of female business angels is raised: in 2017, indeed, in Western Europe female business angels represented 11% of the population, and in the US even 19,5%. Numbers are even greater in Central and Eastern Europe, where about 30% of business angels are females (EBAN Statistic Compendium, 2017). Therefore, it seems that women are gaining more importance in the informal venture capital market.

Entrepreneurial character and sector of experience: another common business angels characteristic is their entrepreneurial character. Most of them, indeed, are or have been entrepreneurs before becoming business angels, with one or more startups founded in their life.

In their study, Maula et al. supposed that the entrepreneurial character of an individual was positively associated with the probability of becoming a business angel: an investment in a start-up requires strong assessments about its potential to become a successful business, and investors in young companies are called not only to provide capital and financial resources, but also to help in strategic decisions that the company takes. Therefore, individuals who are ex-entrepreneurs, experienced about the heats a company undertakes during its young phase, and confident about their ability to select good targets to invest in, are the most indicated ones who can help these kinds of companies. The relationship found by authors supported their hypothesis (Maula et al,2005).

Percentages about business angels' entrepreneurial experience change from one country to another: 38% in Norway, 48% in Japan, 49% in the UK, 69% in Sweden. Shares of investors who have founding experience are different from one country to another too: 46% in Norway, 67% in the UK, and even 96% in Sweden (Maula et al, 2005).

During a UK survey, Mason and Harrison found that 71% of the sample founded one or more companies, with an average number of two, and 9% of investors instead founded five or more companies. Authors confirmed that "one of the few sustainable generalizations that can be made about business angels, who in most other respects are a very heterogeneous

population, is that they are typically successful cashed-out entrepreneurs” (Mason and Harrison, 2002).

Despite business angels common feature of being ex-entrepreneurs, there is more uncertainty about the sector in which they matured their experience; they come from a great range of sectors, with a prevalence of service industry and Information Technology sector, as can be confirmed by the study of Stedler et al., who found the following percentages in their sample: 44% of investors worked in the service industry, 40% in IT, 30% in mechanical and plant engineering, 24 % in trade, 21% in TLC and 20% in electronics (Stedler et al, 2003). Their common feature is the experience in a senior management role position, often in big companies, or the possess of specialist commercial skills (Stedler et al, 2003; Mason, 2005). In business angels population there is a clear absence of individuals with a non-professional business background (e.g. lawyers, doctors, dentists) or individuals employed in the public sector (Mason, 2005; Morrisette, 2007).

Their entrepreneurial character is related to the next two characteristics.

Activity degree: first of all, business angels are heterogeneous about the way they are “active” during their investments; there are active business angels, who monitor the firms they invest in, sit in the board and advise the company in various aspects, find their deals, perform the due diligence before investing, and manage the investment all by themselves. This kind of investors often is a highly motivated ex-entrepreneur. There are then passive angels, who bring only money and rarely monitor the firm so closely as the active investors do: this type of investor rarely exists by his own, usually it is part of an informal network, where there is the presence of one or more active angels (Prowse, 1998). For example, he can be part of a syndicate: syndicates are an organizational form, which is the results of “the gathering of several business angels into an informal consortium for the purpose of creating a critical mass of funds above what each business angel could, or would be prepared to, invest. This term also applies to the pooling of competencies in order to offer more managerial skills than any individual business angel could display” (EBAN). Syndicates state that one of their strengths is their ability to spread risks and to fund further rounds of investment, because investments are carried out by more than one angel. Usually the investor pays for the syndicate activity, and the syndicate assesses the potential investment for the angel.

In order to give an idea about how much business angels are involved in their investment activity, Stedler et al. affirmed that in Germany, 54% of investors were occasional hands-on investors, who committed several days in a month in activity related to the investment, and 32% were involved for more than one day a week (Stedler et al, 2003). Wetzel found that 84% of the sample expected to have an active role in their investment, usually through an informal consulting relationship or a role on the board of directors (Wetzel 1983).

Hands-on nature and reasons behind investment: therefore, one of business angels common aspects is to be hands-on investors; they are investors that can contribute directly to the performance of firms. Duxbury et al, concluded that informal investors are highly motivated, very involved with their investment, and they strive to guarantee good performance (Duxbury et al, 1996). Their nature of active supporters is related to one of the reasons leading them to the investment activity: from the studies emerged that the “personal satisfaction from being involved in entrepreneurial businesses” represents one of their main reasons to invest. This non- financial motive was found to be the second most important reason to invest, from a survey conducted in the UK. The importance given to the involvement in entrepreneurial activity, emphasizes how business angels do not bring only money to their investment, but also contribute with their experience and knowledge. In the same survey, 94% of investors described themselves as hands-on investors (Mason and Harrison, 2002).

Concerning the reasons behind their investments, surely financial reasons are predominant, mainly consisting in the prospect to achieve a capital gain, through the acquisition or the IPO of companies they invested in. But there are also other reasons driving business angels in their investment activity, such as the fun involved in the investment activity (as mentioned before) and altruistic reasons too: for example, US studies indicate that a part of the angels would give up to a part of returns, if the business they fund contributes to the social benefit or to support new entrepreneurs (Mason, 2005).

This finding is supported by Wetzel’s study in the US, who found that business angels often considered non-financial reasons: 45% of business angels in the sample, indeed, considered if their investment help or assist new entrepreneurs, and between 35% and 45% would have lowered their returns if their investment had contributed to the employment level of their region or had concerned socially useful technology (Wetzel,1983).

Mason and Harrison highlighted that non-financial considerations were a strong secondary reason to invest too: they found that investors gave a lot of importance to considerations like “being involved with entrepreneurial businesses”, “having fun with the money” and “desire of supporting new entrepreneurs”. Another significant reason to invest was to “use tax breaks”. On the contrary, they found that altruistic reasons were not one of their main concerns, with 85% of the sample saying that they were not driven by the support of socially useful products or services (Mason and Harrison, 2002).

Wealth: one of the basic conditions to become a business angel is having enough wealth, and great part of business angels have a high net worth and a high income. There are evidences on angels’ wealth suggesting that they tend to be ‘comfortably’ off rather than super-rich: a study made by Gaston(1989b) reported that only a third of business angels in the US had a net worth (excluding principal residence) in excess of \$1M; the study is supported by Haar et al. (1988), who affirmed there were very few millionaires in the sample he studied, and Mason and Harrison (1994), who noted that only 19% of UK business angels were millionaires (Mason, 2005). Another study conducted by Mason and Harrison reported that 71% of the sample had a worth (excluding principle residence) of more than £500K, with a percentage of millionaires equal to 62%. Concerning their income, 12% has more than £250K, 4% between £100K and £250K, and 39% between £50K and £100K (Mason and Harrison, 2002). Evidences suggest they have gained their wealth by themselves, mostly by their entrepreneurial activity rather than an high income occupation, and that only a small part of them inherited it (Mason and Harrison, 2002). Other findings about their worth can be seen in Appendix A.

Investing their own money: one of the features differentiating business angels from venture capital funds is the fact that they invest their own money, instead of managing third parties’ ones. This characteristic leaves them more freedom in a lot of aspects: first, they are not constrained to invest, if they do not find valuable opportunities; second, investing directly their money, they can take decisions more rapidly, because they do not have to report their actions to anyone; third, they do not need complex due diligences, because they are less financially and legally constrained, and for this reason their costs are lower (Mason, 2005).

Education: concerning business angels education, all studies agree they are well-educated, typically endowed with a university degree or a professional qualification. Wetzel found that 94% of his sample had a four-year college degree, and that 51% had graduate degrees (Wetzel, 1983). Other studies confirm the trend in different countries: in US 82% has at least an undergraduate degree, in Canada 30% has a university degree and 39% a post graduate degree, in the UK 74% has a university degree, and in Finland 56% has a master's degree, and only a 8% a Ph.D. (Maula et al, 2005). The last percentage about the small presence of business angels possessing a Ph.D., reflects the trend found in other studies, suggesting that there is an inverted U-shaped relationship between the level of education and the entrepreneurship of an individual (Mason, 2005).

Deal evaluation and monitoring: before concluding a deal, business angels go through an extensive analysis of the firm business and team, covering a lot of areas: management, product, market, financial condition and investment areas. Factors resulting the most important are the following:

- ❖ Team: personal impression, counting for 81%; persuasive power ability to enthusiast, 50%;
- ❖ Product: uniqueness of the product, 67%; competitiveness, 57%;
- ❖ Market and sales: growth potential, 60%;
- ❖ Finances: high profit margins, 34%; moves into profit quickly, 38%;
- ❖ Investment: proportion of self-financing, 39%; exit options, 38%; high return on the investment, 28% (Stedler et al, 2003).

As can be seen, one of the most important personal factors is their personal impressions about entrepreneurs; this attention is underlined by other authors too: for example, Prowse affirms that one of business angels primary criterions during proposals screening is whether the entrepreneur is known and trusted by them, or by one of their associates. At the same time, most angels require that the company business plans are feasible, but this screening is only a secondary criterion for the final investment decision. This is one of the tracts that differentiate business angels from venture capital organizations. The lack of trust in the entrepreneur or in the management team is also one of the reasons to reject proposals (Prowse, 1998).

After the conclusion of the deal, business angels are usually active in the monitoring of the firm, using various instruments to monitor the performance, as making comparisons between

project expectations and actual situation, check the adherence to the cash flow plan, and see the periodic accounts (Stedler et al, 2003). They use also a variety of instruments to align incentives between them and the management team, that can be divided into 2 main categories:

- ❖ Performance incentives: the principal instrument used by angels is to give part of firm stocks to managers, so that managers' financial performance depends on the performance and survival of the company; another instrument often used is to invest through convertible preferred stock instead of common stock, because of the advantages it brings along (it reduces investors risks, and incentives managers actions, given the fact that managers typically hold common stock); other instruments, as the use of managerial contracts that penalize managers in case of poor performances, or contracts in which managers can increase their share at the expense of the investor if some objectives are achieved, are rarely used by business angels, and belong more to venture capital industry.
- ❖ Direct control mechanism: typical mechanisms used are the representation on the Board of Directors, the voting rights majority owning, and the breaking up in different rounds of the overall capital provided to the firm, each round containing the exactly amount of capital needed to reach the next round (Prowse, 1998).

Company type: the typical business angel's investment is made in unquoted companies, mainly new or recently start businesses instead of already established ones. One of the main reasons for this investment behavior, is their intrinsic nature of active hands-on investors: they want to have the opportunity to contribute in the funded company, not only financially, but also helping its growth and taking part in the decision process (Mason, 2005). A lot of studies underline that the great part of business angels' investments happens in companies at their seed or start-up phase.

Wetzel found business angels to be the principal source of seed capital. Investors belonging to his sample, indeed, made 44% of their investments in start-up companies, and the age distribution of firms was consistent with the finding: 80% were actually less than 5 years old. Investors showed a strong commitment in investing in start-ups and early stage firms for their planned investments too. This was a much larger share compared to professional venture capital funds, who invested from 25% to 35% of their money in start-up firms (Wetzel, 1983).

In other studies, the share of investments made in young companies is even greater: Stedler et al. found that 45% of companies belonging to the sample were in their start-up phase, and 38% in their pre-start-up/seed phase (Stedler et al, 2003). Mason and Harrison found that in the UK, in Sweden and in the US the percentage of companies in their start-up or pre-start-up phase was even larger, more than 60% in all the three countries, as showed in Appendix B (Mason and Harrison, 2000).

The tendency is confirmed today too: EBAN found that the larger amount of business angels' funds is directed to companies in their seed or pre-seed stage, followed by those in their start-up or early stage; companies in later stages of development, during their expansion, buy-out or pre-IPO stage, represent less than a fifth of the amount of the other stages (EBAN Statistic Compendium, 2017).

Investment amount: although it is difficult to compare different studies involving the amount of money invested by business angels, the general statement is that they make small investments, compared to those performed by venture capital funds.

Wetzel in 1983 found that the average investment size had a volume of about \$50K, with a median equal to \$20K, and that 36% of investments had a volume less than \$10K; only 24% of investments in his sample involved a volume greater than \$50K (Wetzel, 1983).

Mason and Harrison found the average size showed in Appendix B and reported that the great part of business angels in the UK invested less than £50K in a single deal; in the US the average investment was equal to \$58.9K (Mason and Harrison, 1995). Few years later they updated their findings, showing that, even remaining a small amount of money, the investment size grew to reach typically an amount of £100K or fewer in UK, and \$250K or fewer in the US (Mason and Harrison 2000).

In more recent years, Morrisette noted that the average amount of money being invested is typically ranged between \$50K and \$150K, with a median of \$75K (Morrisette, 2007). The study of Benjamin and Margulis (2001), gave the following frequency categories: investments under \$25K represented 20% of the total, investments between \$25K and \$99K 40% of the total, investments between \$100K and \$250K 25% of the total, and investments over \$250K 15% of the total. This distribution represented an average investment volume larger than the previous cited. Prowse, describing the amount invested by angels, affirmed that they usually

invest amounts larger than \$50K, that could be so high to reach the amount of \$1M (Prowse,1998).

Sectorial distribution and trend: there are no clear evidences if business angels have a favorite sector to invest in or not; this is due to their extreme heterogeneity as a population, composed by individuals who gained experience in different business sectors. Nevertheless, one of the aspects in which literature generally agree, concerns their attitude to invest in industries where they matured experience. This behaviour explains why they do not have a pre-determined sector where to invest: being an heterogeneous population, each of them has a different background experience, and so different preferred sectors.

Wetzel reported a great range of industries among the investors' preferences he analyzed; there was a clear preference for manufacturing industry, both general and high-tech manufacturing: 57% of business angels past investments, indeed, were performed in manufacturing firms, of whom 28% in high-tech and 20% in industrial products. Service firms were the second type of preferred investment, but far from the first one. He also reported that almost a third of the interviewed investors expressed an interest in financing technology-based firms, belonging to a broad range of industries, among which there were electronics, computers, energy and healthcare. All the investors however affirmed that the technology had to concern a sector in which they had experience, a background or technical competencies, so that they can evaluate it (Wetzel, 1983).

Mason and Harrison too underlined the heterogeneity of investors' preferences: in their survey, they found that for every investor interested to invest in some business, there was another one not considering it; they also found that not all investors were interested to invest in the technology sector, differently than Wetzel's study. The most popular sectors in their sample, were the Internet sector, IT and TLC: more than 20% of the sample expressed a strong desire of investing in them. According to previous studies, they found that preferences reflected the business angels tendency to invest in sectors in which they had gained experience (Mason and Harris,2002).

Stedler et al. found the IT sector to be one of the most interesting for business angels too: the sectorial distribution of investments in his sample was mainly composed by investments in IT(52%), life sciences (21%) and services (20%), with the IT sector representing the focus for

business angels, regardless their previous experience; sectors where investors had previous experiences were the second most popular investment choice (Stedler et al, 2003).

EBAN found the following investment distribution in Europe in 2017.

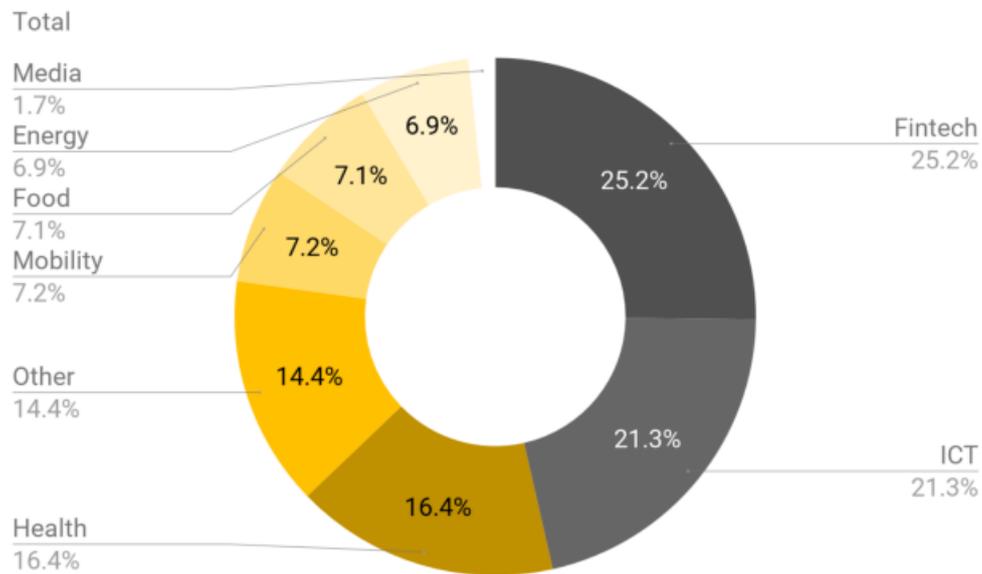


Figure 5: Sectors distribution by investment amount in 2017 in Europe (Source: EBAN Statistic Compendium, 2017)

As can be seen, ICT and Fintech represent the main sectors. It must be underlined that 26% of respondents affirmed that they do not have a specific sector preference. In the US, as a comparison, the main sectors are represented by Software (30%), healthcare/medical devices (19%), retail services (10%), biotech (10%), industrial/energy (7%) and IT services (5%) (EBAN Statistic Compendium, 2017).

Holding period and exit moment: for investors who provide equity finance to firms, the exit event has an indisputable relevance, representing the harvest moment of the investment. The exit moment for investors consists in a return, in the form of a capital gain, realized after a period of time in which the investment possesses a few (or not possesses at all) liquidity and marketability. It is a relevant event for several reasons:

- ❖ It is relevant for the firm, because it signals to the world that, after the business has raised money in the past, now it has a recognized growth and potential;
- ❖ For angels, it is relevant because allows them to demonstrate their ability to the rest of the world, creating a positive business event in their investor career, which can

attract further investors and potential investments; it is also relevant because it gives them the indispensable liquidity to make further investments, in addition to the motivation to have reached a positive result;

- ❖ For the economy, exits create a recycling process of entrepreneurs involved in the business (in fact, the actual exit process often involves not only investors, but also entrepreneurs and the management team), letting them free to re-invest their experience and wealth: maybe starting a new business, maybe becoming a mentor to support new organisations and entrepreneurs, or maybe becoming investors themselves;
- ❖ Public sector too, with the increased importance of co-investment funds, is becoming more interested in the exit process (Mason and Bothelo, 2014).

Literature has not defined yet a clear attitude of business angels towards the exit process and expresses different opinions.

Wetzel, testing the investors patience level in his sample (in the form of the expected holding period for their investments), found a median holding period between 5 to 7 years; however, the main point was represented by a 24% of the sample who considered the holding period not important, or thought to hold their investment for more than 10 years: it represents a very patient investor type compared to venture capitalists (Wetzel, 1983).

Mason instead affirms that, even if business angels are thought to be very patient investors, with a holding period lasting more than 7 years, the belief is not supported by data, because findings suggest that angels hold their investments for a shorter period of time: in the UK, the median time is between 4 years and 6 years (respectively for high performing and moderate performing investments), and in Finland it takes about 5 years to investments to become positive for being harvested (Mason, 2005).

This is coherent with Morrissette's study (Morrissette, 2007), who finds that business angels hold their investments for about 5 years, mentioning the following holding periods in different author's works: 4,8 years (Frear, Sohl and Wetzel,1995), 4 years (Linde and Prasad, 2000), between 5 and 6 years (Van Osnabrugge, 1998), between 5 and 7 years (Hoontrakul,2001), 5,1 years (Gaston, 1989) and 8 years (Benjamin and Margulis, 2001).

Prowse affirms that most business angels have an holding period lasting about 5 years, but that exists investors with a longer horizon too. Furthermore, he declares that the most frequent exit methods are an IPO (Initial Public Offering) or the stock sale to another company,

with the IPO event that is rarer (mainly because 5 years are a small amount of time for a company to become ready for an IPO) and is considered a goal by investors (Prowse, 1998). Mason agreed with Prowse about the two methods of successful exit, underlining that the trade sale is the most common route to exit from a business and the IPO represents a rare alternative (Mason, 2005).

EBAN finds instead a longer period since the investment moment to the exit, supporting Wetzel's thesis that business angels are patient investors: the study finds that investments lasting more than 5 years represent 65% of the sample, with the greatest share represented by holding periods longer than 10 years (more than 35% of the total), and affirms that the trend represents the attitude of business angels to build long term partnerships with entrepreneurs (EBAN Statistic Compendium, 2017).

The study of Mason and Bothelo is in contrast with the last statement, affirming instead that the longer time horizon is due to the angel's difficulty to achieve the exit moment, mainly because their failure in the adoption of an exit-centric approach during the investment process, that inevitably leads them to a longer holding period (Mason and Bothelo, 2014).

Geographic distribution and trend: angels population is known to be geographically dispersed, in a much better extent than venture capital funds; it is said, indeed, that "angels live everywhere" (Gaston,1989), even if their presence is naturally greater in regions with a large SMEs sector, due to their entrepreneurial background (Mason and Harrison, 1995). Their geographical dispersion is one of the reasons why they can give such a contribute to economic development: they are active precisely in regions where the institutional venture capital sector is almost absent (Mason, 2005). The second geographical aspect involving business angels, is that their investments are highly concentrated in their local area; this behavior reflects several aspects of business angels profile:

- ❖ Their nature of hands-on and active investors, who need frequent contacts with the companies they invest in;
- ❖ Their need to monitor funded firms: companies are usually start-ups, characterized by a strong information asymmetry and a consequent need to monitor them, which can be easier if they are geographically closed to investors;

- ❖ The localized nature of their business and networks through which they find investments opportunities, and the consequent availability of superior quality information in case of opportunities closed to home.

Two consequences of this investment behavior are: first, in most areas outside large cities, financial centers and clusters, business angels are the only source of equity and second, informal investors, at the opposite of other investment entities, such as banks, insurance companies and pension funds, help the retaining and recycling of wealth within the same region in which it was created (Mason, 2005; Mason and Harrison, 1995). In the following, there are some examples of the localized attitude of angels.

Wetzel found in his sample that 75% of firms funded were located within 300 miles from the investor, and 58% within 50 miles (Wetzel, 1983). Mason and Harrison, in their survey conducted in the UK, measured that 55% of investors had a geographical limit, beyond which they did not consider to invest, and that limit was 2 hours travelling time for 67% of their sample; moreover, there were very few investors that considered the opportunity to invest outside the UK: only 10% for continental Europe and 4% for the US. Morrissette's study mentions different works, all underlining the localized character of business angels: Riding and Short (1987) found that 85% of investments were localized within 50 miles from investor's home or office; Benjamin and Margolis (2001) found that 65% of investors preferred to invest near home (within 30 miles); Aram (1989) found that 86% of investments were within 150 miles from investor's home; Frear, Sohol and Wetzel(1992) found that 66% of investments were within 300 miles (Morrissette, 2007).

Today the situation is not changed a lot, even though there is a light tendency to invest in other countries than the national one: the EBAN research finds that, even if 59% of investments are still made in the home country of the investor, this share is lower than 94% registered in 2015, meaning that cross border investments are becoming more frequent. The same research indicates that 16% of investments stay in the same region of the investor.

Networks: one of the great changes in the market has been the raise of angels groups investing together, the syndicates. They emerged in the early 2000s, mainly for two reasons: the first, were the advantages that angels had in working together; the second, was the tendency of venture capital funds to withdrawal from the early stage companies market,

constraining angels to make larger investments in follow-on rounds, with longer exit periods (Mason,2005).

Syndicates are important for the angel movement and for the economy overall for several reasons (Mason, 2009):

- ❖ Thanks to their visibility, they reduce inefficiencies and fragmentation of angels market, addressing both the angel difficulty to search new deals and the entrepreneurs problem to search investors; moreover, they improve the screening, evaluation and negotiation of business proposals;
- ❖ They attract new business angels in the market, increasing the supply of equity, because they see in syndicates various opportunity: to reduce risks of the investment, to diversify their investment portfolio, to rely on better skills and knowledge for a better deals screening and later support, to learn from more experienced investors;
- ❖ They are composed by many angels, and therefore they are endowed with a better follow-on commitment than an alone investor: this is important for entrepreneurs, who do not need to find other investors during the development of their firms, engaging in other searches which are cost and time consuming;
- ❖ They have a greater ability in the value adding capacity of business angels, because they are made up of individuals who are skilled in different sectors and have different abilities, who can generate a better contribute to several aspects of the business;
- ❖ They are preferred by venture capital funds than business angels acting alone, who are often considered amateurs: this is an important aspect because it can make the difference during the decision of a venture capital fund to invest or not in a deal. The increase of syndicates number represents then a greater complementarity between the two markets.

Chapter 2

2. Business angels industry

Business angels mainly act in the STBFs market and play an essential role for its growth: STBFs are firms usually at their early stage of development, particularly localized in the high-technology sector, that have a huge positive impact on the economy, stimulating job creation, innovation, productivity and price stability (Wetzel,1983).

However, the existence of inefficiencies and imperfections causes a market failure and a consequent capital gap that needs to be filled.

This chapter is composed of two main sections. The first one focuses on the business angels market framework; it describes market inefficiencies and the development of European support measures over time. The second section analyses two of the measures established by the European Union: the European Investment Fund and the European Angels Fund.

2.1. Market features

As stated above, the business angels market shows several inefficiencies and imperfections. Among them, the most important are the agency problem, the adverse selection problem and the moral hazard. The following paragraph focuses on their characteristics and the potential solutions to reduce them.

2.1.1. *Market inefficiencies*

The main reason for the presence of deficiencies and imperfections is the existence of informational asymmetries, that can be explained through the agency theory.

An agency relationship exists when an individual, the principal, engages another individual, the agent, to perform a task in his place (Kelly and Hay, 2003); this is the typical situation existing between managers and investors, or entrepreneurs and business angels. The main problem that the theory considers is the presence of opportunism in the relationship, that is the risk that the agent does not take his decisions in the best interest of the principal.

This problem can affect both the equity funding and the debt lending: on the equity side, if the company is funded by outside investors, the manager might perform excessive expenditures, because these expenditures are shared with investors, but they are disproportionately benefited by the manager; on the debt side, the manager may be inclined in increasing risk to levels considered too high by investors, in order to obtain a higher compensation. Both problems arise because the manager bears only a fraction of economic costs associated with his personal actions (Lerner, 1998).

There are also other ways through which opportunistic behaviors may arise. First, in this type of transactions usually one of the two parties, the entrepreneur, possesses information that the other part, the investor, does not know: this create a situation where the better informed party may misrepresents its skills, its ability to perform a specific task and the prospects and situation of the firm; this is the “adverse selection problem”, and it is more severe in those market in which the scientific knowledge and intellectual property of firms are more difficult to value, or products tend to be new and untested, as in the technology-based market (Mason, 2009). Second, there is the risk of “moral hazard”: this risk emerges in contexts in which one party cannot observe the behavior of the other one during its actions, consequently there is the possibility that the agent expends less efforts on his activity, negatively influencing the outcome of the investment (Kelly and Hay, 2003).

The agency theory provides several remedies to address these problems: to perform accurate due diligences for a precise evaluation of investments, to design contracts, strong monitoring systems and complicated incentive systems for managers in order to align their intentions to those of the investors. These kinds of measures are however not enough to close the information gap, and the consequences are that external funders react by adding restrictive

conditions to their investments to be performed, or demanding a higher rate of return, or maybe not investing at all. This situation creates the financing constraints the market is exposed to.

Venture capital funds are not considerate adequate to address the problem of financing young firms: first, because investments needed are relatively small, instead costs related to their assessment and consequent monitoring are high and fixed; second, because the way in which fund managers are compensated, drives to an increase of the deal size, instead of increasing the number of the deals; third, because returns associated with the financing of early stage firms are historically poor in Europe (Mason, 2009).

Business angels instead are considered one of the best ways to address the equity gap, mainly due to five reasons (Aernoudt et al, 2007; Mason, 2009):

- ❖ They operate through less costly structures compared to those of venture capital investors, and so have lower transaction costs; this reason, alongside their non-exclusively financial motivations to invest, drives them to performing smaller investments;
- ❖ Investing their own money, instead of managing third parties one, makes them responsible only to themselves, and autonomous in their decision process; from this feature, alongside their limited due diligence process, derives a shorter decision cycle;
- ❖ Their nature of active hands-on investors, who do not limit to provide only finance, but instead help in taking operational and strategic decisions, makes them superior grade investors, who represents an added value for their investee companies;
- ❖ It is documented that business angels make fewer investments that generate a negative return than venture capital funds (Mason and Harison, 2002);
- ❖ Their widespread distribution, and their locally investment behavior, enable them to fill the regional gap of finance supply.

At the same time, they have not expressed their full potential yet, because several possible problems (Aernoudt et al, 2007):

- ❖ The financial capability of a business angel acting alone is limited, and maybe it is not enough for the needs of companies that, competing today in an international environment, requires larger amount of funds;
- ❖ There is a number of potential investors that have not yet performed their first investment: the “virgin” business angels. Their behavior is considered associated with

a lack of knowledge of the investment process and with the small number of proposals received that match their investment criteria;

- ❖ There are angels that, after made their first investment, withdraw from future investments, because they have remained unsatisfied from results (due to bad experiences and results out of line with their expectations).

This is why European governments strived to support the informal venture capital market, designing several initiatives and programs to improve the STBFs access to finance, particularly to informal venture finance.

2.1.2. *European Government intervention*

Government intervention has evolved over time: initially it was not limited to the support of the informal venture capital market, but it involved also other institutions. The first intervention consisted in the creation of loan guarantees schemes (LGS), which aimed to support firms seeking loan finance, but lacking the collaterals needed to receive a loan. The main limit of this measure was that anything was done for those firms that needed risk capital (especially technology-based firms, that required venture capital to invest in R&D and product development).

The government intervention then shifted to the enhancement of the venture capital segment. First, by establishing their own funds, but this measure was quickly abandoned, because of several reasons (funds were too political influenced, their managers lacked investment experience, and there was the risk of market distortion and crowding-out of the private sector investors).

Then, a capital participation method was adopted, expressed in two different forms: the first, was to provide all the funds and to appoint a private venture sector manager to conduct investments; the second, was to invest in already existing private venture capital funds. However, the main concerning of this method was that it did not change risk-return problems of the sector. For this reason, in order to make investment perspective more attractive, the government tried to address the risk-return problem in several ways: by providing downside protection to the investors (e.g. sustaining the great share of failure costs), or by providing upside leverage (adding resources, in order to achieve better potential results), or by sharing part of the operating costs of the funds (Mason, 2009).

After having achieved contrasting and questionable results, the approach shifted to the informal venture capital market: the intervention history is relatively short, with first attempts made in the UK in early 1990s, and in Western Europe in late 1990s. The approach can be divided into seven forms of interventions: six acting on the supply side of the market and only one acting on the demand side (Aernoudt et al, 2007).

2.1.2.1. Fiscal incentives

This is one of the first approaches used to boost the informal venture capital market, and it consists in giving tax reliefs to individuals who perform certain type of investments. The aim is to improve the number of investors and the amount of money invested, through an improvement of the risk-reward ratio.

It can be implemented in different forms: governments can offer tax reliefs on the amount of money invested, abolish taxes on capital gains if the investment results to be positive, or offer a deduction for part of the losses if the investment fails.

Its efficacy remains still controversial, but it has been proven that, although taxes do not represent the main factor that business angels evaluate when investing, a variation in the tax regime might result both in an enhancement or a diminishing of business angels' investments (Mason and Harrison, 1999). In fact, findings suggest that business angels do not consider the tax regime when evaluating a single and specific project, instead they look at it when considering their total amount of investments and the total amount of money to allocate to their investment activity. Studies differ when considering different countries too: in the UK, for example, findings are positive, suggesting that business angels are sensitive to the variation of the tax regime, and that the EIS (Enterprise Investment Scheme) has had a positive impact on the business (Mason,2009); in Germany instead, findings suggest that business angels care less about variations in the tax regime (Stedler et al, 2003). Other countries have also adopted this kind of schemes, as France, Belgium and the Netherlands.

There are also some disadvantages involved with the tax incentive scheme: there is the possibility of attracting passive investors which do not care about supporting the company funded in non-financial ways (who are considered "dumb" money); there is the possibility that financial intermediaries distort the scheme, trying to lower the risk level; incentives are complex to administrate and expensive to monitor, and moreover their interpretation provide

a sense of uncertainty in the investors; they are influenced by the state of the economy; they do not address the investors problem of finding investment opportunities that match their criteria (Mason, 2009).

2.1.2.2. *Investment guarantees*

A measure related to the previous one, but partially different, is represented by a risk sharing program between the government and the investor: in case of a loss, the government reimburses a percentage of it; at the same time, it does not benefit in case the investment turns out to be positive. As a counterpart, the government can charge the investor a premium (creating a mechanism working on an insurance scheme). The rationale under this scheme is to attract mainly those business angels without previous investment experience or that have had a negative one. This type of scheme has been used in different countries, for example in Austria, Finland, Belgium and the Netherlands, but they were found to represent not a good way of using public money, and a large part of them was shut down (Aernoudt et al, 2007).

2.1.2.3. *Business Angel Networks*

One of the problems in the business angels market is the difficulty that both investors and entrepreneurs have in findings each other; this is mainly due to the fragmentation of the market and the invisibility surroundings business angels. The consequence is the raise of searching costs and the reduction of effectiveness of other initiatives. Business Angels Networks (BANs), acting as intermediaries, represents an information channel that reduces the search costs for both the involved parts: entrepreneurs are able to seek investors in an easier way, and business angels can receive more proposals (remaining anonymous).

The first BANs were established in the UK in early 1990s, followed by the Netherlands, Finland, Belgium and other countries; a network at the European level has been founded in 1999 too, the European Business Angel Network (EBAN). The number of BANs raised during the years, until reaching a stability (mainly in the more mature countries) and their geographical distribution in Europe is still uneven (Mason, 2009).

There are different types of networks: some represent only intermediary figures, just helping the parties in finding each other; others instead are more active, conducting the due diligence and negotiations until the completion of deals.

The trend is represented by more commercially oriented BANs, which also offer training and skilled support to investors and entrepreneurs. The former type of BAN is generally a not-for-profit organization, instead the latter is a for-profit one (Mason, 2009; Aernoudt et al, 2007). BANs are characterized by high costs and difficulties for their creation and development, and they must achieve a certain number of participants to deliver value; moreover, they need to attract the most active investors and to prove their efficacy on the market.

Government action is focused on the sustaining of part of their costs, until the network reaches the self-sustainability.

Evidences on BANs are different: some authors are positive about their impact, suggesting that they have mobilized capital, promoted investments, provided benefits to entrepreneurs and investors through their training and advice, and raised awareness on the informal market; other evidences instead suggest that they have failed in their mission, not constituting the major source of investments for the angels, not granting a superior quality of the deals and not reaching the critical mass of investors. The great part of networks, indeed, never became self-supporting, and then merged or became commercially oriented to sustain themselves (Mason, 2009; Aernoudt et al, 2007).

2.1.2.4. Securities legislation

Financial securities legislation represents a barrier to the business angels potential investment activity: in fact, it restricts promoting activities of un-authorized persons, by impeding them to propose investments to other individuals, unless they do not get an approval from an authorized person. Even though the legislation aim is good and consists in providing protection, the result has been that small firms seeking finance were not able to spread information about them, because the cost of obtaining an approval was often too high than the amount of finance they sought. The overall effect was so to create another barrier to the information flow and then to the business angels investment activity.

Several efforts have been done to overcome the problem: a number of EU countries for example, decided that BANs were exempt to the legislation and so could conduct their information activity among its members. In the UK instead, efforts have been conducted to create exemptions specific for business angels: in 2000 was approved an exemption that permitted companies to promote their investment activities, if they were promoted to specific

individuals certified (by an authorized person) having a high net worth or being financially sophisticated. However, the necessity of getting a certification was seen as costly, time consuming and intrusive by business angels, and at the same time authorized persons saw the process too subjective and risky. The UK government then introduced a self-certification scheme, through which business angels could certify themselves of being high net worth individuals to which business proposals could be addressed. The overall effect has been an enhancement of the possibilities of small firms to attract investments and an improvement of the deal flow for business angels, representing an overall improvement in the informal venture capital market (Mason,2009).

2.1.2.5. Capacity building: entrepreneurs

One of the intervention forms in the market has been the creation of investment readiness schemes, which have the aim to improve the number of opportunities received by business angels that match their investment criteria.

This is the only form acting on the demand side of the market, and it was created due to the idea that a lot of opportunities business angels receive, come from companies that are not “investment ready “(Mason and Harrison, 2001). Therefore, BANs started to offer several initiatives and projects acting on the demand side, like training programs, in addition to their matching services. One of the criticisms moved to these programs is their focus only on presentational issues, their informative role about financing opportunities, and their consequent lack in business development issues, which are instead the critical components of the rejections (Mason and Harrison, 2001).

One of the solutions has been to rely on business angels themselves to help companies attractivity: there is a part of businesses, indeed, that was rejected but had the potential to become business angels investments; these businesses are often rejected because of the amount of costs and time involved in seeking and assessing their problems. To fix this situation, Scotland developed an Investment Facilitation Grant scheme, in which companies that have been refused apply after they have received a feedback by investors on what are the problems to be fixed to become investable; the companies receive then a grant to help them to solve these problems, that can be converted in equity supplied by another Scotland fund, if investors decide to pursue the investment in the company (Mason, 2009).

2.1.2.6. Capacity building: investors

Historically, this form of intervention received less attention than the others, due to the general impressions that business angels are already expert investors, who do not need further preparation. However, this is not true, because the population of angels is also composed by virgin angels or less prepared investors, whose lack of knowledge on the investment process and lack of competence prevent from performing their first investment or lead them in doing a bad one.

This situation has laid the foundations to create improvement programs, usually offered by BANs: programs are focused on the improvement of investors skills and abilities, on the training of virgin business angels and meant to attract them to the network.

One of the limitations of these schemes is their short duration (one day or less) or the lack of programs to train other intermediaries, such as accountants, banker and consultants (Mason, 2009).

2.1.2.7. Co-investment schemes

It represents one of the newest forms of intervention and it consists in the creation of a public fund which provides money to business angels investment activity. There are different types of funds, included between two extremes.

At one extreme there are passive funds, which provides only money to match investments of its approved partners: they do not perform due diligence nor play any other role in the investment activity in addition to the provision of money; this type of fund reduces the uncertainty for investors and operating costs at the minimum level.

The other extreme is represented by active funds, who invite investors to bring them deals, but can invest on different terms and conditions and, at the same time, perform investments on their own. Funds do not provide only equity: there are also those providing debt, or mixed package of debt and equity, considered very attractive from investors, because with a larger share of debt in an investment, an investor obtains a higher return (Aernoudt et al, 2007).

The success of this scheme appears to be very large: for example, the Scottish Co-Investment Fund was found to improve the number of investments of the business angels participating in it; furthermore, it permitted to the group to make investments that otherwise they would not

have performed. Other funds have been opened in different countries, such the Business Angels + in Belgium, the DTI Capital Fund program and the London Seed Capital in the UK and the Technology Investment Company in Germany, all differing in their activity grade and their proposal (Aernoudt et al, 2007).

Limitations of this model are represented by either the fact that their benefits are diminished by the lack of investment proposals that match their criteria, and that they are most appropriate in mature market where angel groups are more numerous, because they are the almost exclusively partners of the funds (Mason, 2009).

2.2. *European Support*

In the following paragraph two initiatives supporting the equity market in Europe in the forms of co-investment scheme will be presented and described: the European Investment Fund (EIF) and the European Angel Fund (EAF), which is part of the EIF.

Both funds have been established by the European Union with the aim of supporting the small and medium sized enterprises (SMEs): the former includes a variety of initiatives and different financial instruments, while the latter is a fund created with the specific purpose of investing alongside business angels.

2.2.1. *European Investment Fund*

The European Investment Fund (EIF) is a public-private partnership established in 1994 and represents the leading provider of risk financing for medium and small enterprises and mid-caps, through both debt and equity type instruments. In order to help SMEs accessing finance, the EIF creates innovative finance products, addressed to its selected financial intermediaries partners: banks, guarantee, leasing and microfinance institutions, private equity and venture capital funds, and others.

The products offered by the EIF complements those offered by the EIB, the European Investment Bank; the two institutions together form the EIB Group.

The EIB is the European Union's bank, headquartered in Luxemburg and owned by European Union Member States, and represents their interests. It is the world's largest multilateral

borrower and lender, which raises money on international capital markets through bond issue: thanks to its status, it has the benefit of borrowing at good rates. The EIB provides finance and expertise for sustainable investment projects that contribute to the EU policy objectives of growth and development in Europe. It is mainly active in Europe, but it represents also a big investor around the world.

According to the EIF statute, its objectives are both to support entrepreneurship, growth, innovation, research and development and regional development, and to give to its shareholders an adequate return. To pursue this purpose, the fund operates using personal resources and external resources: it manages, indeed, resources brought by the European Commission, the Member States of the EU, the European Investment Bank and other parties.



Figure 6:EIF investment process. The figure shows where EIF resources come from, and who are its mandators, intermediaries and counterparts (Source: EIF website)

As previously mentioned, the EIF structure combines both public and private shareholders; as of April 2018, its capital consists in 4500 shares with a nominal value of €1M each one, for a total value of €4,5BN. The shareholding structure is the following:

- ❖ 58,7% held by the EIB (European Investment Bank);

- ❖ 29,7% held by the European Commission, which represents the European Union;
- ❖ 11,6 % held by other 30 private and public financial institutions from EU Member States.

The EIF is considered a Multilateral Development Bank (MDB): these types of institutions, which have a great role in international capital markets, are set up by sovereign countries (of whom they are shareholders), and through them they pursue development aids and cooperation policies established; their tasks are supporting investments, financing projects and generating capital, for the economic and social progress.

The MDB status permits to assets guaranteed by the EIF to be considered as a low risk type of asset by financial institutions, regarding Basel risk weighting parameters; furthermore, the EIF benefits from the maximum credit rating (AAA), assessed by the three major rating agencies annually, a status that derives by some key aspects of the fund: its MDB status, its high credit-rated shareholders, the great liquidity, the strong capitalization, the absence of debts in the balance sheet, the meticulous risk management and monitoring, and its strong governance and high skilled staff.

2.2.1.1. EIF history

Here is a brief history of the group:

- ❖ 1992: the idea of the EIF is launched to promote economic recovery in Europe;
- ❖ 1994: the EIF is established;
- ❖ 1995/1996: the EIF launches his first scheme for SMEs, the Growth and Environment guarantees scheme;
- ❖ 1997-1998: the EIF manages its first program, with a volume of €125M, and other types of operations;
- ❖ 2000: under the pression of the Lisbon Summit for an increasing of risk capital initiatives targeting SMEs, the EIF is reformed, and becomes the major organization of the EIB Group aiming at this type of support, with a total commitment for the year of €1,6BN;
- ❖ 2004-2010: during these years, the EIF starts managing its first mandate from a third party, and acquires other powers and facilities, managing new programs and instruments;

- ❖ 2013: the EIF reaches 280 employers, 27 shareholders and has a total commitment for the year of €3,4BN, for 163 transactions in about 140K SMEs; moreover, its powers are strengthened, through a capital increase and a €4BN commitment for the next seven years;
- ❖ 2015: since its creation, the EIF has supported more than €1,8M SMEs, and has partnered with more than 400 finance and guarantee providers, and more than 600 private equity funds.

2.2.1.2. EIF offer

The EIF has a varied offer, which includes different programs and areas:

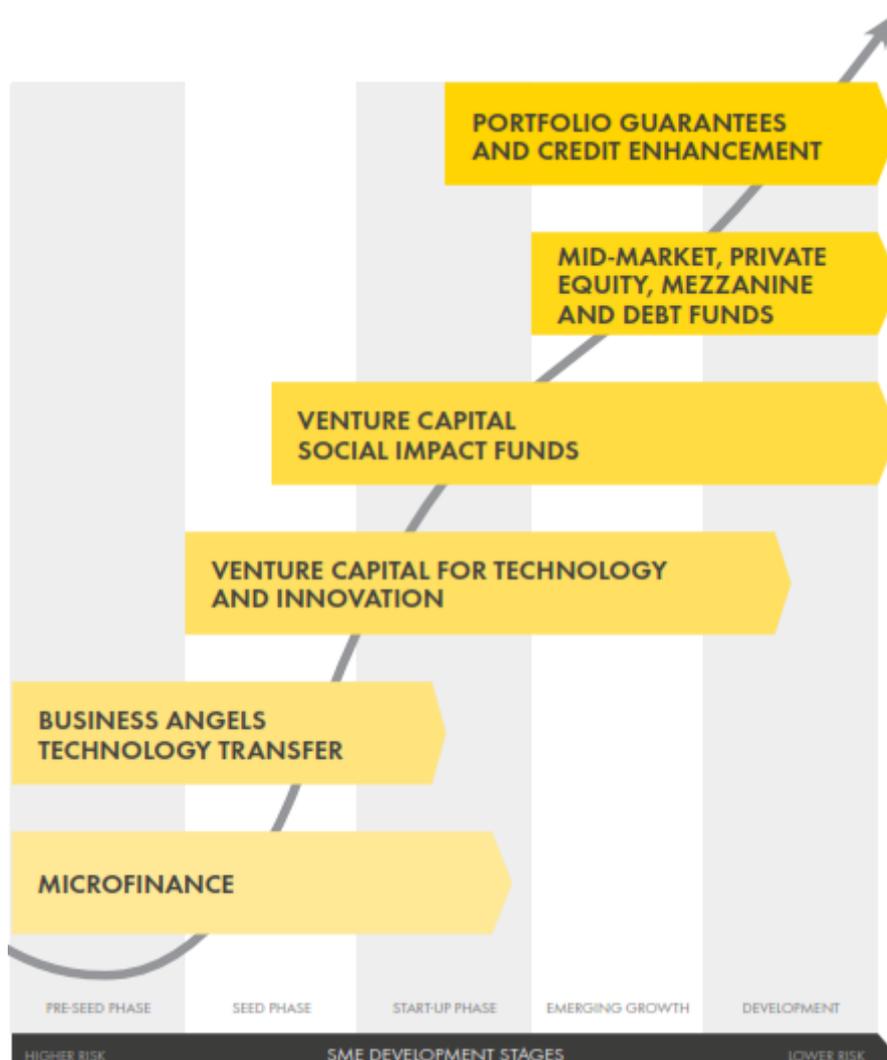


Figure 7: The figure shows firms business stages that EIF supports, ordered by their development stage, and the products offered by EIF (Source: EIF website)

- ❖ **EFSI:** the European Plan for Strategic Investments (or Juncker plan) was launched in 2015 by the European Commission and the EIB, with the aim of strengthening competitiveness and boosting growth and job creation; one of its objectives is to ensure that financing finds the way to viable projects more rapidly. The plan aims to achieve a fifteen-fold leverage, so that every €1 invested will generate €15 of further investments by the other players, with the aim of generating €315BN by the mid-2018.
- ❖ **Equity Products:** the EIF is one of the leading financial institution in the European Private Equity market, and investing in venture and growth capital, plays an important role in the creation and development of SMEs, by facilitating their access to equity, from earliest stages to more mature phases of development. Among its equity sections, there are: the Technology Transfer section, which stands as a bridge between research and commercialization of products, the EAF section, dedicated to the co-operation with Informal Investors , the Venture Capital section, which addresses market interventions in early stage and growth stage companies by providing risk capital to venture capital funds managers, the Social Impact Accelerator, which provides capital for social impact enterprises, and other measures addressed to more mature businesses already profitable and well-established, such as hybrid debt-equity finance instruments, to support their growth and expansion (e.g. the Mezzanine Facility for Growth).
- ❖ **Debt Products:** the EIF is one of the main providers of guarantees and securitization in Europe, addressing SMEs and mid-caps financing needs by providing guarantees and counter-guarantees to financial institutions to stimulate additional lending. The aim is to increase the volume of loans and leases that financial institutions they collaborate with (banks, leasing companies, guarantee funds, mutual guarantee institutions, promotional banks) make available for SMEs at favorable conditions. There are two main lines: Credit Enhancement/Securitisation and Guarantees/counter-guarantees for portfolios of micro-credits, SME loans or leases.
- ❖ **Inclusive Finance:** the EIF provides financial instruments (such as guarantees, loans and equity) to Europe microfinance institutions, both to well-established microfinance banks and to other small non-banks microfinance intermediaries. Microfinance consists mainly of micro-loans (less than €25K) designed for micro-enterprises (which

represents 91% of all European businesses) and micro-entrepreneurs, especially those belonging to vulnerable groups (start-ups created by unemployed individuals, young entrepreneurs or self-employers), who often lack access to commercial credit markets. Throughout the European Union, indeed, 99% of all start-ups are micro or small enterprises and one third of them were launched by unemployed people. One of the activities launched is the EaSI (Employment and Social Innovation) initiative, dedicated to sustainable employment and social inclusion.

- ❖ **Other country and sectors-specific initiatives:** the EIF collaborates at several different regional and national levels with local partners and authorities, to reduce financing gaps across the Member States, developing their risk capital markets and supporting regional SMEs lending sectors, addressing especially market failures and less developed regions across the EU. The aim is to respond to needs of specific regions in Europe, through local implementation and tailored financial instruments.

2.2.2. *European Angel Fund*

The EAF is a public initiative supported by the EIF: in particular, it is part of the EIF programs aiming at providing equity support to SMEs. This fund operates alongside with business angels and other non- institutional investors in the form of co-investing, in order to enhance and expand their investment possibilities of financing small and medium innovative companies, during all their stages of evolution (seed, early, and growth/expansion). Investments are focused in innovative SMEs, and there are not limitations regarding sectors and stages where to invest; furthermore, the EAF prefers to allocate its resources in new projects brought by the investors, even though follow-on investments are permitted and included.

The relationship between the EAF and the investors is based on a long-term contract: instead of using an approach based on a short-term horizon, in which the EAF and the investor negotiate the investment conditions deal by deal, the EAF enters in a relationship with every approved investor, in which the commitment of the fund, in terms of total amount of money allocated for the relation, is established from the beginning, before the investor makes his investments. The contract is regulated by a CFA, a co-investment framework agreement: usually these types of agreements are standardized, in order to simplify and accelerate the process, but at the same time it is considered the possibility of customizing some of their

aspects, to meet the investors requirements, in particular concerning the number of investments, the time period and the focus sector of investments.

After that the CFA has been established, the amount of money invested by the fund follows exactly the amount invested by the business angel, using a pari-passu (by the same amount) method: generally, for a singular CFA, the amount of money provided varies between a minimum of €250K and a maximum of €5M; even if there are not management fees paid to the business angels, the fund shares with the investor part of costs involved in the investment. Moreover, the EAF employs a system of carried interest payments, through which the investor can benefit, regardless of the share that he owns in the investment, from a part of the extra profit that may result from the investment; through this method the investor is more committed in the good success of the investment, and the perspective of performing investment alongside the EAF results more attractive for outside investors.

The EAF leaves all the decisions regarding the investment to the business angel: where, when and in which company to invest, and the management of the investment too. In this way, the EAF adapts as much as it can to the style of the business angel, to whom it is grant the maximum level of freedom possible, and who, at the same time, can benefits from the networking activity and the expertise of the fund; moreover, to concentrate the efforts on investment related activities, administration processes are as less time-and-resources consuming as possible, and the available reporting tools is designed to be simple and intuitive.

There are some criteria that business angels have to fulfill in order to be approved as partners by the fund: at least, indeed, they have to be enough experienced in the sector of investments, own a record of previous success investments, have the possibility to establish good deals, and invest an amount of money during the CFA of at least €250K (the CFA duration is 10 years).

2.2.2.1. EAF across Europe

From a geographical point of view, the EAF operates in seven European countries, through an umbrella structure that includes a different fund for every country, each one presided over by the EAF central structure; these countries are Austria, Germany, Finland, Denmark, the Netherlands, Spain and Ireland, but the fund has already planned to expand its activity in other

countries. From a quantitative point of view, the amount of money available is €320M, with more than €200M already invested in the co-investment activity with angels.

The following is a briefing description of funds operating in the seven different countries.

- ❖ **EAF Austria:** this fund was one of the first initiatives launched by the EAF; it was established in December 2013, in collaboration with the EIF and the Austria Wirtschaftsservice GmbH (aws), the national bank devoted in financing companies in the country. At the moment of the launch, the EAF Austria had a volume of €22,5M, which was increased to €32,5M in 2016. It is advised by the EIF and sub-advised by the aws;
- ❖ **EAF Germany:** opened in March 2012, the EAF Germany is the first fund launched by the EAF, in collaboration with BAND (Business Angels Netzwerk Deutschland, the major BA's network organization in Germany, which aims at supporting the business angel movement and operations, and spreads their culture and its experience) with the aim of enhancing the investment activity in Germany. Its volume is €135M. EAF Germany is funded by the EIF, the European Recovery Program resources (ERP, it is a fund investing in other venture capital funds, which invest primarily in Germany, mainly in high-tech companies in the early and development stage; it is managed by the EIF, and has a volume of €3,2BN) and the LfA Facility (it is a fund of funds facility, which invests in other venture capital funds and business angels that have the focus of their investments in the Bavaria region; it reaches a volume of €150M, it is managed by the EIF, and funded by the EIF, EIB and the promotional bank of the Bavaria region);
- ❖ **EAF Finland:** it is the Finnish section of the EAF, funded and advised by the EIF and Tekes Venture Capital (an organization, part of the Finnish Government, which leads investment programs in companies at their seed or start-up level). It was launched in May 2017, and has a volume of €30M;
- ❖ **EAF Denmark:** established in June 2016, with a volume of 200M DKK, it is the branch of the EAF operating in Denmark. It is funded by the EIF and the Vækstfonden (the Danish Growth Fund, it is the state growth fund which provides equity and loans to SMEs), and advised and sub-advised by the EIF and the Vækstfonden respectively;
- ❖ **EAF Netherlands:** the branch of the EAF active in the Netherlands, it was launched in September 2015 and reaches a total volume of €45M. The initiative is funded by the DVI (the Dutch Venture Initiatives, a fund of funds organization launched in 2013, that

reaches a volume of €202,5M, supported by the Dutch government for investments in the Netherlands innovative and young companies);

- ❖ **EAF Ireland:** established in September 2015, it has a volume of €20M for co-investing alongside with business angels in Ireland. It is funded by the EIF and Enterprise Ireland (the government organization created to support the Irish companies);
- ❖ **EAF Spain:** one of the first initiatives launched by the EAF, it was created in December 2013, and funded by the EIF, ICO (Instituto de Credito Oficial, a bank owned by the Spanish state) and Neotec (an initiative created to provide financial resources to SMEs in Spain).

Chapter 3

3. Data

In this chapter the data collection process is presented: the starting point, the sources from which data are extracted, the construction and the description of the database used for the analysis, and eventually, problems and limitation that have been noticed.

3.1. *Data collection process*

The starting point of the work was a document of the EAF, which contained 41 business angels who co-operate with the EAF fund. Basing on this list, two databases were created on Excel, each one containing information about those business angels:

- ❖ The first file included exclusively personal details and qualitative characteristics about business angels profiles: for example, their age, gender, birth place, languages known and jobs; it was made up of 41 investors, with 51 attributes each one;
- ❖ The second database included information related to investments: for example, how many investments every angel did, in which country and in which sector; it included the same 41 investors, and a total of 243 investments.

In the first step all the collected data were verified and validated: to achieve this result, each field was manually checked, performing a research towards five main sources of information, which will be briefly described later in this chapter. After the verification of all data was accomplished, the most representative of them were then unified in a unique database, contained in an Excel file, which was used to conduct the further analysis.

The following step was the attempt to find other valuable information to add to those already included, in order to have a more representative chart of the situation and framework.

First of all, other 36 investors were added to the initially included business angels; they were found in the EAF document of disclosed signatures as of March 2018 and this addition allowed to reach a total number of 77 angels. These investors are both individuals and syndicates, as the former ones.

Then, efforts moved through the search of more investor's attributes and characteristics; to find these data, 5 different channels were used:

- ❖ Crunchbase: CB is an online platform founded in 2007 operating as a database for the business ecosystem, containing data about both start-ups and established companies, but also related to people, events, institutions and organizations (Crunchbase, 2018); it gives access to several types of information, both qualitative (e.g. a company geographic area, age, sector, description, or investor's age, education, professional roles, connections) and quantitative (e.g. how many funding rounds a company took, of which type, the amount of raised funding, both in the lifecycle and in a specific round, or the number of personal investments an investor made, the date in which an investment occurred), with a focus on information regarding the investments. A great part of investors and companies of the research were included in it, and it was the only way to find quantitative and accurate data regarding investments made by angels;
- ❖ LinkedIn: it is the biggest professional network in the world, founded in 2002 and growing rapidly; it allows its members to create a personal profile that serves as a CV, to connect each other in order to build professional relationships and find new opportunities, to learn about companies and industry news, to share their experience and ideas, and to search new jobs opportunities (LinkedIn, 2018). In this work it was used mainly to find qualitative information about investors, and to find basic information about funded companies (checked and integrated with further researches);
- ❖ AngelList: it is a platform founded in 2010 for startups, angel investors, and job-seekers looking to work at startups; it provides mainly a match type services for start-ups accepted in the platform, in order to provide them the right investor to boost their

growth, and new employers committed in working for a start-up (AngelList, 2018); it was used to find information about companies and investors, mainly qualitative;

- ❖ Startupxplore: it is a Spanish community and investment platform launched in 2014 that offers the opportunity of investing in start-ups which are in an early stage of development, but with a potential of growth and further profitability, in which a professional and experienced investor has already invested his capital, as well as the same Startupxplore did. It is the largest community in Spain and one of the most active in Europe, with € 5,28 M invested, 12.939 investors and 14.498 companies included in it (Startupxplore, 2018); for this work, information found in it were mainly about Spanish investors and start-ups;
- ❖ The fifth channel of information was the scrutiny of investors' personal sites and their companies' ones, in order to find data about investments, exits and other personal details regarding investors, and data about the size, the foundation year, sector and state of activity regarding the companies.

3.2. *Database structure*

Finally, an Excel file comprehensive of all data found was created. The resulting file comprehends the 77 investors already cited, 63 fields, and a total of 730 investments made in 674 start-ups.

The resulting database is structured in 3 main sections, each one containing attributes referring to the specific area, plus a fourth area, which explains where data relative to selected investments were found, and other information (if useful).

The 3 main areas are structured as follows:

- A) The Investor Area, which contains personal statistics regarding the investor and his characteristics:
 - ❖ Crunchbase, LinkedIn: two Boolean variables, set to 1 if the investor has a profile in Crunchbase or LinkedIn, 0 otherwise;
 - ❖ Male: a Boolean variable equal to 1 if the investor is male, 0 otherwise;

- ❖ Network: a Boolean variable set to 1 if the investor is part of an Angel Network, 0 if the investor is not part of any Angel Network and left blank if the information is not available;
- ❖ Birth year and age: two fields that contain respectively the year in which the investor was born, and his age today;
- ❖ Continent, Birth Place: two given data, written in the EAF document;
- ❖ Current Country, Other Country: these fields contain the country in which the investor currently operates, and other countries that were related to him (e.g. countries where he studied);
- ❖ Current Regions, Other Regions: the same explanation given for the country fields, but for regions;
- ❖ Investor Type: according to Crunchbase, there are two types of investors; Individual/Angel who conducts the investments totally by his own, or Investment Partner, if the investments are performed by the society he works for;
- ❖ Year of First Job, Year of First Investment: the year in which the investor started his first job and made his first investment;
- ❖ Age at First Investments, Period from first job to first investment: the age of the investor when he invested for the first time, and the years passed from the first job to the first investment;
- ❖ Number of Start-ups Founded: how many start-ups the investor founded until now;
- ❖ Entrepreneur, Serial Entrepreneur: these are two Boolean variables; the first is settled to 1 if the investor founded at least 1 start-up, the second is set to 1 if the investor founded two or more start-ups;
- ❖ Sector 1,2,3,4: the sectors where the investor gained his/her experience;
- ❖ Investments Number, Invested Companies, exits: how many investments, start-ups and exits were found for each investor;
- ❖ Investment Vehicle: it contains the name of the society through which the investor performs the investments.

B) The Company Area, which contains attributes of the company in which the investor took participation in:

- ❖ Company Name: it contains the company name;
- ❖ Categories; it contains one or more keywords to describe the company, according to Crunchbase;
- ❖ Sector: it contains the sector in which the company operates;
- ❖ Country, Region: the country and the region of the company headquarter;
- ❖ Type: it expresses whether the company is for profit or non-profit;
- ❖ Impact Investment: it describes if the investment can be considered an investment with a social positive impact;
- ❖ Operating Status: the status of the company, if it is active or not;
- ❖ Number of Employees: it is an attribute that expresses the company range of employees;
- ❖ Funding Status: it expresses the most recent funding status of an organization;
- ❖ Last Funding Type: it expresses the last funding round type an organisation has gone through;
- ❖ Foundation Year: the year in which an organisation was founded;
- ❖ Acquired, Year of Acquisition, Period from Investment to Acquisition: the first one is a Boolean variable set to 1 if a company was sold to another one; the second one is the year in which the transaction occurred; the last one is an attribute containing the years passed from the investment date to the acquisition date;
- ❖ Listed, Year of Listing, Period from Investment to Listing: the first variable is Boolean, and it is set to 1 if a company is listed; the second one is the year in which the listing occurred; the last one is an attribute containing the years passed from the investment date to the listing date;
- ❖ Role in the start-up: it is the role that the investor performed in the company, if there is one;
- ❖ Number of roles undertaken: it expresses how many roles an investor performed.

C) The Investment Area, which contains characteristics regarding investments tracked in the file:

- ❖ Transaction Date: it is the year in which the investment was made;
- ❖ Round (Funding Type): it represents the round type;
- ❖ Funding Stage: it represents the funding stage of the round;
- ❖ Start-up Age at the Investment: it expresses the age of the start-up at the moment of the investment;
- ❖ N. of Investors: the number of investors that took part at the corresponding investment;
- ❖ N. of Partner Investors: the number of partner investors that took parte at the corresponding investment;
- ❖ Lead Investor: it expresses whether or not the investor is a lead investor for that transaction;
- ❖ Money Raised (total for the round): it represents the total amount of money raised in the round by the company, expressed in the specific currency in which the investment was performed;
- ❖ Money raised in \$ (total for the round): it represents the total amount of money raised in the round by the company, expressed in equivalent dollars;
- ❖ Exit, Exit Year, Investment Period: the first one is a Boolean variable, set to 1 if the investor made an exit from that particular investment, then there is the year in which the exit occurred and the duration of the investment.

Overall, 53 investors were found on Crunchbase and 67 on LinkedIn: for these investors, a lot of information were available. At the same time, for 22 investors any data about their characteristics and their investments was found; no information at all was found for 6 investors.

Another file containing contact information for all the investors was created: most of them are links to their LinkedIn profiles and personal sites, but in some cases, there are mail addresses too. This activity was performed in order facilitate the work for a future questionnaire survey.

3.3. *Complexities and limitations*

As anticipated in the process description, it was not possible to find information for all attributes included in the file, therefore it was not possible to complete all areas of the database; for a part of data, fields are left blank or are incomplete. This is due to the great difficulty encountered in finding precise and valuable data, that can be used to conduct an effective analysis.

The main channel which contained great part of the information and most precise and useful data was Crunchbase: in particular, it was fundamental for finding information about investments and for a part of information regarding companies. Often, these types of data were also found in investors' personal sites, or those of their investment societies, even though not all angels own a website and keep it up-to-date.

As regards the information about investors, in addition to already cited channels, even LinkedIn was a valuable source of information: indeed, almost all the investors that are on LinkedIn, share part of their experience and investment history.

The other two sources of information (AngelList and Startupxplore) were used on an occasional base, both because they did not include a large part of investors, and also because they did not contain precise data, nor for investors, and for companies and investments.

At the end of the data collection process, considering difficulties described above and the length of the search, the overall impression is that business angels are partially reluctant to share their personal information, but even more to share data about their investments; this result fits with findings of the literature.

Chapter 4

4. Analysis

The following chapter presents the analysis conducted on the sample of business angels and their investments. The study is divided in 2 parts:

- ❖ Characteristics of business angels: this analysis involves personal characteristics of investors, as their age, gender, nationality, entrepreneurial backgrounds. This study is performed in order to delineate a profile of investors included in the sample, and to make, eventually, a comparison with the aspects of business angels inferred from the literature. This part of the analysis is described in the first paragraph of the chapter;
- ❖ Characteristics of investments: this examination involves aspects related to the companies business angels financed (e.g. their type, status, the number of employers they have, their nationality) and aspects related to the investments (for example the amount of money involved and the number of investors of the round); as for the previous study, the aim is to trace the context in which business angels act and to compare results with the literature examined. This part of the analysis is described in the second paragraph.

4.1. *Business angels characteristics*

Data analysed in this paragraph regard information about investors' age, gender, geographic distribution, type of investment, background, role and behaviour.

4.1.1. *Investors' gender*

The sample is composed by 71 men, 1 woman and 5 syndicates, as depicted in the following figure.

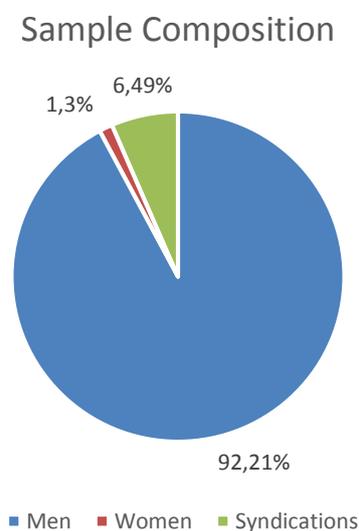


Figure 8: Composition of the sample

Not considering the syndicates, 98,61% of the investors in the sample are men, and the remaining 1,39% women, with the number of men far exceeding the number of women and representing almost all the sample. Results are consistent with findings of most part of the literature, which highlights how the business angels population is mainly composed by men, with a very low presence of women; nevertheless this finding also lightly contradicts evidences of the EBAN in Europe, which affirms that the female presence is gaining space in the business angels population.

However, this difference is probably due to the small number of individuals composing the analyzed sample.

4.1.2. *Investors' age*

Data regarding the age of the investors were found for 26 subjects on 72, representing 36,11% of the sample (excluding syndicates).

The lower bound is equal to 30 years, and the upper bound is equal to 81 years, and mean and median age of the investors are equal to 53,38 years and 53 years respectively.

In order to classify investors and to verify whether there is a predominance of an age class or whether they are well-distributed, a frequency table was created, whose results are showed in the following chart:

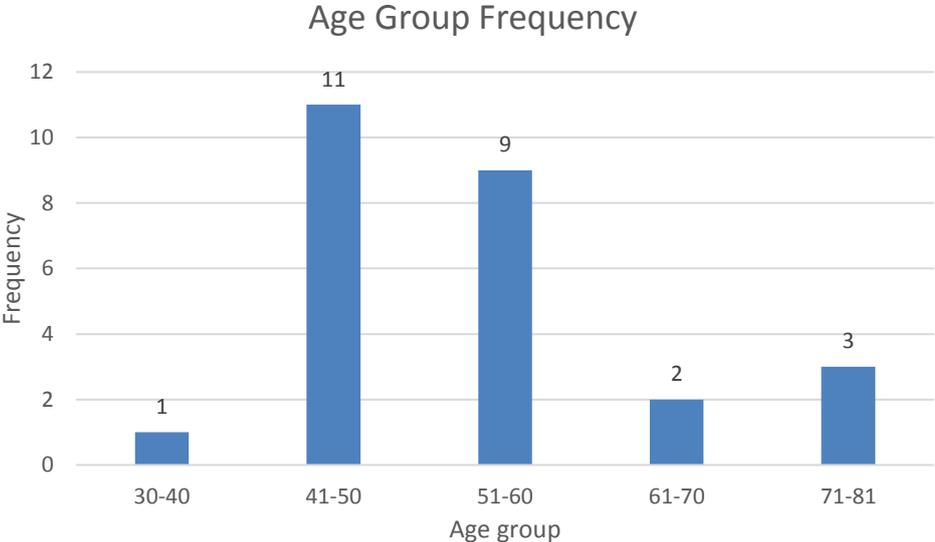


Figure 9: The figure shows the number of investors belonging to each age cluster

As can be seen, the greatest part of the sample is composed by individuals between 41 and 60 years old: considering the two classes together, indeed, they represent 76,92% of the sample. Outside this age range, there is only one individual less than 40 years old, and five individuals more than 60 years old.

Data about the age of the sample are consistent with findings in literature, describing a situation in which business angels are middle-aged men, around 50s.

4.1.3. *Investors geographic distribution*

Data about the geographical distribution of the sample are available for all the investors; this information was directly derived from the EAF document of the disclosed signatures. As can be seen in the following figure, all investors come from the EU.

Geographic Composition: Country

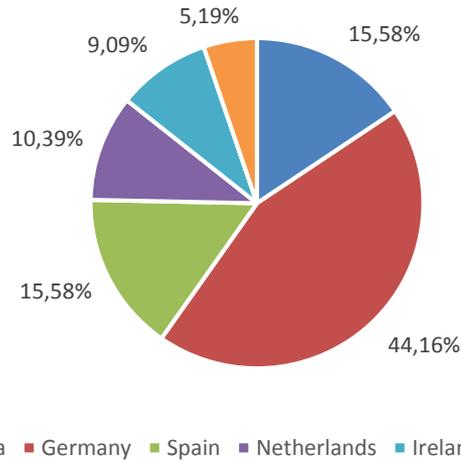


Figure 10: The figure shows the share of investors belonging to each country

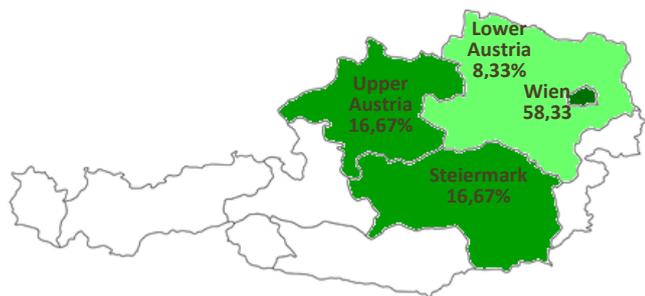
The most represented country is Germany (44,16%), followed by Austria and Spain (15,58%), and then by Netherlands (10,39%), Ireland (9,09%) and Denmark (5,19%).

This distribution can be explained looking at the sequence in which EAF subsidiaries were opened: Germany was the first country in which the EAF initiative was launched (2012), followed by Austria and Spain (2013 for both), Netherlands (2015), Ireland (2015) and Denmark (2016). The number of investors of each country follows perfectly the launch sequence of the EAF initiatives in the countries as well: countries having a greater number of investors, are those in which the EAF is operating from a greater number of years. The last EAF initiative was launched in Finland in 2017, but any business angels participated in it until now.

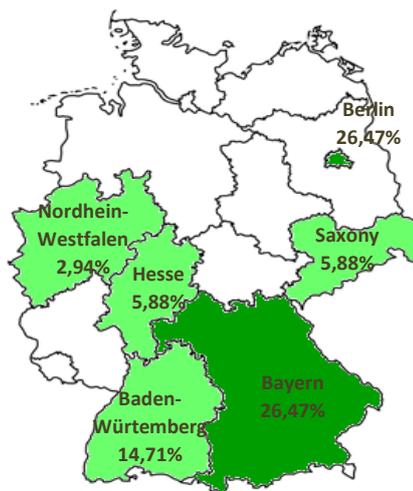
For every country, investors are also sorted by their regions, and results are showed in the next maps.

Figure 11: Figures show the distribution of investors in each country's regions. The value in brackets represents the percentage of investors belonging to the specific region in relation to the total number of investors in the country. A darker colour intensity means a greater presence of investors belonging to that region

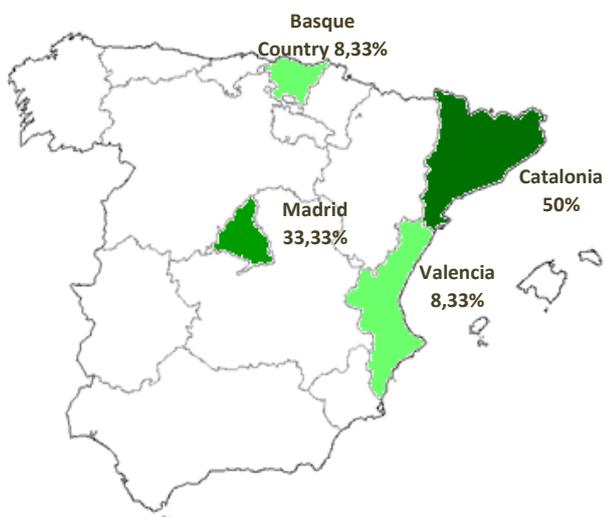
Austria



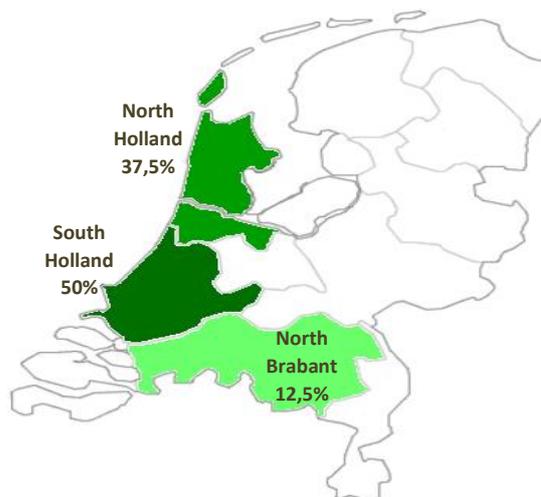
Germany



Spain



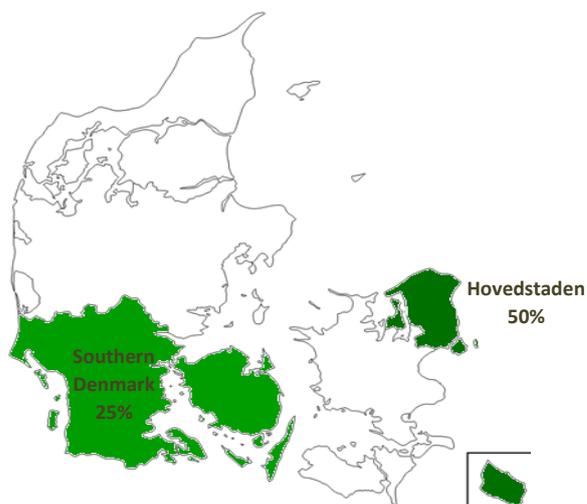
The Netherlands



Ireland



Denmark



4.1.4. *Investors type*

Information about the type of investor derives from Crunchbase, therefore this data is available only for investors included in that database; at the same time, it was not available for all the investors figuring on the site. Overall, data cover 38,96% of investors of the sample.

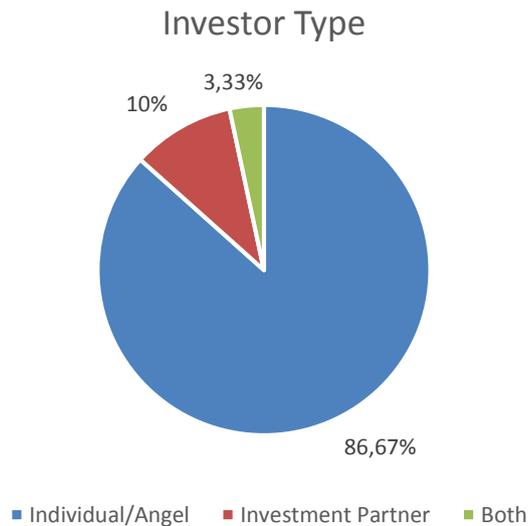


Figure 12: The figure shows the share of investors belonging to each type

The majority of investors (86,67%) figures as “Individual/Angel”, which means that they performs their investments directly by themselves or through the society they have established with the precise aim of conducting their personal investment activity; in the remaining part there is 10% of investors which are labelled as “Investment Partner”, which means that their investments are conducted by the society they work for, which usually are venture capital societies (all of the societies are included in the document of disclosed signatures released by the EAF, in which they figure as approved Investment Vehicle); the remaining 3,33% (representing only one investor) figures both as “Individual/Angel” investor, and as an “Investment Partner”.

4.1.5. *Investors background*

For every investor of the sample an analysis about his/her entrepreneurial background was performed; a research about the number of companies founded by each investor was performed. This was not a simple operation given to the scarcity of data about these investors

and their personal experience, mainly due to their reluctance in sharing personal information; moreover, found data were often incomplete and not always verifiable.

For these reasons, it is not the exact number of firms founded by each investor the main focus of this analysis, but instead it is whether the number of founded companies exceeds or not a specified limit:

- ❖ If it is equal to 0, the investor is considered not having an entrepreneurial background;
- ❖ If the number is equal or greater than 1, the investor is considered endowed with an entrepreneurial background.

Then, a further division was made between investors who founded only one company and those with more than one founded company: the former group was labelled “Entrepreneurs”, and the latter one was named “Serial Entrepreneurs”. For this analysis, syndicates are not considered. Results are shown in the following charts.

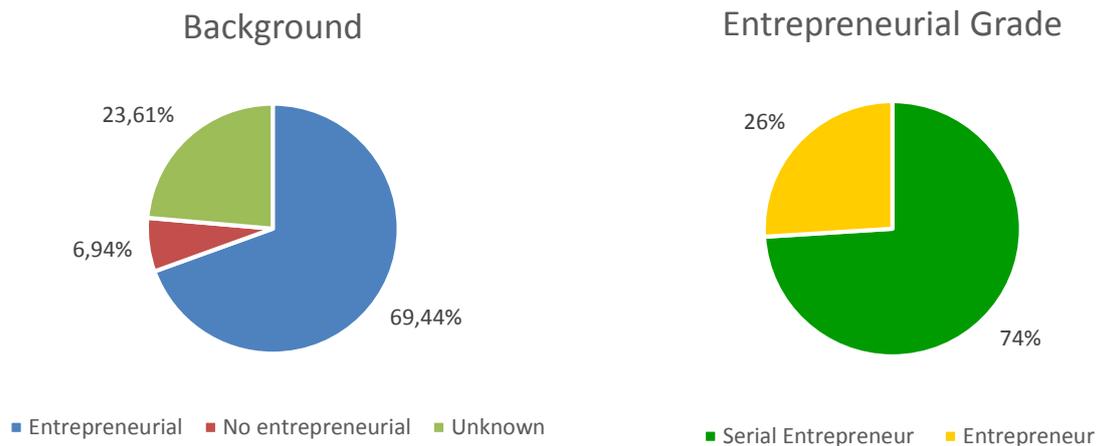


Figure 13.A: The figure shows the share of investors having or not an entrepreneurial background

Figure 13.B: The figure shows the share of serial entrepreneurs and entrepreneurs investors, among investors having an entrepreneurial background

Overall, 69,44% of the investors have an entrepreneurial culture, instead 6,94% do not have founded any company during their life; no information was found concerning the remaining 23,61% of the sample.

Looking at the entrepreneurial level, the “Entrepreneurs” group is only 26% of the sub-sample, with the biggest part represented by investors who are “Serial Entrepreneur”, who are 74% of the sub-sample and more than half of the investors overall (51,39%).

Findings are consistent with the literature, showing the business angels great propensity towards the entrepreneurial activity, which makes the most part of them entrepreneurs or ex-entrepreneurs.

4.1.6. *Investors’ age at first investment*

This statistic represents the investor’s age at their first investment; the main sources for this information were LinkedIn profiles and descriptions made by investors themselves on their website or on the website of their society.

For this measure too, reliable data were difficult to find; no data at all were found for some investors (there are information only for 27,78% of the sample).

Syndicates are not included in this type of analysis.

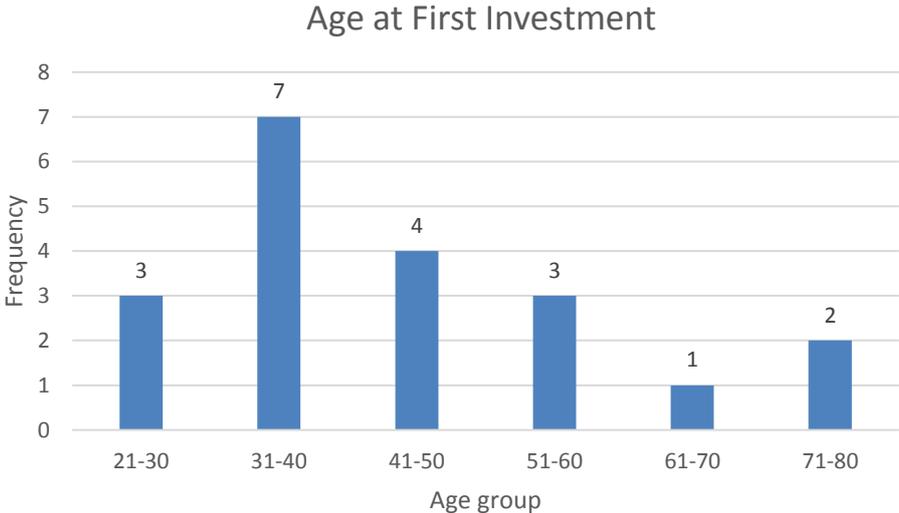


Figure 14: The figure shows the number of investors belonging to each age cluster

Values are comprised between 25 and 76 years, with a mean age of 44,75 years and a median age of 40 years; the most frequent class is comprised between 31 and 40 years, representing 35% of the sample, percentage that rises to 55% if considering all the angels between 31 and 50 years old.

Results seem to indicate that investors made their first investment early, probably when they were still active entrepreneurs; nevertheless, there is still a relatively small amount of data to trace a precise trend over this aspect.

4.1.7. *Period since first job to first investment*

This attribute is meant to measure the experience an investor gained during his/her work life, before starting the carrier as an informal investor.

Giving the fact that business angels are individuals who, in addition to the provision of capital, contribute to the development of the company with their business experience, it is expected that they become investors after a sufficient period of time, in which they had the opportunity to mature the necessary knowledge on the job.

Data are available for 59,72% of the sample, not considering the syndicates.

Results are showed in the following figure.

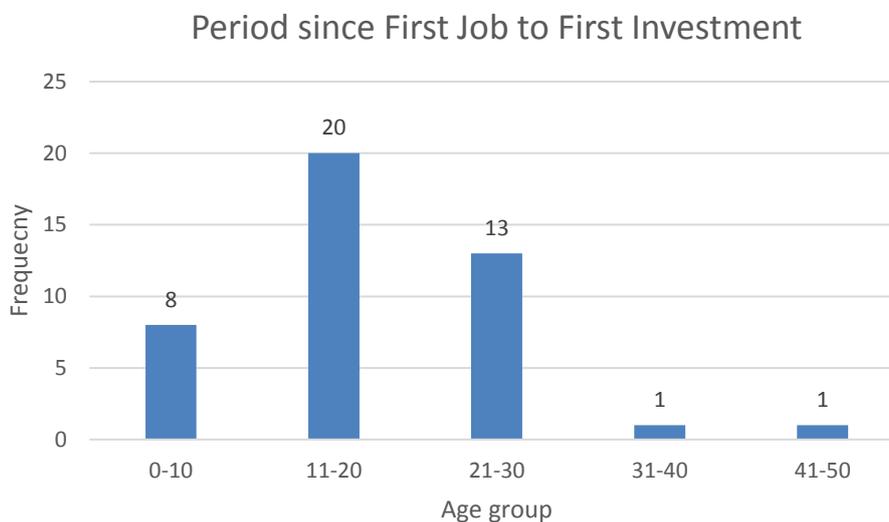


Figure 15: The figure shows the number of investors belonging to each age cluster

Extreme limits are represented by 2 and 47 years, with a mean period of 17,86 years and a median of 17 years.

As for previous analysis, data are clustered in classes and results show that the great part of the investors tends to work for a period of 11-30 years (76,74% of the sample), with the most frequent class represented by the range between 11 and 20 years (46,51%).

As depicted in the previous graph, there seems to be a light tendency to be in the lower class (0-10 years, 18,60%) than in the upper classes (31-50 years, 4,65%).

4.1.8. *Investors activity degree*

In this section, the intensity of the actively participation of investors in companies they fund was measured: to achieve the result, a focus on the number of times investors performed a business role in the companies (which mainly consist in their presence in the advisory board, and only few times in a more active role in the operations of the firm) was made. Without considering syndications, data were found for 69,44% of investors.

They are classified as “Active”, if they perform at least a role in one of the investments included in their portfolio, and as “Passive”, if they do not perform any role; results show that 54% are active investors, instead 46% are passive investors.

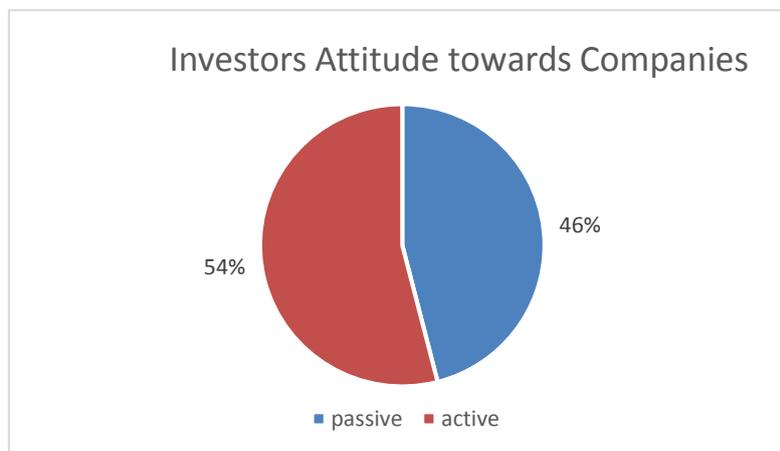


Figure 16: The figure shows the share of investors who are active or passive

Furthermore, among active investors the fraction of investments in which they undertook a role was calculated, to create the next frequency diagram:

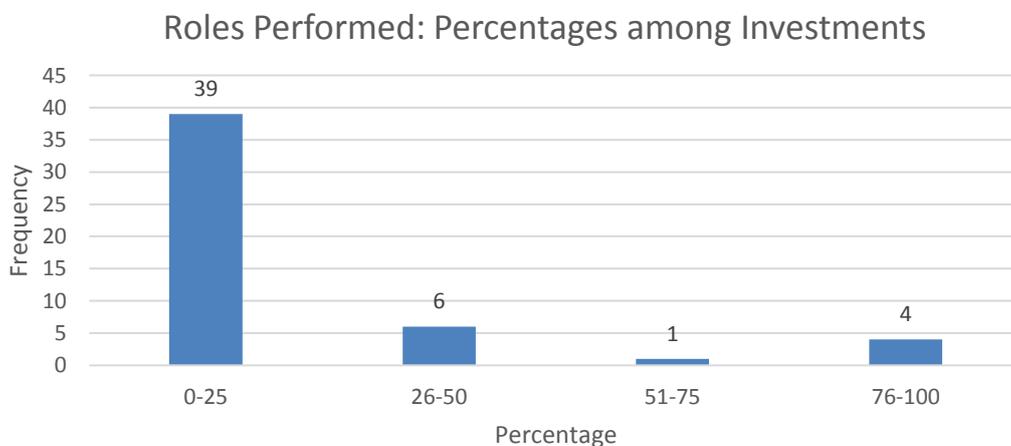


Figure 17: The figure shows the number of investors belonging to each cluster. Clusters represent the shares of investments in which investors undertake at least a role

As can be seen, 78% of investors performed a role in less than a quarter of the investments they made, 12% between a quarter and half of their investments, and only the remaining 10% in more than half of the investments.

The overall impression is that investors are not active as much as the literature tends to represent the large part of the business angels population. Before taking any conclusion, it must be considered that data about the role business angels performed in the firms they fund, are difficult to find, due to the already cited reluctance in sharing personal information, and that, probably, found data are incomplete and not exhaustive. Therefore, there is the possibility that business angels who figure without any role, are instead active investors who do not want to share this kind of information, and also that among active investors, there is a higher number of roles than the one declared by investors (e.g. it appears unusual that syndicates apparently undertake no role in their investments, which is not consistent with findings of the literature).

Probably, the only way to obtain precise and accurate data, is through a direct survey.

4.2. *Investments characteristics*

In this study, a total amount of 730 investments in 674 companies were found; the number of investments exceeds the number of founded companies because in some cases there were more investment rounds in the same company, during its different development stages. In the following chapter, an analysis about investments performed and related companies will be conducted.

4.2.1. *Companies current status*

One of the studied attributes is the current status of the companies, i.e. if they are still in activity or if they are closed. This attribute is meant to be used as an indicator to evaluate the investors ability in choosing valuable companies, with good expectations and a potential market, that turn out to be good investments. Data are found for 98,22% of the companies in the sample, and results are showed in the following figure.

Current Status of Companies

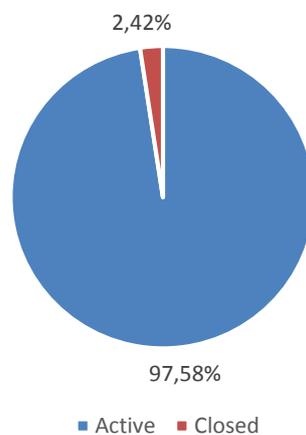


Figure 18: The figure shows the share of companies which are active and closed

As can be seen, the great majority of companies are still alive, representing 97,58% of the sample (646 companies); on the other hand, companies that are no more in activity are only 2,42% of the sample.

Results seem to indicate that business angels have the ability of choosing companies with a great potential of being valuable; nevertheless, the hypothesis that business angels are more willing to keep private the investments that did not ended positively cannot be refused.

Indeed, probably the information found in this analysis do not represents all the investments that business angels performed, then, the percentage of closed firms could be higher than the found share.

4.2.2. *Impact investments*

The frequency of transactions considered “Impact Investments”, which means investments that, beyond the positive financial perspectives, have a positive social impact or environmental-use effect, has been measured. The attribute of being qualified as an impact investment is given only to those investments recognized to have an impact, relying on the description that the same investors make of them.

Results are the following:

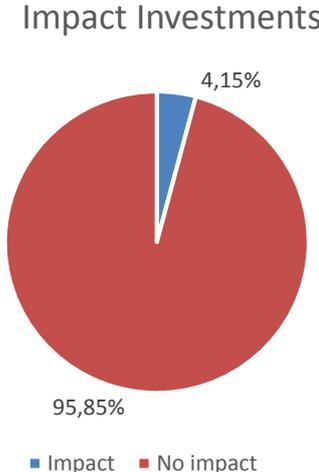


Figure 19: The figure shows the share of impact investments among the total realized

The result shows that only a very small part of the investments achieves a positive social return, 4,15% of overall investments.

This conveys the idea that among business angels investment reasons, the social responsibility is not one of the main ones leading them. It must be underlined that this percentage is calculated only relying on descriptions that the same business angels made over their investments, which was not possible to find for all investments in the sample. Probably, if a more exhaustive investigation is conducted over companies, a bigger part of them could be considered having a social or positive environmental effect.

The following chart, representing the number of for-profit and not-for-profit organizations among the sample, corroborates the thesis, with the number of investments in the for-profit category representing almost all the sample (98,34%).

Profit and Not-For-Profit Organizations

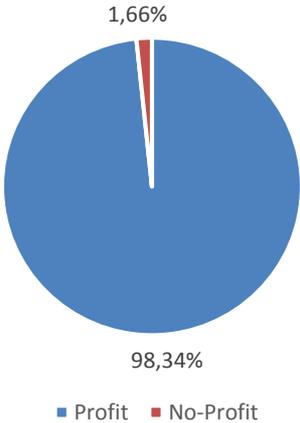


Figure 20: The figure shows the share of Profit and Not-For-Profit companies

4.2.3. Companies size

Firms in the sample are divided in classes based on their number of employees, in order to estimate the firm size business angels are more interested in.

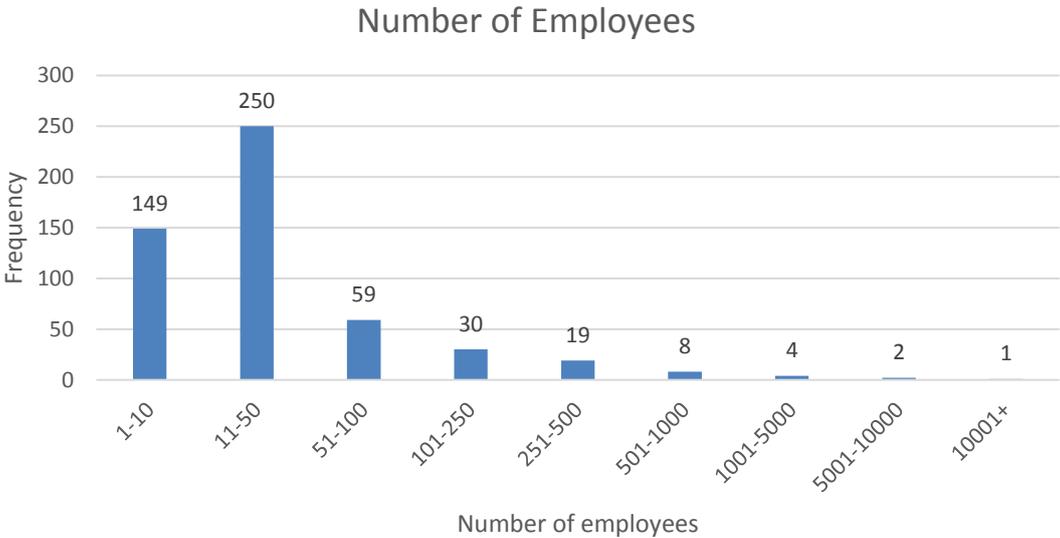


Figure 21: The figure shows the number of firms belonging to each cluster. Clusters represent the number of employees the company has

Results indicate that most frequently investments occur in companies with a number of employees comprised between 11 and 50, representing 47,89% of the sample, followed by the 1-10 group, 28,54%, and the 51-100 group, 11,30%; all the other groups account for less than 10% of the sample.

Therefore, relying only on the number of employees, the great part of investments are made in companies that can be considered SMEs, according to the definition of the European Commission: “the category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million” (Commission Recommendation of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises). The following table displays the division in categories.

Company category	Staff headcount	Turnover	or	Balance sheet total
Medium-sized	< 250	≤ € 50 m		≤ € 43 m
Small	< 50	≤ € 10 m		≤ € 10 m
Micro	< 10	≤ € 2 m		≤ € 2 m

Table 1: The table shows the division criteria for micro, small and medium-sized companies (Source: Commission Recommendation of 6 May 2003)

The overall amount of investments made in the SMEs represents 93,49% of the sample. This is coherent with findings in the literature, where business angels are described as one of the most important sources of capital for SMEs.

One of the problems involving this measure is that the numbers of employees considered in the analysis represent the firm size in the current state and not at the moment of the investment; so, there is probably an overestimation of the top end categories. If data were taken when the investment occurred, the bottom end categories (as the category 1-10, or 11-50) would maybe contain an even greater number of observations.

4.2.4. *Geographic distribution of the investments*

In the following charts the geographic distribution of investments will be presented; data about country were found for 99,11% of the sample, while about region they were found for 98,66%.

First, the graph of the continental belonging of firms is shown.

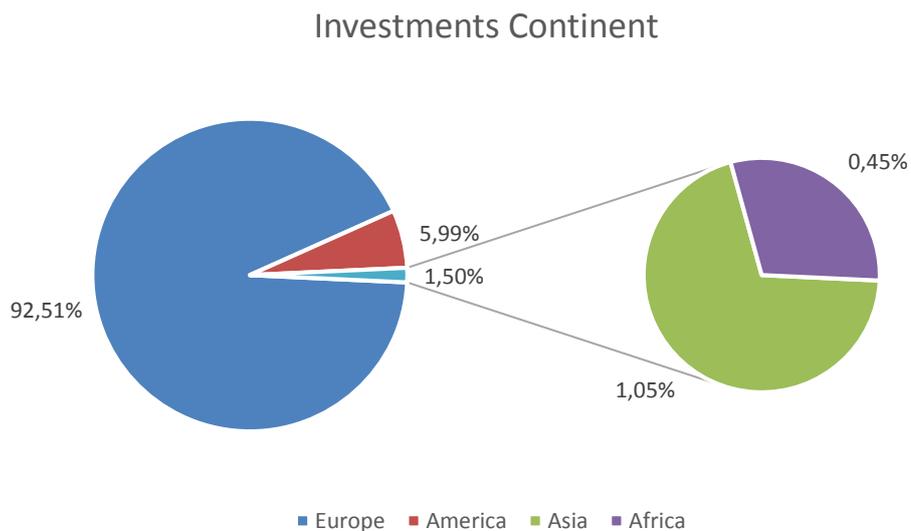


Figure 22: The figure shows the share of investments belonging to each continent

The distribution highlights that almost all the investments are concentrated in Europe, which accounts for 92,51% of the sample, followed by America, 5,99%, and then by Asia and Africa, together representing less than 2%. The strong concentration of investments in the European area, underlines the tendency of business angels not to consider the idea of performing intercontinental investments, but rather to prefer markets closer to home.

The following graph displays the shares of investments in the several countries; the successive maps show the investment distribution in different regions for the countries with a weight greater than 1%.

Countries

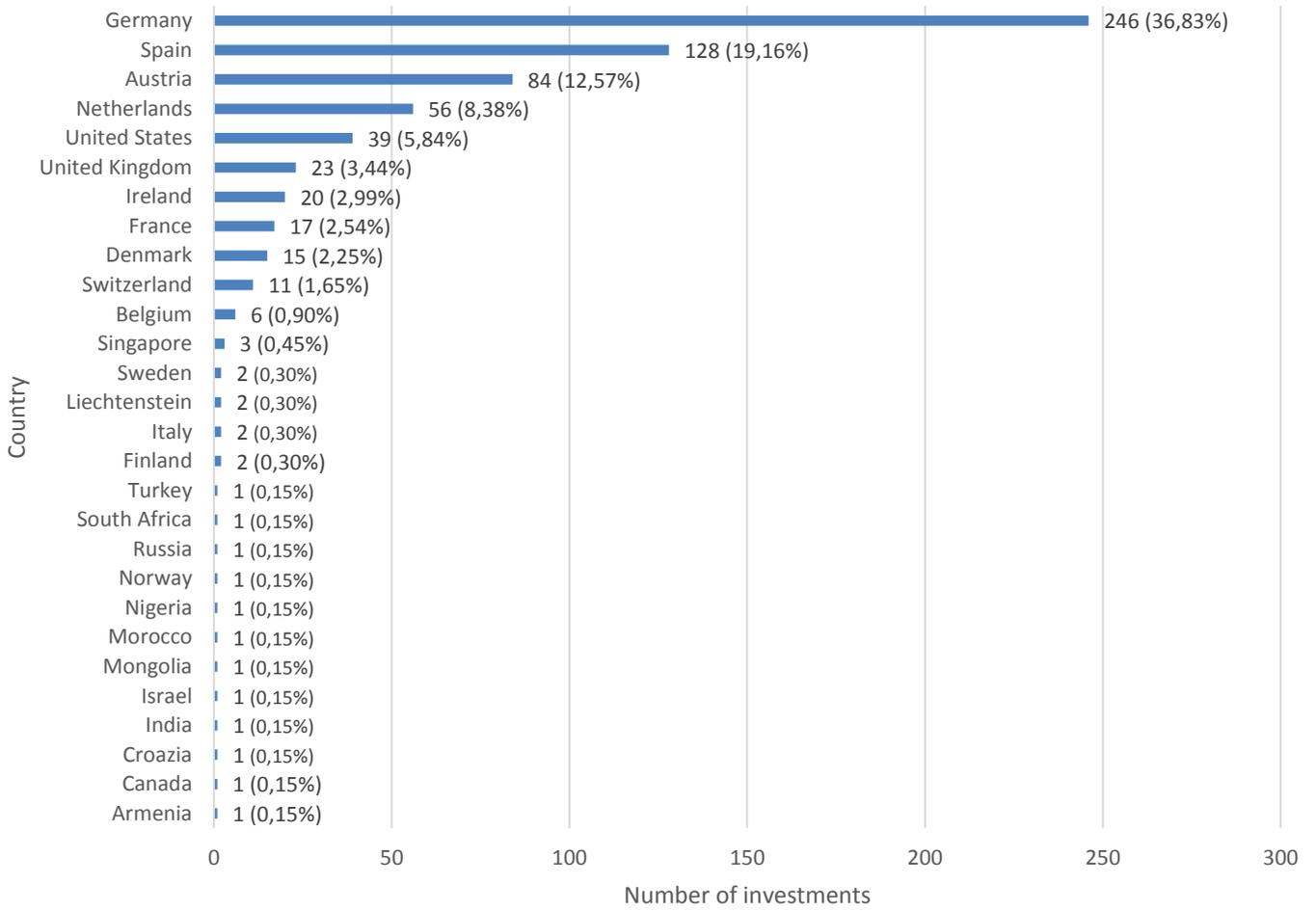
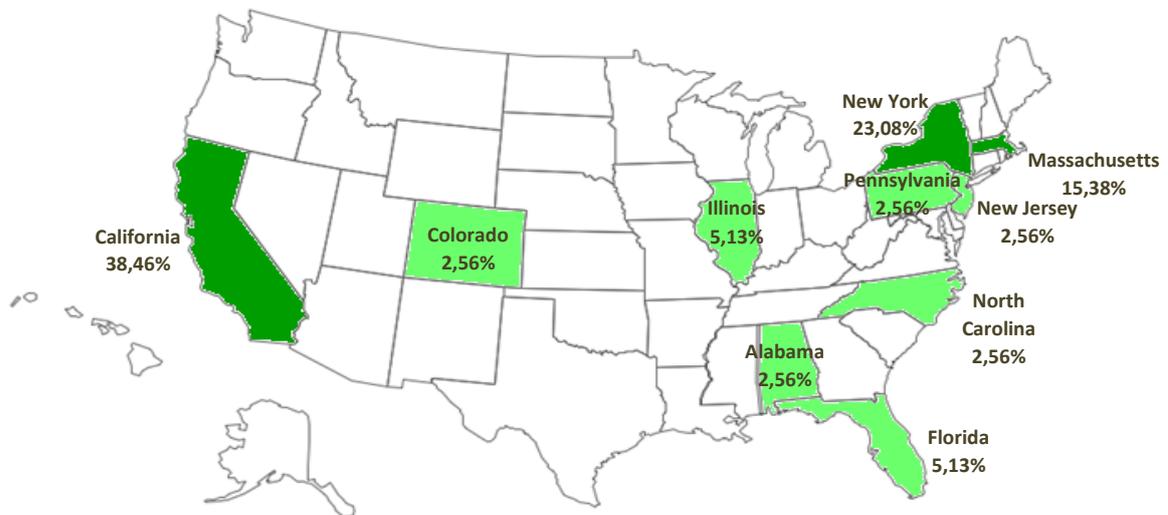
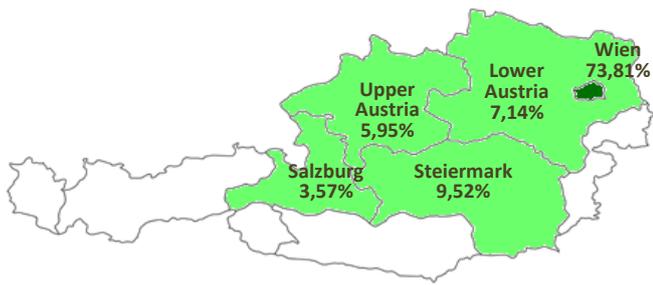


Figure 23: The figure shows the number of investments belonging to each country. The value in brackets shows the percentage of each type in relation to the total amount of investments

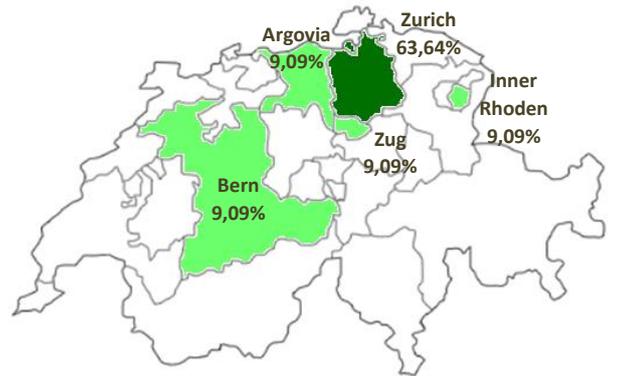
United States



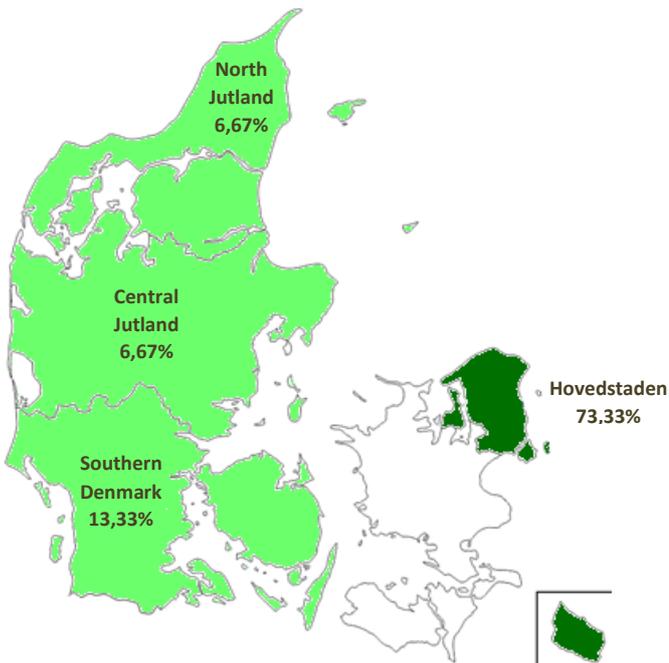
Austria



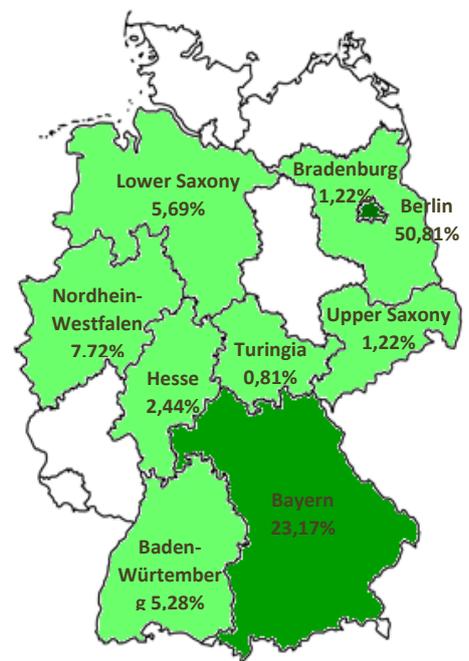
Switzerland



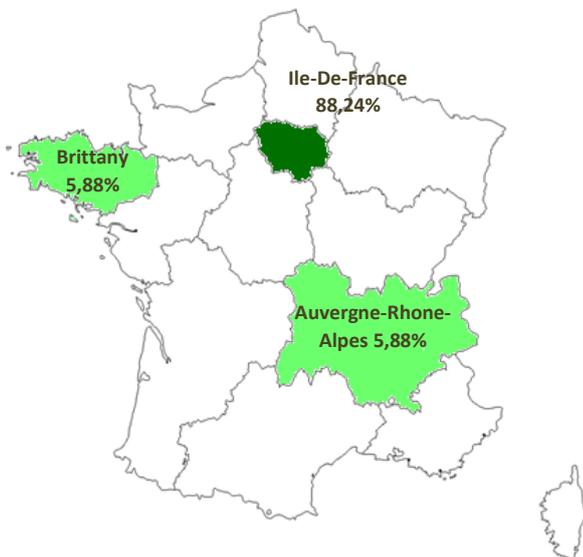
Denmark



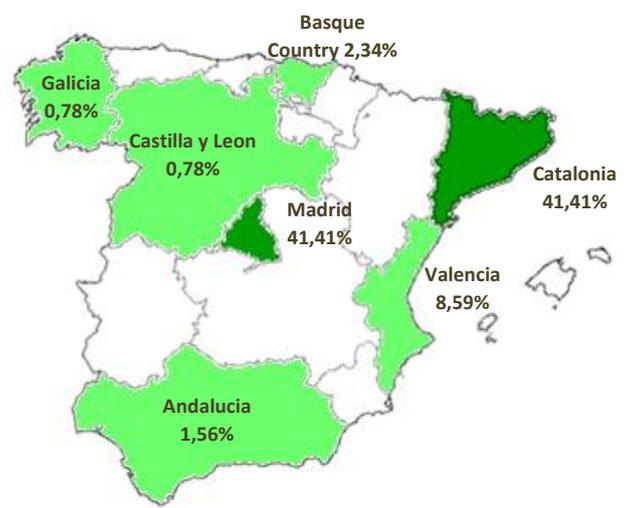
Germany



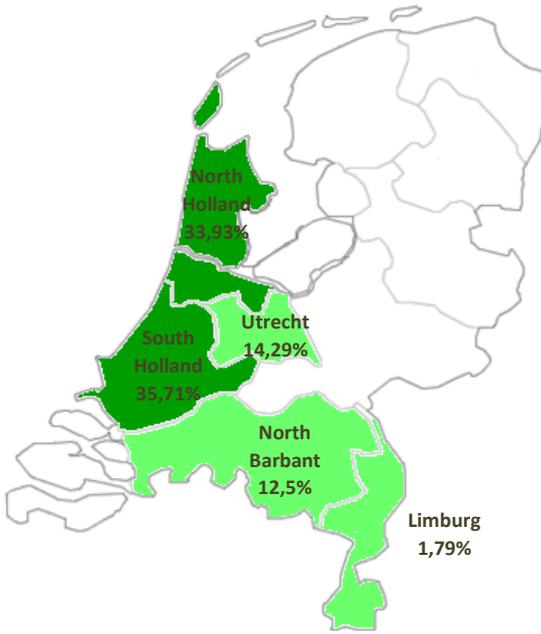
France



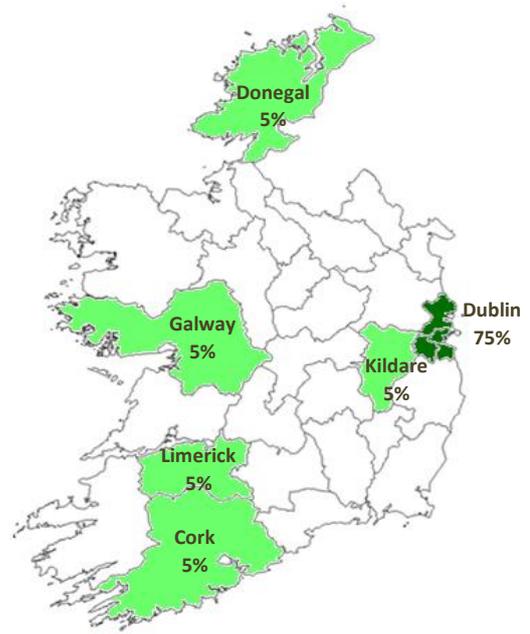
Spain



The Netherlands



Ireland



United Kingdom

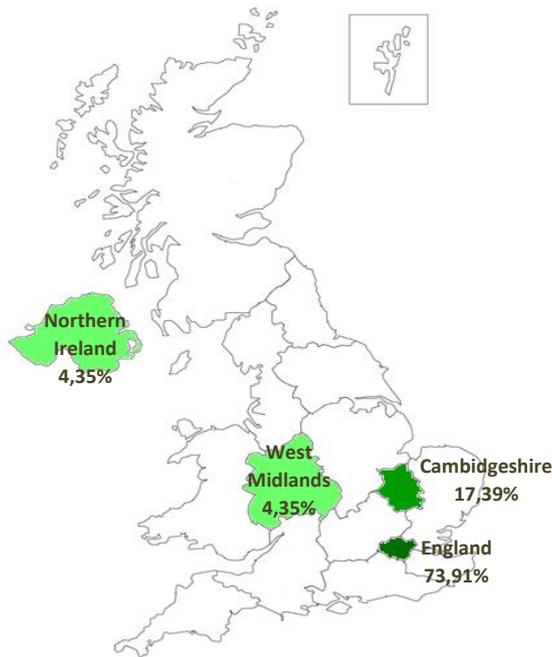


Figure 24: Figures show the investments distribution in each country's regions. The value in brackets represents the percentage of investments made in the specific region in relation to the total amount of investments made in the country. A darker colour intensity means a greater presence of investments in that region

Countries in the first ten positions by number of investments are Germany (36,83%), Spain (19,16%), Austria (12,57%), the Netherlands (8,38%), the United States (5,84%), the United Kingdom (3,44%), Ireland (2,99%), France (2,54%), Denmark (2,25%) and Switzerland (1,65%). The rest of the countries (18) matters for the remaining 4,34%. It is not surprising that in 6 countries out of 10 with a considerable number of investments, the EAF operates: this finding confirms that business angels are not international investors. In fact, if also the Finnish investments are included (0,30% of the sample), the 7 countries where the EAF fund operates, account for 82,49% of the total investments.

EAF vs Other Countries

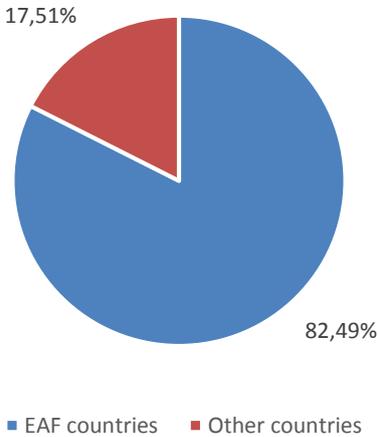


Figure 25: The figure shows the share of investments made in countries where EAF operates and the share in the rest of the countries

4.2.5. *Acquisitions and listings*

In the following, an analysis about firms that have been acquired by other companies or that have been listed in a market is performed. Acquired companies amount to 89, representing 13,20% of the sample; on the other hand, listed companies are just 6. For both categories, when possible, the number of years passed from the investment to the acquisition or to the listing of the company was calculated: this information can be traced for 60,67% of the acquisitions; as far as listings are concerned, it was decided not to perform this type of analysis, due to the small amount of available data.

Concerning acquisitions, lower and upper bound are represented by 0 and 15 years, with the average number of years equal to 4,28, and a median of 3 years. Then, data are divided into classes, to show the most represented period of years.

Results are the following:

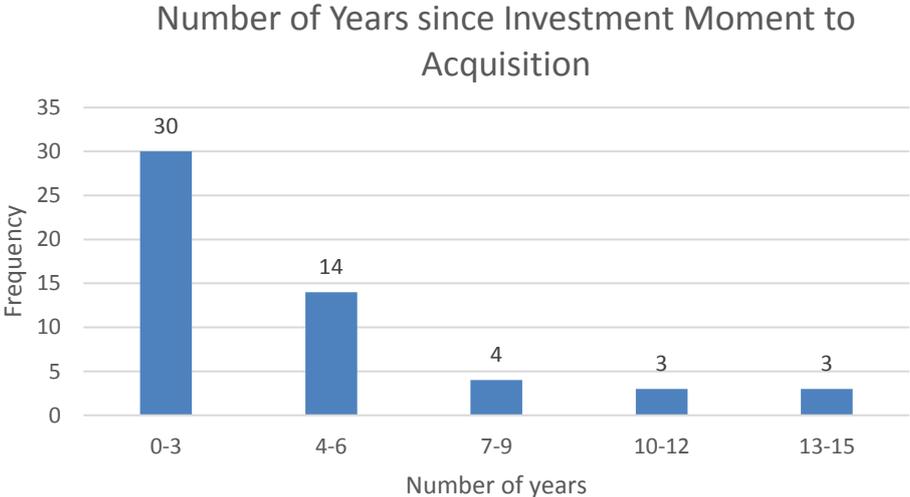


Figure 26: The figure shows the number of investments belonging to each cluster. Clusters represent the number of years passed since the investment was made to the acquisition of the company from a third party

Results underline that, for more than half of the sample (55,56%), the number of years between the investment and the acquisition is less than 3; the percentage raise to 81,48% if also investments within a period fewer than 6 years are considered. This finding will be further discussed in the next sections, where the number of years passed between the moment of the investment and the exit moment is included. The information that the number of companies acquired (89) is much greater than the number of companies listed (6), supports the findings in literature, showing that the trade sale event is much more common than the IPO event, which is very rare in the sample.

4.2.6. Companies stage at the moment of the investment

The following analysis is conducted to discover different stages and types of investments rounds, and which of them are the most frequent in the sample. Data were found for 37,12%

of the investments, regarding the stage, and for 42,60% for what concerns the type of round. The following graph reports results regarding round types:

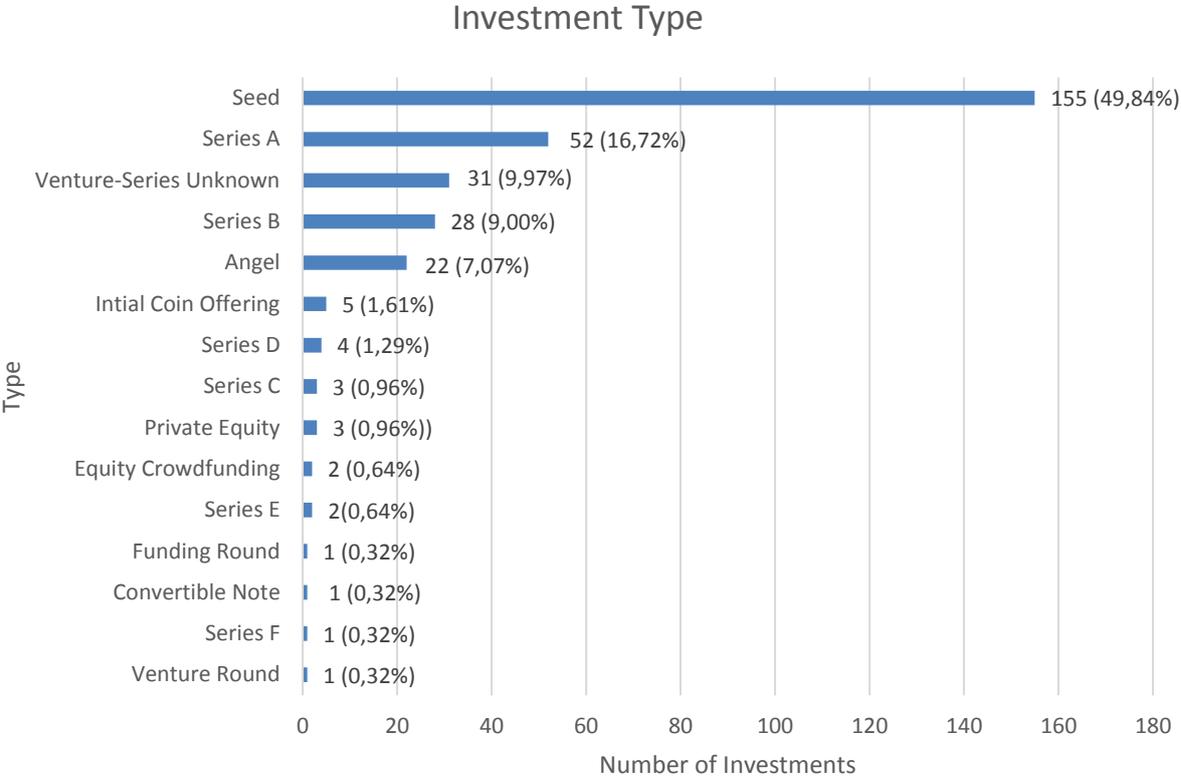


Figure 27: The figure shows the number of investments belonging to each round type. The value in brackets shows the percentage of each type in relation to the total amount of investments

Here is a brief explanation of the different types:

- ❖ **Angel:** an angel round is typically a small round designed to get a new company off the ground. Investors in an angel round include individual angel investors, angel investor groups, friends, and family;
- ❖ **Seed:** seed rounds are among the first rounds of funding a company will receive, generally while the company is young and working to gain traction. Round sizes range between \$10K and \$2M, though larger seed rounds have become more common in recent years. A seed round typically comes after an angel round (if applicable) and before a company’s Series A round;
- ❖ **Venture - Series Unknown:** venture funding refers to an investment that comes from a venture capital firm and describes Series A, Series B, and later rounds. This funding

type is used for any funding round that is clearly a venture round but where the series has not been specified;

- ❖ **Series A and Series B** rounds are funding rounds for earlier stage companies and range on average between \$1M and \$30M;
- ❖ **Series C, D, E and F** rounds are for later stage and more established companies. These rounds are usually \$10M or more and are often much larger;
- ❖ **Private Equity**: a private equity round is led by a private equity firm or a hedge fund and is a late stage round. It is a less risky investment because the company is more firmly established, and the rounds are typically upwards of \$50M;
- ❖ **Convertible Note**: a convertible note is an 'in-between' round funding to help companies hold over until they want to raise their next round of funding. When they raise the next round, this note 'converts' with a discount at the price of the new round. Typically, convertible notes happen after a company raises, for example, a Series A round but does not yet want to raise a Series B round;
- ❖ **Initial coin offering (ICO)**: an initial coin offering (ICO) is a means of raising money via crowdfunding using cryptocurrency as capital. A company raising money through an ICO holds a fundraising campaign, and during this campaign, backers will purchase a percentage of a new cryptocurrency (called a "token" or "coin"), often using another cryptocurrency like bitcoin to make the purchase, in the hopes that the new cryptocurrency grows in value;
- ❖ **Funding Round**: "Funding round" is the general term used for a round when information regarding a more specific designation of the funding type is unavailable;
- ❖ **Equity Crowdfunding**: equity crowdfunding platforms allow individual users to invest in companies in exchange for equity. Typically, on these platforms the investors invest small amounts of money, though syndicates are formed to allow an individual to take a lead on evaluating an investment and pooling funding from a group of individual investors.

(Source: Crunchbase Glossary of Funding Types)

There are only three stages, which are an aggregation of different types of round:

- ❖ **Seed Stage**: it includes the seed, angel and venture types of round;
- ❖ **Early Stage Venture**: it includes the Series A and Series B type of round;

❖ **Late Stage Venture:** it includes the Series C, D, E and F types of round.

Results show that investments are concentrated in firms at their early stages of development: the most frequent round types are represented, indeed, by Seed (49,84%), Series A (16,72%), Series B (9,00%), Angel (7,07%) and by Ventures-Series Unknown (9,97%, also if this type can refer to any Series type, from A to F), with the residual types that, considered all together, represent only 7,40% of the sample. The most important stages are consequently the Seed Stage, accounting for 65,68% of the sample, and the Early Stage Venture, accounting for 29,52%; if considered together, the two stages represent 95,20% of investments of the sample. The following figures represent the composition of the three stages.

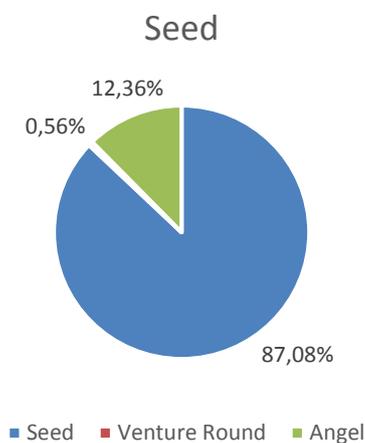


Figure 28.A: The figure shows the types composition of Seed Stage investments

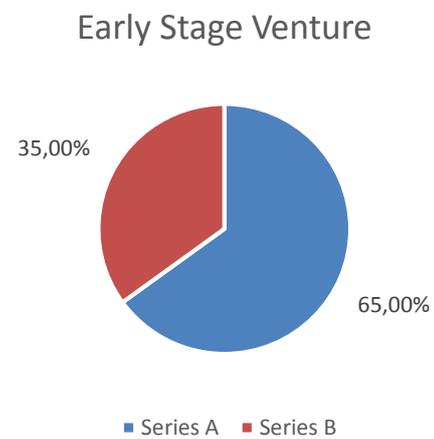


Figure 28.B: The figure shows the types composition of Early Stage Venture investments

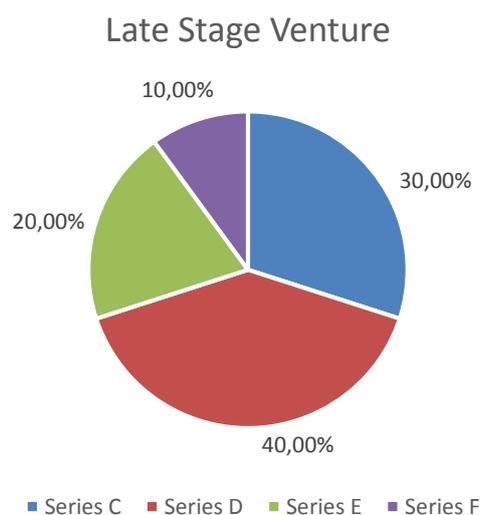


Figure 28.C: The figure shows the types composition of Late Stage Venture investments

The trend just highlighted is perfectly coherent with the findings in literature, showing the tendency of the business angels in investing in young firms, at their initial phases of development, mainly seed and start-up phases.

4.2.7. Companies age at the moment of the investment

Strongly related to the type of finance round, is the age of the firms when the investment occurred: for this measure, data were available for 60,27% of the sample and are included between 0 and 79; results are shown in the following figure.

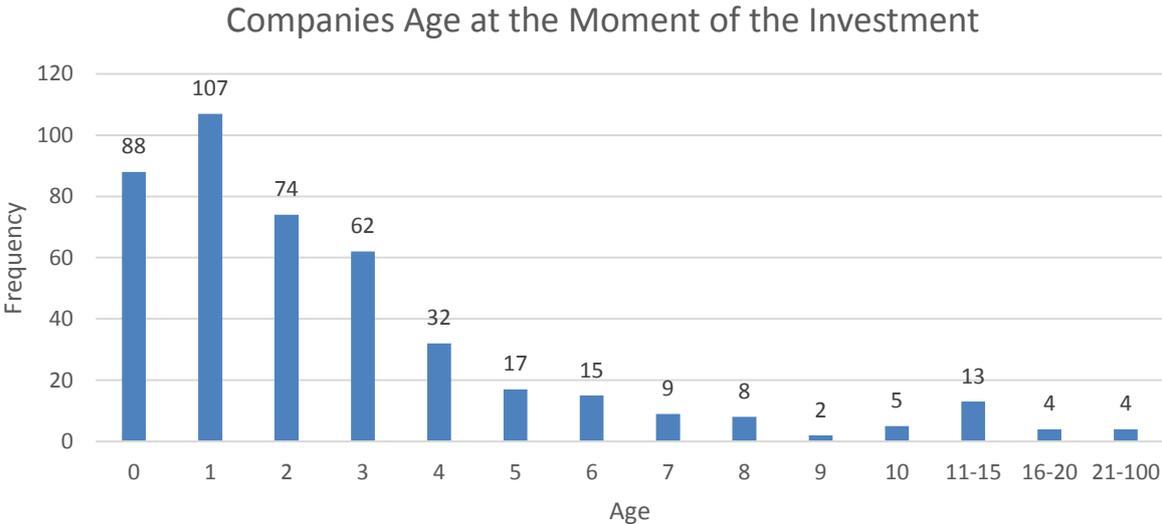
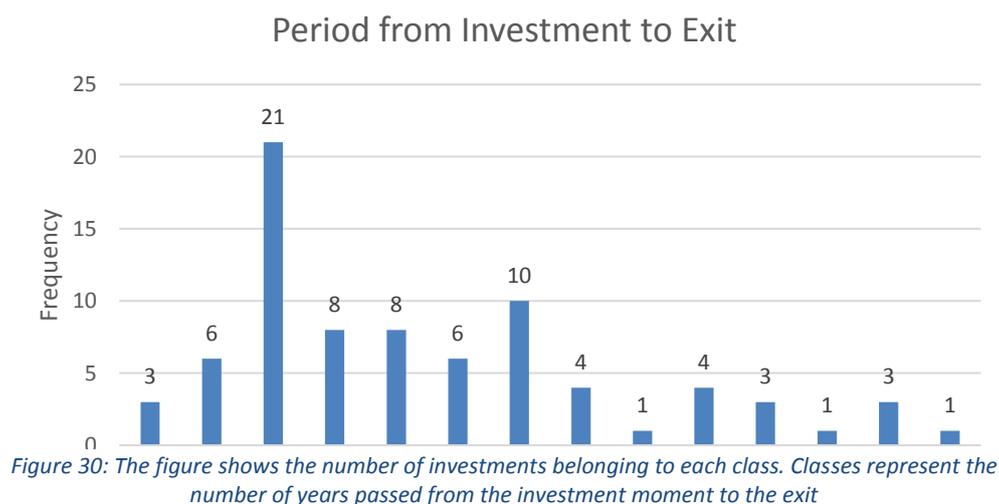


Figure 29: The figure shows the number of investments belonging to each class. Classes represent the company age at the moment the investment was performed

As it was predictable, results of the analysis are in line with the previous ones about the type and stage of the transactions: the great part of investments, indeed, are concentrated in young firms with a number of years equal or less than 3, representing 75,23% of total investments; the percentage raises to 86,36% if also firms between 0 and 5 years are considered, a result which agrees with previous studies about the investment habits of business angels, preferring especially not yet established young firms.

4.2.8. *Period from investment to exit*

Among the 730 investments, an exit occurred in 119 situations: for these exits, when possible, the number of years passed from the moment of the investment to the moment in which the exit occurred was calculated. Data for this type of measure are found for 66,39% of the total number of exists included in the sample, and results are shown in the next graph:



Data vary between 0 and 13 years, with an average investment duration of 4,51 years and the median equal to 4 years. If three classes of duration in which sorting the investments, the short, the medium and the long horizon investments are considered, results are:

- ❖ Short horizon investments (between 0 and 4 years): it includes 58,23% of the investments;
- ❖ Medium horizon investments (between 5 and 9 years): it includes 31,65% of the investments;
- ❖ Long horizon investments (more than 10 years): it includes the remaining 10,13% of the investments.

Findings support the part of the literature affirming that business angels are not long horizon patient investors, but that they have instead a medium or short investment horizon, lasting less than 10 years.

4.2.9. Deal size

This analysis examines the amount of money involved in each of the transactions we have information about: this attribute cannot be traced for all transactions, but only for 24,11% of the sample; this low percentage is due to the fact that this information could be found only for transactions included in Crunchbase, and it was not even available for all of those.

Results are showed in the next graph:

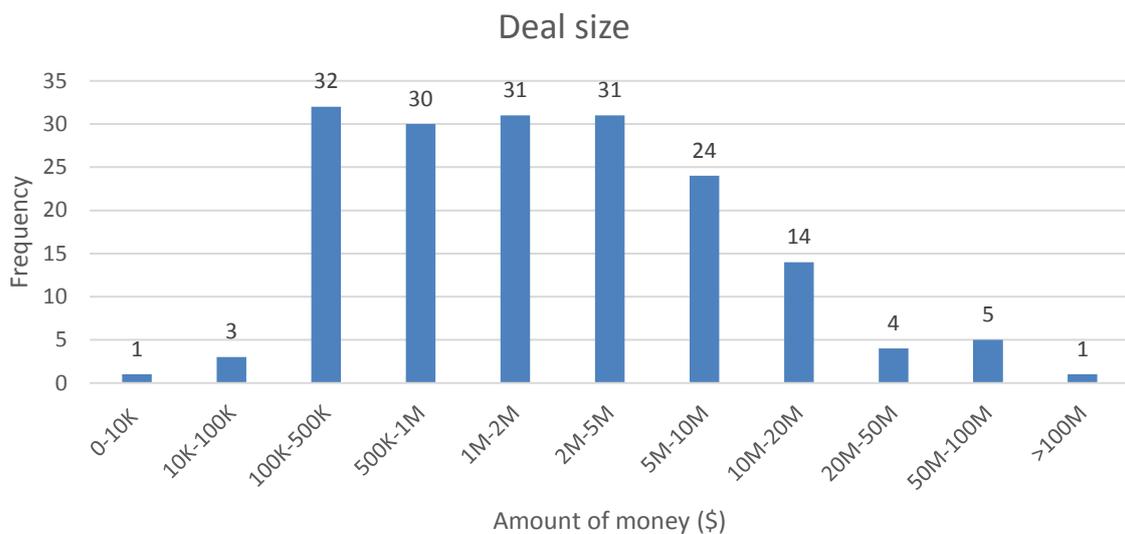


Figure 31: The figure shows the number of investments belonging to each class. Classes represent the investment deal size, expressed in \$

All data are expressed in \$: transactions expressed in different currencies were indeed converted in \$ using the conversion function that Crunchbase makes available; this allowed to compare transactions in different currencies and to group them in a unique frequency chart. Lower and upper bounds are represented by \$1.350 and \$300M, with an average volume of \$7.601.204,60 per transaction and a median volume of \$1.370.829. The clusters created show that more than half of the transactions (55,11%) are equal or less than \$2M, percentage that raise to 72,73% if deals equal or less than \$5M are considered, and to 86,36% for transactions involving an amount of money equal to or less than \$10M. As can be seen, the distribution of the deal size recalls the distribution of the transactions types, as it was predictable.

The measure just considered represents the total amount of money raised in the round, but it can be interesting to calculate the amount of money provided by each investor taking part in the round.

Even though there were not available data about the exact contribute of each investor, the total number of investors taking part in the round was founded: so, conscious of making a simplification, the amount of money invested by each angel was calculated dividing the total amount of money involved in the round by the number of investors taking part in it.

Results are showed in the next chart.



Figure 32: The figure shows the number of investments belonging to each class. Classes represent the investment deal size divided for the number of investors taking part to the deal. Data are expressed in \$

The average investment value is \$1.986.766,41 and the median is \$528.462,00; in this case it is recommended to look at the median investment instead that at the average: in fact, the median value is less affected by the outliers that can be found among data. For example, if investments equal to or greater than \$10M for individual are not considered (which are only three out of 176, and probably represent errors or a lack of information about the number of individuals participating to the investment) the mean value becomes \$1.219.041,53, more than a third fewer than before, instead the median value remains almost the same, \$526.474,50.

Results show that 85,23% of the sample is represented by investments between \$50K and \$5M, with the most frequent class that is represented by investments between \$1M and \$5M, accounting for 25,00%; moreover, only 6,25% of investments involves an amount of money fewer than \$50K, and more than half (60,23%) of investments are comprised between \$50K and \$1M. The last finding is coherent with a part of the literature, saying that business angels

usually invest amount of money between \$50K and \$1M. Noteworthy the fact that in the sample there is one quarter of investors that have invested amounts larger than \$1M.

It seems that business angels in the sample invest more than the amounts highlighted by previous studies, but it must be underlined that it is difficult to make a comparison between studies made in different years.

4.2.10. Sectorial distribution

In the following, the analysis regarding the sector in which investments are made is performed: to create the sector categories, data from Crunchbase regarding the categories related to each company were considered, and then it was made an aggregation, taking as a good initial base the EBAN categorization.

The following figure shows the frequency in different sector categories:

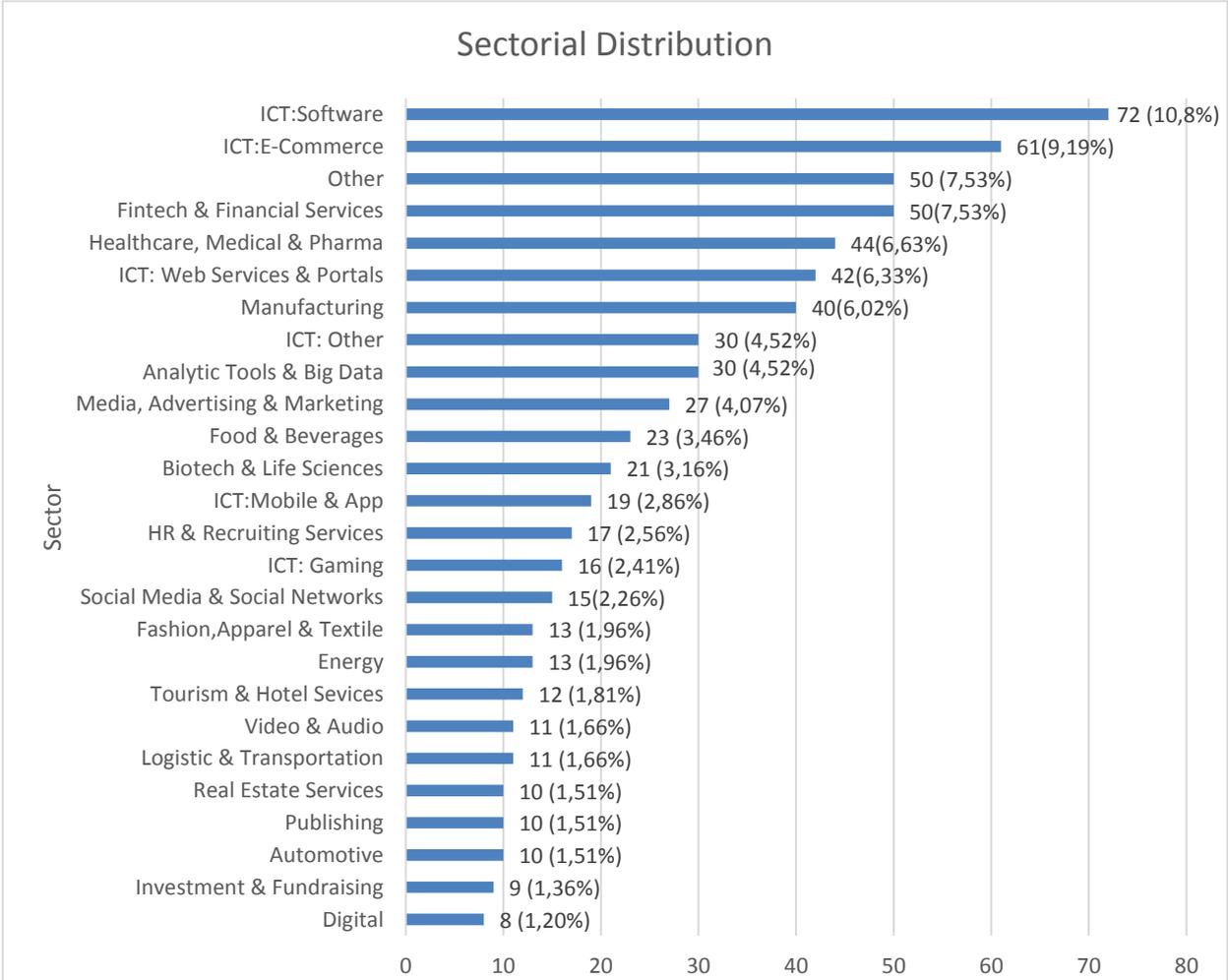


Figure 33: The figure shows the number of investments belonging to each sector. The value in brackets shows the percentage of each sector in relation to the total amount of investments

The graph underlines that among most frequent sectors, there are the technology ones: investments in Software and E-Commerce account for 10,8 % and 9,19% respectively, investments in the Fintech sector account for 7,53%, and investments in Web Services account for 6,33%, followed by Analytic Tools & Big Data (4,52%) and Biotech & Life Sciences (3,16%). Considering the investments in the ICT sector all together, they represent 36, 14% of the sample. There are also other categories characterized by a huge presence, as Healthcare, Medical & Pharma (6,63%) and the Manufacturing (6,02), or the Media, Advertising & Marketing (4,07%).

These findings support the propension of the business angels for investing in sectors with a high presence of technology, but also highlight their heterogeneity of preferences, without a clear sector in which to invest.

4.2.11. Sectorial trend

After grouping companies into macro categories, it was possible to find out the presence of sectorial trends: do business angels invest in sectors in which had previously gained experience? In which measure? Data about working sectors are available for 50 investors out of 72, representing 69,44% of the sample, excluding syndications, who are not considered in this type of analysis, since they are composed by several investors. The analysis consisted in the evaluation of the number of investments that each investor made in his/her same sector; then the related share was calculated, and the percentages were then clustered in classes. Results are shown in the next figure.

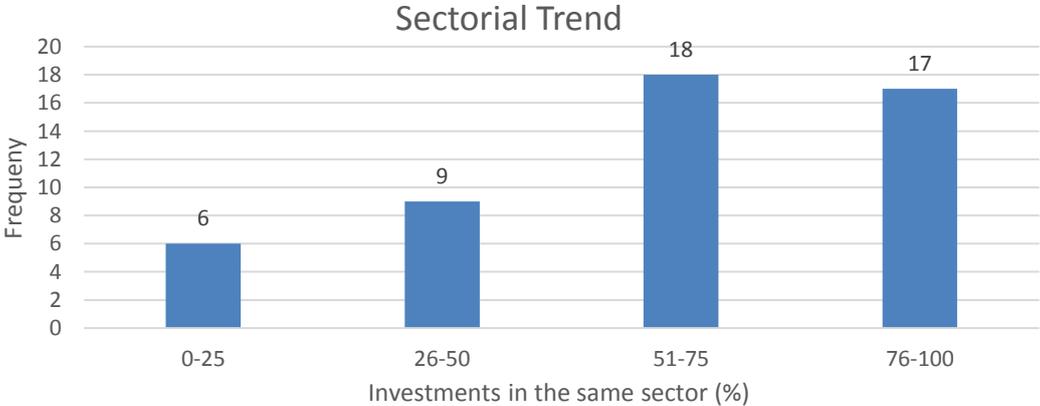


Figure 34: The figure shows the number of investors belonging to each cluster. Clusters represent the shares of investments made in the same sector where the investor worked

As can be noticed, business angels have a strong tendency to invest in the same sector in which they had gained experience, or they are related to (according mainly to what it is said in their profiles and personal descriptions on LinkedIn). More than half of the investments, precisely 63,55%, are made in sectors in which investors have gained experience. Looking at the classes, it can be noticed that 34% of the investors, make at least three quarters of their investments in their sectors of experience, and the percentage raise to 70%, if the investors who make more than half of their investments in their previous sector are considered.

Results evidence a strong attitude of business angels to perform investment in sectors in which they had gained experience. It must be underline that, probably, this result is overestimated: often, investors do not exactly specify their previous sectors, but they are ambiguous about them, maybe mentioning only an area of interest, which has boundaries barely discernible; for this reason, at the moment of counting the number of investments made in their same sector, probably more investments than those strictly connected to the specific sector in which they worked in were counted.

Probably, the only way to obtain more precise results, is to submit a questionnaire to the investors.

4.2.12. *Geographic trend*

After considering sector, an analysis describing the geographic trend of the investors was conducted, in order to give an insight on how strong it is their tendency in investing in their same country, and then in their same region.

Data for both country and region, are available for 55 investors out of 77, 71,43%, including syndicates in the analysis.

The analysis consisted in the estimation of the share of how many investments each investor made in his/her country or region; then results were clustered in classes.

The following graphs show the frequency found for each class.

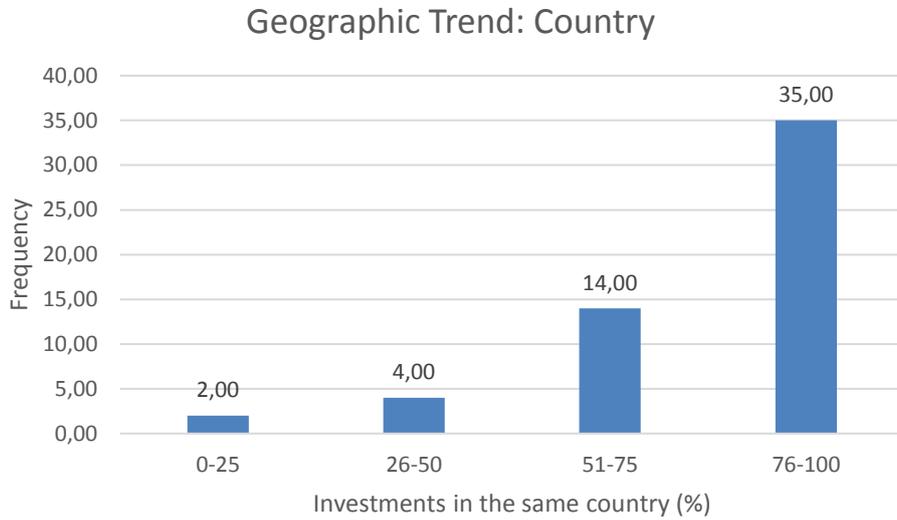


Figure 35: The figure shows the number of investors belonging to each cluster. Clusters represent the shares of investments made in the same country where the investor live

Results show that the tendency to invest in the same country is really strong among investors: 75,82% of all investments made are, indeed, in the same country where the investor is located. The frequency graph highlights that 63,64% of investors perform more than three quarters of their investments in their same country, and that almost all investors, 89,09%, make more than half of their investments in their nation.

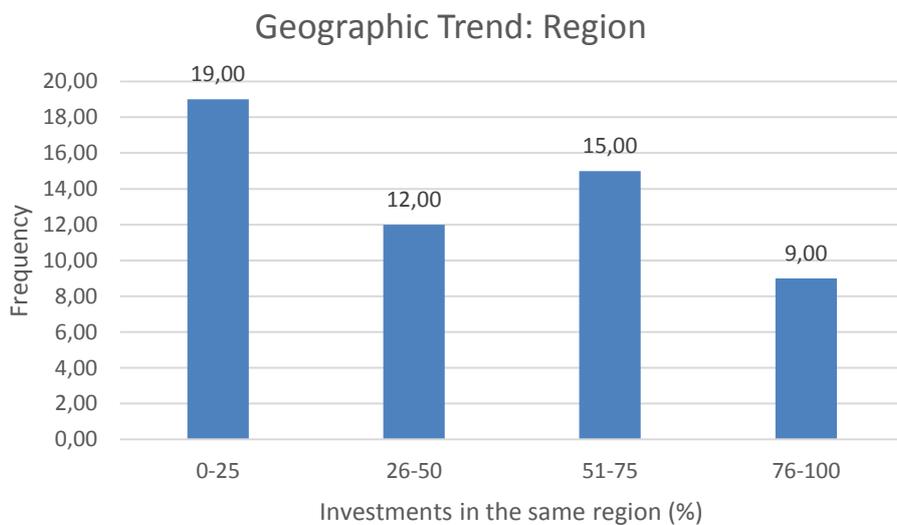


Figure 36: The figure shows the number of investors belonging to each cluster. Clusters represent the shares of investments made in the same region where the investor live

Concerning the regional trend, the involved numbers are smaller, but anyway endowed with a great magnitude: almost half investments are made in the same region of the investors, precisely 44,07%, and the frequency graph shows that 43,64% of investors make more than half of their investments in their region (this share is about half than the share regarding the country). The most frequent class in this case is represented by the bottom one: 34,55% of investors performs less than a quarter of their investments in their same region.

Looking at the involved shares, both the tendencies are noteworthy, with the tendency to make national investments that is stronger than the regional one, and they both underline the national and delimited character of business angels.

Chapter 5

5. Conclusions and future steps

Results provided by the analysis indicate that the business angel sample is almost exclusively composed by male individuals, middle-aged, with an average age of 53 years old, conducting their investments alone; the investor average age at first investment is 45 years old, after an average period of 18 years since the first job. The great part of the investors are ex-entrepreneurs, and more than half of them founded two or more start-ups in their life; moreover, there is almost the same share of active and passive investors in the sample, but the greater part of the active investors undertakes a role in less than a quarter of the firms they fund. Business angels are distributed in all the countries where there is an EAF subsidiary, excluding Finland, and they are more concentrate in the countries in which the EAF operates from a longer period of time.

Analyzing their investments, more than 97% of the companies are still active, which means that they are able to choose companies with a positive performance; there is instead a very low share of non-profit companies or impact investments, meaning that the social benefit is not one of the main reasons business angels consider in order to invest. Almost all the funded companies are SMEs (more than 93%), at their Seed or Early Stage Venture Round (more than 95%), and three quarters of them are established by less than 3 years. The analyzed investors are not long horizon investors: more than half of the exits happened between 0 and 4 years since the investment moment, and about one third between 5 and 9 years; moreover, the great part of the exits is conducted through a trade sale, and not through an IPO (confirming that the IPO event is rare). The median amount of money raised by companies is about \$1,4M, and the median deal volume per investor is equal to \$530K. Concerning the geographical distribution of the investments, more than 90% are made in Europe, and among them, more

than 80% are made in countries in which the EAF operates. This is related to the investors geographical trend: the analysis, indeed, showed a strong trend to invest in the same country where they live: about 75% of the investments are made in the same country where investors live, and almost 90% of the investors perform more than half of their investments where they live. The regional trend instead is less pronounced: almost half (44,07%) of the investments are made in the same region where investors live. There is a great range of sectors in which business angels invest, but surely there is a tendency to invest in technology one: ICT (in its various sub-sectors), Fintech, Analytic Tools & Big Data, Biotech & Life Sciences are at the top of the ranking. Other important sectors are Healthcare, Medical & Pharma, Manufacturing, Media, Advertising & Marketing and Food & Beverages. The analysis highlights a strong sectorial trend: more than half of the investments are, indeed, made in sectors in which business angels previously gained experience.

One of the main points highlighted in different parts of the study, was the difficulty to find reliable and complete information about investors, mainly due to their strong desire of anonymity and privacy: even if different ways were covered, in several occasions found data were incomplete, and some information concerning investors or investments were not found at all.

This surely represents a problem, but also lays the bases to perform further investigations, in order to achieve a better and more complete picture of the framework.

To address the lack of information, the best method may be to conduct a survey through the use of a questionnaire. The questionnaire may be realized to complete the missing fields of the current file, but also to add other information that cannot be found through a web research; for example:

- ❖ Enquiring if angels perform all the investments they are willing to, or if they would make more, and which are the reasons behind their unexpressed potential;
- ❖ Which is the percentage of their capital invested in the SMEs market;
- ❖ Through which channels they find their investments and to give an evaluation of the different ways they use;
- ❖ Which motivations there are behind their investments;
- ❖ How many proposals they receive during the year, the share they submit and the motivations for the refuses.

Moreover, the questionnaire may concern also the relationship between business angels and the EAF, to study and detail some of its aspect, and to investigate the efficacy of the relation too, for example:

- ❖ How is their relationship structured, and which is the procedure to be approved as an investor;
- ❖ When the fund intervenes in the investment process and the amount of money it brings;
- ❖ How the contracts disciplining their relation are structured, which are the fixed aspects and those left to the negotiation;
- ❖ How is the returns division structured: is it equal or business angels have some advantages?
- ❖ Do some guarantees forms exist? Are there tax reliefs for investments participated by the EAF? What kind?
- ❖ Enquiring if the fund benefit angels investment activity and in which ways (if it had reduced the risks, or raised the returns).

A further study that may also be conducted is a comparison between the sample of the European business angels and a sample of American business angels, to notice the different features about their profiles or to test differences in their investment method and among companies they fund.

Appendix

6. Appendix

6.1. Appendix A: Informal investor characteristics (Mason and Harrison, 1995)

TABLE I
Informal investor characteristics

	United Kingdom	Sweden	USA	Canada ¹
age (years)	53	54	47	47
sex	99% male	–	95% male	98% male
annual family income	£46,000	60% > 500,000 SEK	\$90,000	\$176,800 (Can)
net worth	£312,000	57% > 5m SEK	\$750,000	\$1.36m (Can)
previous entrepreneurial experience	57%	96%	83%	75%*

Sources: UK: Mason *et al.* (1991a); Harrison and Mason (1992)

Sweden: Landström (1993)

USA: Gaston (1989)

Canada: Riding *et al.* (1993); Venture Economics (1990)

Note: 1. Source is Riding *et al.* (1993), except where indicated by asterisk

6.2. Appendix B: Typical informal investor investment profiles (Mason and Harrison, 1995)

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TABLE II
Typical informal investor investment profiles

	United Kingdom	Sweden	USA	Canada ¹
number of investments	2 every 3 years	1 a year	2 every 3 years	1 a year
rejection rate	7 out of 8	7 out of 10	7 out of 9	9 out of 10
average size of investment	£10,000	500,000 SEK	\$58,900	\$207,000 (Can)*
% of net worth accounted for by informal investments	53% <10%	33% <10% 33% 10-24% 33% >24%	-	40% <10%
primary sources of information on investment opportunities	business associates friends	-	friends business associates	knew the entrepreneur friends, business associates*
main sectors	retail/wholesale; consumer services; high-tech manufacturing	finance/real estate; manufacturing industrial products;	retail/wholesale; finance/real estate; services; high-tech manufacturing;	natural resources; manufacturing - industrial and commercial; real estate
main stage of business development	young firms (34%); start-ups (30%); established firms (18%)	infant/young firms (43%) established firms (31%) start-ups (27%)	start-ups (56%) infant/young firms (24%) established firms (20%)	seed and start-up (30%) 1st stage (15%) expansion (43%)*
location of investments (distance from home)	67% <100 miles 54% < 50 miles	-	72% < 50 miles	53% <50 miles
involvement with investee business	69%	93%	83%	85%*
most common types of involvement	board of directors; consulting	board of directors; consulting	consulting; working part-time	board of directors; consulting
minority voting control	81%	65%	56%	(10% majority ownership)
proportion who wish to make more investments	75%	75%	54%	-
amount available for investment	£50,000	1.5m SEK	-	-

Sources: as for Table I
Note: see Table I

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