# Entrepreneurship and the role of risk

**A theoretical and empirical analysis of the relationship between entrepreneurship and risk and the differences between commercial- and social entrepreneurs**

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**Abstract**

Entrepreneurship has received more and more attention since the 80s, but we still don't know much about the characteristics of the entrepreneurs.

This thesis will look at the individuals who engage in entrepreneurship as well as at the ones engaging in social entrepreneurship. The aim is to find further evidence to confirm or reject the assumption of the risk-seeking entrepreneur. This will we done by using the Flash Eurobarometer Survey on Entrepreneurship (2010) that consists of more than 26.000 answers of individuals from 36 countries, a unique dataset with a large sample size.

This thesis will also focus on a subset of entrepreneurs, the social entrepreneurs by examining the role of risk with specific regard to social entrepreneurs. Based on academic literature and theories a variety of hypotheses on the relationship between entrepreneurship and risk as well as on the expected relationship between social entrepreneurship and risk will be formulated. These hypotheses will be tested in the empirical part of this thesis by using binary logistic regression models as well as ordered logistic regression models. By testing those hypotheses this thesis will generate new insights about the characteristics of entrepreneurs in general as well as of social entrepreneurs.

As it will be shown in the empirical section, this thesis is successfully showing that entrepreneurs are almost twice as likely to be willing to take risks compared to non-entrepreneurs. In addition this thesis is successful in the attempt to show various differences between social- and commercial entrepreneurs with respect to their willingness to take risks and also show that social entrepreneurs are more afraid of financial risks than commercial entrepreneurs.

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# 1. Introduction

In the past years the views on entrepreneurship have drastically changed. There seems to be a general agreement that entrepreneurship is very important for the economic society in terms of economic development, economic growth and job creation.[1]

Until the 80s, big corporations were seen as the main reason and driver of the fore mentioned economic growth and the role of entrepreneurship was ignored and not taken into consideration. Due to the shift that took place from the 80s on, entrepreneurship as an area of research has received more and more interest from the academic world.

Nevertheless, we still don't know much about the characteristics of the entrepreneurs who are so important for the economy nor do we have unified definitions of what an entrepreneur or entrepreneurship is.

When looking at the subset of the social entrepreneurs it gets even worse. Most suggestions with respect to the characteristics of these individual are based on assumptions, and even if there is a growing number of studies dedicated to describing the differences between closely related fields of entrepreneurship (e.g. commercial- and social entrepreneurship), the empirical studies about the characteristics of the social entrepreneurs are still outnumbered by the conceptual ones, and we still don't know much about the individuals behind social entrepreneurship.[2] Not only do the conceptual articles outnumber the empirical ones, but the findings of the empirical ones are also often not clear or ambiguous.

This thesis will look at the individuals who engage in entrepreneurship as well as at the ones engaging in social entrepreneurship. Therefore a micro approach will be taken to look at the individual characteristics of the entrepreneurs and social entrepreneurs and this thesis will make an attempt to contribute to the academic literature in two ways.

First, this thesis will look at entrepreneurs in general. There are quite some studies that show that the individuals who engage in entrepreneurship are less risk-averse than a variety of comparison groups (e.g. managers, general population or even business students).[3] However, there are also empirical studies that find exactly the opposite.[4] This thesis aims to find further evidence to confirm or reject the assumption of the risk-seeking entrepreneur. It will do so by

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[1] Bosma, Van Praag, De Wit (2000), p. 5.
[2] Hoogendoorn, Pennings, Thurik (2010), p. 2.
[3] e.g. Kanbur (1979), Kihlstrom and Laffont (1979), Sexton and Bowman (1985), Cramer et al. (2000).
[4] e.g. Brockhaus (1980), Miner and Raju (2004), Xu and Ruef (2004).

using the Flash Eurobarometer survey on Entrepreneurship (2010) that consists of more than 26.000 answers of individuals from 36 countries, a unique dataset with a large sample size.

Secondly, this thesis will focus on a subset of entrepreneurs, the social entrepreneurs. This thesis will examine the role of risk with specific regard to social entrepreneurs. Social entrepreneurship has received growing attention on a global scale for different reasons.[5] According to Hoogendoorn, Pennings, Thurik (2010) these reasons can be categorized into the demand- and the supply side of social entrepreneurship. The demand side of social entrepreneurship is formed by problems that call for innovative approaches by social entrepreneurs, the supply side stands for those developments that increase the chances of the mentioned problems to be solved. [6]

The increasing importance and the development of the demand side as well as the supply side are the reason for the rise of social entrepreneurship. According to Hoogendoorn, Pennings and Thurik (2010) we can observe "(…) shrinking funds, resulting in fewer interventions by the public sector. In addition, the number of nonprofit organizations has grown exponentially, which has resulted in competition between nonprofits for funding. Finally, there is an increasing demand for improved effectiveness and efficiency for both the social sector and nonprofit institutions. In this light, nonprofit organizations are severely challenged to demonstrate organizational effectiveness."

These developments, the competitive environment, and the fight for funds and capital implies that the willingness to take risks while founding a new venture has a big impact on social entrepreneurship and the social entrepreneur is, due to those observations, confronted with risk on a daily basis. Empirical studies that examine the individual characteristics of social entrepreneur and the relationship between social entrepreneurship and risk are scarce.[7] This thesis will make an attempt to fill this gap. To summarize, the goal of this thesis is to answer the following questions.

Are entrepreneurs in general really more risk-seeking than non entrepreneurs and are they therefore more willing to take risks? What do we know about social entrepreneurs with respect to risk? Are they more or less willing to take risks compared to commercial

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[5] Hoogendoorn, Pennings, Thurik (2010), p. 4.
[6] Hoogendoorn, Pennings, Thurik (2010), p. 4.
[7] During the writing process of this thesis, Hoogendoorn, Van der Zwan and Thurik (2011) conducted a similar research.

entrepreneurs and are social entrepreneurs afraid of different risks and threats than commercial entrepreneurs?

In order to fully understand the subject and to give an overview of the different theories, there will first be a discussion of the relationship between entrepreneurship and risk. In order to do so the classic academic literature on entrepreneurship will be used. By using the classic literature it will be possible to define entrepreneurship and to take a look at the suggested relationship between entrepreneurship and risk.[8] To complete the varying possible views on the relationship between entrepreneurship and risk, more recent literature and studies will be reviewed as well. The same will be done for social entrepreneurship in order to understand the subject.

Based on the discussed literature and theories, it will be possible to formulate a variety of hypotheses on the relationship between entrepreneurship and risk as well as on the expected relationship between social entrepreneurship and risk.

These hypotheses will be tested in the empirical part of this thesis by using binary logistic regression models as well as ordered logistic regression models and the Flash Eurobarometer Survey on Entrepreneurship (2010).

By testing those hypotheses this thesis will generate new insights about the characteristics of entrepreneurs in general as well as of social entrepreneurs. As it will be shown in the empirical section, this thesis is successfully examining the relationship between entrepreneurs and their willingness to take risks compared to non-entrepreneurs. In addition this thesis is successful in the attempt to show various differences between social- and commercial entrepreneurs with respect to their willingness to take risks as well as the different types of risks or threats that they are afraid of.

The same regressions have been run using probit models as well. These results will not be discussed however, but are displayed in the appendix.

In the final section the results will be analyzed and conclusions will be drawn. Finally there will be a discussion about the limitations of this research and areas where further research is needed will be mentioned.

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[8] The literature review of this thesis will only look at the relationship between entrepreneurship and risk, not the other characteristics of entrepreneurship. A complete overview of the classic academic literature is beyond the scope of this thesis.

## 2. What is an entrepreneur?

„My own personal experience was that for ten years we ran a research center in entrepreneurial history, for ten years we tried to define the entrepreneur. We never succeeded. Each of us had some notion of it – what he thought was, for his purposes, a useful definition. And I don't think you are going to get farther than that."[9]

This first statement illustrates that there is no single valid definition of entrepreneurship and it mentions what will be done for this thesis as well, which is defining entrepreneurship in a way that fits the purpose of the following research.

In common language, being an entrepreneur is associated with starting a business.[10] A generally accepted but very broad definition of entrepreneurship is that entrepreneurs generally create something new and in that vein, entrepreneurship can be defined as the net result of individuals (in this case they would be called the entrepreneurs) that pursue entrepreneurial initiatives like the creation of new businesses.[11] Managers however can pursue entrepreneurial initiatives within their firm as well, so one possible way to be more precise in the definition of the entrepreneur is to differentiate between professional entrepreneurs and entrepreneurial professionals. There is a variety of academic studies that define the entrepreneur by making the distinction between the entrepreneur and the manager. Hartman (1959) defines the difference between the entrepreneur and the manager as based on their relationship to formal authority in the industrial organization. He states that "(…) the entrepreneur may justify his formal authority independently or he may describe it as delegated authority from others, notably from the stockholders. But within the organization he alone is the source of all formal authority. He may or may not decide to delegate part of this authority." Management is defined residually as "(…) not being the source of all authority. The borderline between the entrepreneur and the manager is thus relatively precise."[12] Collins and Moore (1970) made a distinction in their definition of the entrepreneur between so called organization builders who create new and independent firms (the actual

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[9] Cole (1969) p. 17.
[10] Dees (1998a), p. 1.
[11] Reynolds et al. (2005), p. 208.
[12] Hartman (1959), p. 451.

entrepreneur) and those who perform entrepreneurial functions in already established organizations.

Brockhaus (1980) defines the entrepreneur in his often cited study as "(…) a major owner and manager of a business venture who is not employed elsewhere. Such a definition allows for a more distinct comparison of the entrepreneur with the manager than would be obtained if managers with entrepreneurial-like positions were considered as entrepreneurs rather than managers." However, Brockhaus (1980) made no distinction between successful and unsuccessful entrepreneurship in his study.

This gap has been filled by Horrnaday and Aboud (1971) who defined the successful entrepreneur "(…) as a man or woman who started a business where there was none before, who had at least eight employees and who had been established for at least five years."[13] They chose these selection criteria because, according to them, the first five years are the most difficult when founding a new business and most unsuccessful ventures fail during that time period.

The variety of the presented theories and definitions illustrates the ambiguity of the definition of the entrepreneur and entrepreneurship. This thesis however will use the definition of entrepreneurship made by Reynolds et al. (2005). In his 2005 publication entitled "Global Entrepreneurship Monitor: Data Collection Design and Implementation 1998–2003", he makes the difference between "Potential Entrepreneurs", "Nascent entrepreneurs", "Young business owners" and "Owner-manager of an established firm". Therefore all persons that are or have been involved in the creation of new ventures are taken into account.[14] According to Reynolds et al. (2005)"(…) nascent entrepreneurs are individuals who have, during the last past 12 months, been actively involved in setting up a new business that they would own all or part of and had not paid any salaries or wages to anyone for more than three months. Young business owners are defined as individuals who are currently actively managing a new firm, personally own all or part of the new firm and the firms in question is not more than 3.5 years old."[15] Both nascent entrepreneurs and young business owners together form the total-early stage entrepreneurial activity (TEA). The owner-manager of an established firm is defined as somebody who is currently actively managing a firm, personally own all or part of the firm for more than 3.5 years. Figure 1 illustrates Reynolds et al. (2005) definition.

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[13] Hornaday, Aboud (1971), p. 143.
[14] Therefore entrepreneurs are defined as those individuals that are further in the entrepreneurial process than the "conception" stage illustrated in figure 1.
[15] Reynolds, P. et al. (2005), p. 209.

**Figure 1: The entrepreneurial process and definitions of the entrepreneur.**
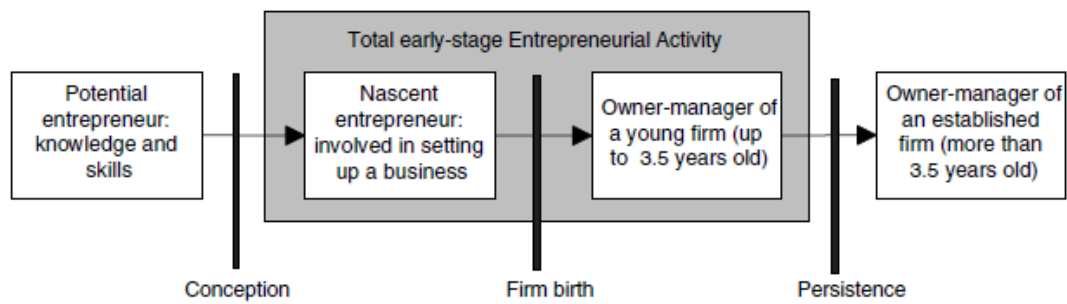


Source: Reynolds et al (2005), p. 209.

Therefore when talking about entrepreneurs, this thesis takes into account all individuals that have ever been involved in the creation of a new venture or are taking steps to start one. As figure 1 illustrates this thesis takes individuals into account that engage into entrepreneurship from the conception stage onwards.

## 3. Views on Entrepreneurship and Risk

### 3.1. Early thoughts on Entrepreneurship and Risk

### 3.1.1. Cantillon

The term "Entrepreneur" was first introduced by Richard Cantillon, a French economist from the early 18th century (1680 – 1734). In his publication "Essai sur la Nature du Commerce en Général" from 1755, he highlighted the importance of the entrepreneur as a contributor to society's economic value and he acknowledged that the entrepreneur fulfills an entrepreneurial function within the economic system he acts in and is a part of.[16]

Cantillon described three classes of economic actors:[17]

1. Financially independent landowners
2. Entrepreneurs that engage in market exchanges at their own risk
3. Hirelings or wage workers

Cantillon, being influenced by the times he lived in, placed the independent landowners at the top of his economic framework. A close examination of his work reveals the risk taking entrepreneur, who is directly involved in the process of market exchange and therefore equilibrating supply and demand, as a central actor. According to Van Praag (1999), "(…) the entrepreneurs accomplish their task by engaging in pure arbitrage. (…) Cantillon thus recognizes that arbitrage always involves uncertainty."[18] This uncertainty or risk is based on the fact that the entrepreneur is buying at a certain price and selling at an uncertain one. As a consequence the entrepreneur is facing an uncertain income which is not the case for the other two actors, the landowner who gets a fixed rent and the hireling who gets a fixed wage. Cantillon's entrepreneur, by engaging in the process of arbitrage, can therefore be described as having the economic function of a risk-bearer.[19]

The economic function, not the personal characteristics of the entrepreneur, is the central aspect of Cantillon's definition. Additionally he stressed that the entrepreneur has to have a certain alertness and be forward looking to successfully discover future business opportunities. The entrepreneurs as Cantillon sees them have to make constant use of their

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[16] Van Praag (1999), p. 313.
[17] Van Praag (1999), p. 313 and Hébert, Link (1988), p. 42.
[18] Van Praag (1999), p. 313.
[19] Cantillon (1755).

judgment skills and 'pay the price' if they make wrong decisions. We can conclude that risk-bearing is one of the central economic functions of Cantillon's entrepreneur. In addition, Cantillon's entrepreneur is, in contrast to other views, not required to be innovative. He is active in the equilibrating process of finding the balance between supply and demand, but he is not changing it. [20] [21]

### 3.1.2.    Say

Jean-Baptiste Say, a French economist who lived from 1767 – 1832 stressed the importance of the entrepreneur as a risk-bearer in his publication "A Treatise on Political Economy or the Production, Distribution and Consumption of Wealth". Say's entrepreneur however, is not necessarily involved in arbitrage like Cantillon's entrepreneur.[22]

Say describes the entrepreneur as a coordinator in production and distribution. This role can be exercised within the firm as well. Say is the first economist who stresses this managerial role for the entrepreneur. Compared to other classical economists, Say gives a very prominent position to the entrepreneur in the entire system of production and consumption. He extends the entrepreneurial function as defined by Cantillon."[23] Therefore we can conclude that Say, in contrast to Cantillon, gives the entrepreneur a managerial role. Say's entrepreneur combines existing materials and gives them utility they did not have before. According to Say (1971) three different sectors can create this added value or utility:

1.  The agricultural sector.
2.  The manufacturing sector.
3.  The commercial sector.

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[20] Various definitions of the entrepreneur as an innovator (e.g. Say, Schumpeter) will be discussed later in this thesis.
[21] In this context changing the balance between supply and demand would be achieved by creating demand that was not there before through the process of innovation.
[22] Say (1971)
[23] Van Praag (1999), p. 314.

Within these sectors different operations are taking place. According to Say (1971) these operations are:

1. Knowledge construction.
2. Knowledge application.
3. Execution.

Say states that "(…) the application of knowledge to the creation of a product for human consumption"[24] is the role of the entrepreneur. This statement again illustrates the managerial role the entrepreneur can have. In his firm, the entrepreneur can be viewed as the coordinator and manager of production and distribution. Say explicitly mentions the role of capital in his work, as he states:  "Not that he should be already rich; for he may work upon borrowed capital; but he must at least be solvent, and have the reputation of intelligence, prudence, probity, and regularity; and must be able by the nature of his connections, to procure the loan of capital he may happen himself not to possess."[25] Inevitably, due to the role of capital, the entrepreneur also becomes a risk-bear, or, as Say states, "(…) there is a chance of failure pertaining to any entrepreneurial activity, however well conducted. The entrepreneur may then lose fortune and in some measure his character."[26] Say's entrepreneur is therefore constantly confronted with risk and he or she has to be able to deal with it.

### 3.1.3.    Marshall

Alfred Marshall (1842 – 1924) can be considered as one of the founders of neoclassical economics.[27] In a nutshell, neoclassical economics is a term used for approaches that try to determine prices and outputs in markets by analyzing supply and demand. Often utility maximization of the individuals, with respect to rational choice theory, is used to do so. According to Clark (1998) the neoclassical frameworks dominate economics today. Simplified, the neoclassical framework uses the following basic assumptions:

1. People have rational preferences among outcomes that can be identified and associated with a value.

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[24] Say (1971), p. 330.
[25] Say (1971), p. 330.
[26] Say (1971), p. 331.
[27] Marshall (1890).

2. Individuals maximize utility and firms maximize profits.

3. People act independently on the basis of full and relevant information.[28]

The assumptions of the *modern* neoclassical framework, especially the assumption that individuals have complete information, make it very hard for entrepreneurs to even exist in the framework. Or as Baumol (1968) summarizes, "(…) obviously, the entrepreneur has been read out of the model. There is no room for enterprise or initiative. The model is essentially an instrument of optimality analysis of well-defined problems, and it is precisely such (very real and important) problems which need no entrepreneur for their solution."[29]

Nevertheless in Marshalls' "Principles of Economics" (1890) the entrepreneur played a significant role as a supplier of commodities and as an innovator.[30] In order to successfully do so, the entrepreneur needs, according to Marshall, a certain set of skills and ability. These abilities and skills include "(...) knowledge of the trade, power of forecasting, of seeing where there is an opportunity, and of undertaking risks.(…) to perform his role as an employer the entrepreneur should be a natural leader of men."[31]

We can conclude that Marshall acknowledged that the entrepreneur has to have the willing to "undertake risks" but unlike Cantillon's or Say's entrepreneur, risk taking does not seem to be a central function of the entrepreneur. It seems that "undertaking risk" is more a general ability the entrepreneur has to have in order to be successful but not an economic function that the entrepreneur is fulfilling. Like Say (1971), Marshall (1890) stresses the importance of the managerial role of the entrepreneur who has to have the ability to be a "natural leader of men".

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[28] E. Roy Weintraub. (2007). Neoclassical Economics. The Concise Encyclopedia Of Economics. Retrieved September 26, 2010, http://www.econlib.org/library/Enc1/NeoclassicalEconomics.html, Date Visited: 14.05.2011
[29] Baumol (1968), p. 67.
[30] Van Praag (1999), pp. 317 – 318.
[31] Marshall (1890), p. 298.

### 3.1.4. Knight

Frank Knight (1885 – 1972) was one of the most important economists of the early 20th century. In his 1921 publication, 'Risk, Uncertainty and Profit', he was the first to make a clear distinction between uncertainty and risk, and he argued that due to this uncertainty perfect competition would not eliminate all the profits.[32] [33] The 'Knightian Uncertainty', the differentiation between risk and uncertainty, is named after him.

He argued that "(…) uncertainty must be taken in a sense radically distinct from the familiar notion of risk, from which it has never been properly separated." [34] The term 'risk' as it is used in everyday language and in economic discussion stands for two different things that need to be looked at separately. 'Risk' is sometimes a quantity that can be measured, while at other times it is something completely immeasurable and unknown.

According to Knight (1921) it will appear that a measurable uncertainty or 'risk' is so different from an immeasurable one that it is not an uncertainty at all. Therefore there should be a differentiation between 'risk' and 'uncertainty'. Knight (1921) states that: "We shall accordingly restrict the term 'uncertainty' to cases of the non-quantitative type. It is this 'true' uncertainty, and not risk, as has been argued, which forms the basis of a valid theory of profit and accounts for the divergence between actual and theoretical competition."[35]

The entrepreneur as an economic actor has, according to Knight (1921), the function to bear this "true" uncertainty. Therefore Knight's view of the entrepreneur is close to Cantillon's entrepreneur who has the economic function of a risk-bearer as well. The difference is that Knight's entrepreneur bears a well defined 'true' uncertainty and not risk in general. He sees the entrepreneur as a very narrow class of producer. And the role of the producer is to forecast the consumers' wants and needs. In this forecasting lies the 'true' uncertainty.[36]

Knight (1921) goes even further by stating that the entrepreneurial ability of an individual is defined by how well a given individual is able to deal with this "true" uncertainty and that the entrepreneurial success is determined by it. As a consequence, the benefits of bearing this uncertainty finally accrue to society.[37] [38]

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[32] Knight (1921).

[33] Perfect competition is said to eliminate all the profits because it is assumed that perfect competition makes the producer lower the prices till prices = marginal costs. When the prices equal the marginal costs, all the profits are eliminated.

[34] Knight (1971), pp. 10 – 11.

[35] Knight (1971), pp. 10 – 11.

[36] Knight (1971), p. 121.

[37] Van Praag (1999), p. 323.

We can conclude that risk-bearing, or according to Knight, "true" uncertainty bearing is a central function of the Knightian entrepreneur. In addition, the difference in the capability and ability between individuals to bear this uncertainty is an important determinant of the success of a venture.

### 3.1.5. Schumpeter

Joseph Schumpeter (1883 – 1950) was an Austrian-American economist. Most of his ideas and contributions to the field of entrepreneurship can be found in his publication from 1911 "The Theory of Economic Development: An inquiry into profits, capital, credit, interest and the business cycle".[39] [40]

In a nutshell, Schumpeter's idea is that development can be regarded as a process where the actual status quo of the economy is destroyed or overthrown.[41] Schumpeter had the view that changes and innovation come from within the actual economic system.[42] According to Hébert and Link (1988) the entrepreneur "(…) is a key figure for Schumpeter because, quite simply, he is the persona causa of economic development. (…) Schumpeter made the entrepreneur into a mechanism of economic change. To Schumpeter, competition involved mainly the dynamic innovations of the entrepreneur."[43]

Schumpeter called this process of innovation, which is according to him the very reason of economic development, "creative destruction".

"In other words, development is a disturbance of the circular flow. It occurs in industrial and commercial life, not in consumption. It is a process defined by the carrying out of new combinations in production. It is accomplished by the entrepreneur."[44]

As a consequence, Schumpeter sees the entrepreneur primarily as an innovator and not as a risk-taker. According to Schumpeter the capital that is needed for the process of founding a business can be provided by other persons than the entrepreneur. If the entrepreneur uses his own capital, he is fulfilling two different roles. The entrepreneurial role and the capital

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[38] The first version was published in 1921. The version that is used for this thesis is from 1971.
[39] Van Praag (1999), p. 319.
[40] The 1911 publication was in German and entitled "Theorie der wirtschaftlichen Entwicklung". The english version that is used for this thesis was published in 1934.
[41] Schumpeter (1911).
[42] Hébert, Link (2006), p. 353.
[43] Hébert, Link (1988), p. 43.
[44] Hébert, Link (2006), p. 355.

providers role.[45] Schumpeter sees those two roles as two separated things and it is the capital giver who, in any case, bears the risk. This differentiation is crucial to understand the role that the Schumpetrian entrepreneur is fulfilling with respect to risk. Therefore the capital giver is the risk-bearer and the entrepreneur the innovator. Schumpeter goes as far as denying that the entrepreneur has a risk-bearing role.

The entrepreneurial process stops as soon as the individual stops innovating. Unlike Cantillon's, Say's, Marshall's and Knight's entrepreneur, the main economic function of Schumpeter's entrepreneur is therefore to function as a dynamic "change agent" and not a risk-bearer. Schumpeter's entrepreneur has a very important economic function as an innovator and leader of economic development. The entrepreneur is responsible for keeping the engine of economic growth running but he is only able to do that as long as he keeps on innovating. Therefore the entrepreneurial process is, according to Schumpeter, a temporary one that ends as soon as the entrepreneur stops innovating.[46]

### 3.1.6. Kirzner

Israel Kirzner (1930) is one of the leading economists of the Austrian School of thought.[47] Kirzner's most influential work has been conducted in the area of economics of knowledge and entrepreneurship. Especially his 1973 publication entitled "Competition and Entrepreneurship" is of importance for this thesis.

Kirzner (1973) focuses on what he calls "the alertness of the entrepreneur".[48] According to him, the entrepreneur has the talent to recognize profitable opportunities earlier than other individuals. He finds this alertness is what defines the successful entrepreneur. Kirzner (1973) states that the entrepreneur does not need to have a special set of abilities. The entrepreneur just has to be able to know where to look for the abilities that he needs, or as Kirzner states: "The kind of knowledge required for entrepreneurship is knowing where to look for knowledge".[49] This statement also implements that one does not need to own certain resources himself to be able to become an entrepreneur. One just needs to know where to look for the needed resources such as, for example, capital. Unlike the Schumpeterian entrepreneur who is not regarded as a risk bearer, Kirzner's entrepreneur bears some risk even though he is

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[45] Van Praag (1999), p. 321.
[46] Van Praag (1999), p. 322.
[47] The Austrian School is defined here as a school of economic thought that stresses the spontaneous organizing power of the price mechanism in the market.
[48] Kirzner (1973).
[49] Kirzner (1973), p. 68.

not necessarily supplying the capital himself like the Schumpeterian entrepreneur. He summarized the role and influence of risk by stating that: "The longer the time before the venture's required outlay can be expected to bring the hoped-for revenues, the less sure of himself the entrepreneur is likely to be. The entrepreneurial activity (…) undoubtedly involves uncertainty and the bearing of risk."[50]

We can conclude that Kirzner' sees the uncertainty or risk that the entrepreneur has to bear in the assessment of the profit opportunities.[51] The alertness with respect to profit opportunities is the central factor of Kirzner's entrepreneurial framework, therefore risk bearing that goes hand in hand with the described alertness, is also a central factor[52] because every profit opportunity is uncertain.[53] However, even if Kirzner does not deny that there is risk-bearing involved in the entrepreneurial function, risk-bearing does not play the central role in his entrepreneurial framework.

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[50] Kirzner (1973), p. 78.
[51] Van Praag (1999), p. 326.
[52] This statement is based on Kirzner's 1989 publication "Uncertainty, Discovery and Human Actions". In earlier publications Kirzner even denies the economic function of the entrepreneur as a risk-bearer.
[53] Hébert, Link (1988), p. 46.

### 3.1.7. Summary

Table 1 summarizes the importance and the role of the entrepreneur as a risk-bearer. This table is based on the publications of the authors that have been discussed in the previous section of this thesis.[54]

**Table 1: The entrepreneur as a risk-bearer in the classic literature**

| Author | Importance of risk-bearing |
|---|---|
| Cantillon | + + + + |
| Say | + + + |
| Marshall | + + |
| Knight | + + + + |
| Schumpeter | No risk-bearing function |
| Kirzner | + |

Based on: Cantillon (1755), Say (1971), Marshall (1890), Knight (1921), Schumpeter (1911) and Kirzner (1981).

Cantillon's and Knight's entrepreneurs have the central role to function as the risk-bearers in the economy. Therefore we can conclude that risk-bearing is of the highest importance in their frameworka because according to Cantillon and Knight, risk-bearing is the key function of the entrepreneur.[55]

Say's entrepreneur is a risk-bearer as well, but it is not his only economic function to do so because he also has a strong managerial component. For Say, risk-bearing is still very important but compared to Cantillon's and Knight's entrepreneur less of a key function. According to him, "(…) the application of knowledge to the creation of a product for human consumption"[56] is the key function of the entrepreneur.

Marshall acknowledged that the entrepreneur has to have the willing to "undertake risks" but it seems that "undertaking risk" is more a general ability the entrepreneur has to have in order to be successful but not an economic function that the entrepreneur is fulfilling.

Kirzner does not deny that risk-bearing is involved in the entrepreneurial process but it seems that for him risk-bearing is more an inevitable by-product that comes with uncertain profits.

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[54] The table is based on the academic literature but it still involves a subjective rating of the importance that risk-bearing plays in the presented theories.
[55] Van Praag, Bosma, De Wit (2000), p. 12.
[56] Say (1971), p. 330.

Schumpeter denies that the entrepreneur has a risk-bearing role. For him the entrepreneur is an innovator and not a risk-bearer. If the entrepreneur is bearing risk, he is not doing it as an entrepreneur, but because he is also fulfilling the role of the capital giver.

This summary illustrates that the function of risk has played an important role in theories on entrepreneurship, even in the earliest publications.

## 3.2. Recent thoughts on entrepreneurship and risk

Based on the presented classic publications, further theories have been developed in recent years and a variety of models have been constructed in the attempt to answer the question if an entrepreneur is really a risk-bearer and, specifically, if an entrepreneur is really less risk averse than other individuals like most of the authors suggest in their publications.[57]

Especially in the late 1970s, different models were developed that divide the available workforce into entrepreneurs and wage-earners. These models can therefore be described as occupational choice models under risk between two occupations.[58] [59]

The results that have been found, however, are ambiguous and could not clearly answer the question if the entrepreneur is really less risk-averse than a wage-earner. The following two sections of this thesis will give an overview of various studies of the two views, the risk-seeking and the risk-averse entrepreneur, in chronological order.

### 3.2.1. Theories, studies and models of risk-tolerant entrepreneurs

Kanbur (1979) constructed a model where the agent has two alternatives. He can either become a wage-earner in which case he supplies a unit of labor and receives the safe competitive wage, or he can become an entrepreneur. In his model, the entrepreneur is the manager of the production function, receiving the profit but also bearing the risk involved. The model assumes that "(…) entrepreneurial ability cannot be insured against, so that the entrepreneurial activity is always risky."[60] According to Kanbur's (1979) findings, the less risk-averse individual will engage in entrepreneurship.

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[57] The presented theories of the entrepreneur as a risk-bearer implement that the entrepreneur has to be less risk averse than the non-entrepreneur, otherwise he or she would not self-select themself to be entrepreneurs and bear the discussed risks.
[58] Van Praag, Cramer (2001), p. 46.
[59] This occupational choice, to be or not to be an entrepreneur, will be the basis for the analysis of the relationship between entrepreneurship and risk.
[60] Kanbur (1979), p. 773.

Based on the theories of Knight (1921), Kihlstrom and Laffont (1979) constructed a general equilibrium model in the same vein[61] as Kanbur (1979) to analyze how less risk-averse individuals become entrepreneurs. In their model, individuals are assumed to have a choice between operating a firm and therefore bearing risk or working for a fixed wage that does not involve risk-bearing. There are many factors that influence this choice like the ability of the individuals, labor skills, initial access to the capital required to create a firm and also the attitudes toward risk. In this context, the paper focuses on risk aversion as an important determinant which explains who becomes an entrepreneur and who decides to chose the fixed, riskless wage.[62] Kihlstrom and Laffont (1979) concluded that less risk-averse individuals become entrepreneurs, while the more risk-averse work as laborers.[63]

Gasse (1982) states, that there are differences in risk taking propensity between entrepreneurs and managers. He suggests that the entrepreneur is generally more risk-tolerant than the manager, because in contrast to the manager, the entrepreneur has to be willing to bear the direct and full responsibility for his decisions.[64]

Sexton and Bowman (1985) found in their study that entrepreneurs enjoy taking risks. They base their statement on a study where they compared different groups of business students and found that the results showed significant differences between entrepreneurship majors and other business students.[65]

Cramer et al. (2000) used a dataset on lottery risk behavior. They used the individuals' utility to measure absolute as well as relative risk-aversion of the individuals while controlling for other potential factors of self-employment. Cramer et al. (2000) find in their study evidence that clearly demonstrates that entrepreneurs are less risk averse than employees[66] and that risk-aversion discourages people from entrepreneurship.[67]

Stewart and Roth (2001) performed an analysis of 12 different studies that were published between 1980 and 1999. They showed in their meta-analysis that the risk-taking propensity of entrepreneurs is greater than that of managers.[68]

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[61] They also constructed an occupational choice model under risk, where an individual can choose between entrepreneurship and wage-employment.
[62] Kihlstrom, Laffont (1979), p. 720.
[63] Kihlstrom, Laffont (1979), p. 720.
[64] Gasse (1982), pp. 57 – 71.
[65] Sexton, Bowman (1985), p. 131.
[66] Cramer et. al (2000), p. 33.
[67] Cramer et. al (2000), p. 30.
[68] Stewart, Roth (2001), pp. 145–153.

Gentry and Hubbard (2001) went a step further by comparing entrepreneurs to the general population and suggest in their paper "Entrepreneurship and Household Saving" that entrepreneurs might have a higher risk-tolerance that the general population.[69]

Van Praag and Cramer (2001) developed a model to explain business formation and the labour demands of entrepreneurs. They state that an individual "(…) will become an entrepreneur if the expected rewards surpass the wages of employment, and the expected rewards depend on an assessment of individual ability and on risk attitude." In their study they found evidence that confirms the importance of the willingness to take risks.

Grilo and Thurik (2005) use the preference to be self-employed as a measure for entrepreneurial aspiration in their study. They find that the level of risk tolerance has a positive influence on this aspiration.[70]

Even if it seems that all those studies found rock-solid proof of the risk-seeking entrepreneur, the reality is not that clear cut. The next section will present various studies that found opposing results.

### 3.2.2. Theories, studies and models of risk-averse entrepreneurs

Brockhaus (1980) is one of the most cited studies when taking the point of view that entrepreneurs are not more risk-seeking than their counterparts. Brockhaus (1980) tested and compared the risk taking propensity of entrepreneurs and managers. He found that there is no significant difference between the two groups which shows that there is no difference in their risk taking propensity.[71] [72]

Miner and Raju (2004) conducted a meta-analysis of 14 studies that were not included in the study of Stewart and Roth (2001) that has been presented in the previous section of this thesis. Miner and Raju (2004) also compared the risk taking propensity of managers and entrepreneurs but came to a different conclusion than Stewart and Roth (2001). They concluded that entrepreneurs are more risk averse than managers and they draw the conclusion that the role of risk propensity in entrepreneurship remains unresolved.[73]

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[69] Gentry, Hubbard (2004), p. 10.
[70] Grilo, Thurik (2005), pp. 441 - 459
[71] Brockhaus (1980), p. 517.
[72] This might be because certain managers have almost entrepreneurial characteristics and a clear differentiation becomes difficult.
[73] Miner, Raju (2004), p. 1.

Xu and Ruef (2004) suggest that risk tolerance of the entrepreneur should be divided into strategic risk tolerance and non-strategic risk tolerance. They suspected that entrepreneurs might have a high strategic risk tolerance because: "Entrepreneurs actively prefer low probability, high payoff outcomes to satisfy their ends because their utility functions for pecuniary benefits are less concave than those of other actors."[74] [75] [76] The non-strategic risk tolerance is based on the definition of entrepreneurial bias by Ross and Staw (1986). This bias definition states that entrepreneurs might be more risk tolerant than wage-earners because they overestimate their startup success rate.[77] This is based on the observation that entrepreneurs tend to focus on successful startup stories while founding their own venture. This might lead to an overconfident estimation of startup success rates.[78] In addition the bigger the investment in the startup phase or process the higher the commitment of the entrepreneur. Based on those two observations there might be a vicious cycle that makes entrepreneurs seem more risk-tolerant compared to their non-entrepreneurial counterparts.[79]

However, after analyzing the reactions of 1261 nascent entrepreneurs, Xu and Ruef (2004) found that entrepreneurs are even more risk-averse than the general population when pursuing pecuniary benefits.[80] Their results implied that many of the reasons or motivations that a certain individual has to found a business are non-pecuniary. Their results even suggested that non-pecuniary benefits like identity-fulfillment and autonomy are more important for entrepreneurs than pecuniary benefits. As a consequence they concluded that in order to achieve these non-pecuniary benefits, the entrepreneur has to take a minimum of financial risks to keep the business running and to be in the position to pursue the individual non-pecuniary benefits. They state that:

"As long as the business survives and runs smoothly, the entrepreneur will be respected as a business owner in the community, will have personal autonomy and can fulfill various purposive goals associated with his or her identity. But if the entrepreneur takes large financial risks and fails, he or she may not have a second chance to restart a business to achieve those non-pecuniary goals. Hence, when non-pecuniary motivations are dominant,

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[74] Xu, Ruef (2004), p. 335.
[75] This is based on the concept of "absolute risk aversion" were the higher the curvature of the utility with respect to wage the higher the risk aversion.
[76] When they constructed their model they found no evidence that this is true. Their empirical evidence even suggested that nascent entrepreneurs are more risk averse than non-entrepreneurs.
[77] Ross, Staw (1986), pp. 274 - 297.
[78] Xu, Ruef (2004), p. 335.
[79] Xu, Ruef (2004), p. 335.
[80] Xu, Ruef (2004), p. 333.

entrepreneurs (…) should be even more risk-averse than the general population."[81] This statement from Xu and Ruef (2004) is based on the willingness to take risks with respect to financial decision making. It implies that when pecuniary benefits are involved, as it is said to be the case for entrepreneurs and especially social entrepreneurs, individuals are more afraid of financial risks.[82]

This illustrates the ambiguity of the results mentioned before and shows that there are various studies that find that entrepreneurs are more willing to take risks than non-entrepreneurs and studies that find the opposite. A variety of studies that find that entrepreneurs are not more willing to take risks base their results on studies where a comparison between managers and entrepreneurs has been made and they state that no significant differences have been found. Those studies should take into account that managers are often entrepreneurial and that entrepreneurs also often fulfill managerial roles which makes a comparison of the two really hard.

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[81] Xu, Ruef (2004), p. 336.
[82] This will later lead to the hypotheses H5, H6 and H7.

## 4. Views on social entrepreneurship and risk

### 4.1.     What is social entrepreneurship?

As shown in section 2 of this thesis, it is very difficult to define entrepreneurship and the entrepreneur. Taking into account the 'social' part does not make it any easier or clearer.

Firstly, it is necessary to distinguish between the venture and the people behind it. According to Mair and Martis' (2005) definition, social entrepreneurship typically refers to a process or behavior. The definitions of social entrepreneurs focus on the founder of the venture and the definitions of the social enterprise refer to the tangible outcome of social entrepreneurship.[83]

Social entrepreneurship and social entrepreneur combines two ambiguous words that mean different things to different people.[84]  According to Dees (1998), many associate social entrepreneurship "(…) exclusively with not-for-profit organizations starting for-profit or earned-income ventures. Others use it to describe anyone who starts a not-for-profit organization. Still others use it to refer to business owners who integrate social responsibility into their operations."[85]

Many authors (see Table 2 of the appendix for a full overview) use the motive and the goal of the entrepreneur to define social entrepreneurship. While commercial entrepreneurs are often said to be driven by profits (e.g. the presented theories of Knight, Schumpeter and Kirzner) and their success measured by financial returns, social entrepreneurs often espouse both social and economic goals in pursuing a particular opportunity.[86]

Zahra et al. (2009), propose based on the various theories presented in Table 2 of the appendix, that a definition of social entrepreneurship should take into account both economic and social considerations. They "(…) propose the broader term "total wealth" as a standard to evaluate those opportunities and organizational processes related to social entrepreneurship." To them "(…) "total wealth," has tangible (e.g., products, clients served, or funds generated) and intangible outcomes such as wealth, happiness and general well-being."[87]

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[83] Mair, Marti (2005), p.3.
[84] Mair, Marti (2004), p. 3; Dees (1998a), p. 1
[85] Dees (1998a), p. 1.
[86] Zahra et al. (2009), pp. 520 – 521.
[87] Zahra et al. (2009), p. 522.

Thus, Total Wealth (TW) = Economic Wealth (EW) + Social Wealth (SW).

Where

EW = Economic Value (EV) − Economic Costs (EC) − Opportunity Costs (OC)
SW Social Wealth = Social Value (SV) − Social Costs (SC).

As a result we get **TW = EV + SV − (EC + OC + SC)**

This definition takes the social and the economic part of social entrepreneurship into account and allows for the broad definition: "Social entrepreneurship encompasses the activities and processes undertaken to discover, define, and exploit opportunities in order to enhance social wealth by creating new ventures or managing existing organizations in an innovative manner."[88]

This approach where economic and social aspects are taken into account is called the "double bottom line", placing social and economic dimensions on an equal footing.[89]

Short, Moss and Lumpkin (2009) go one step further by stating that social entrepreneurship is where we can observe an overlap between the non-profit sector, entrepreneurship and social issues in management. Austin Stevenson and Wei-Skillern (2006) definition of social entrepreneurship as innovative activities that create social value within or across government, business, or non-profit sectors fits within this view. In summary, it seems that social value is created by the willingness of entrepreneurs and non-profit firms to exploit opportunities to solve social or ecological problems and contribute to human well-being.[90]

However, other definitions shown in Table 2 in the appendix suggest that social entrepreneurs are strongly motivated to achieve social goals. These definitions focus on the creation of social wealth or the resolution of certain social problems and leave the economic aspect more or less out of the picture. According to Zahra et al. (2009) "(…) most existing definitions imply that social entrepreneurship relates to exploiting opportunities for social change and improvement, rather than traditional profit maximization."[91]

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[88] Zahra et al. (2009), p. 522.
[89] Zahra et al. (2009), p. 522.
[90] Short J. C., Moss T. W., Lumpkin G. T. (2009), p. 172.
[91] Zahra et al. (2009), p. 521.

For this thesis the definition of Mair and Marti (2005) will be used because it allows a clear focus on entrepreneurship that tries to address an unmet social- or ecological need. They view social entrepreneurship as a process involving the innovative use and combination of resources to pursue opportunities to catalyze social change and / or address social needs.

As this definition illustrates, social entrepreneurship shares the value creating aspect with commercial entrepreneurship. The main difference between the two, however, is that the focus of social entrepreneurship is on the motivation and the creation of social values, "(...) while economic value creation is seen as a necessary condition to ensure financial viability."[92]

## 4.2. Social entrepreneurship and risk

As stated earlier, the area of research that takes a close look at social entrepreneurship is rather new and we don't know much about the characteristics of the social entrepreneur yet. Empirical studies that look exclusively at the relationship between social entrepreneurs and risk are scarce.[93] Therefore there are very few theories available that try to explain or examine this relationship.

However, by using the definition of social entrepreneurship that focuses on the motivations of the venture-creating individuals and with respect to the creation of social values and the few available studies, some remarks can be made.

Xu and Ruef (2004) suggested that in order to achieve non-pecuniary goals, the entrepreneur has to take a minimum of financial risks to keep the business running and to be in the position to pursue non-pecuniary benefits. As mentioned earlier, they state that as long as the business survives, the entrepreneur can pursue non-pecuniary benefits that he or she considers to be important. On the other hand, if the entrepreneur takes financial risks and fails, he or she may not be able to pursue those non-pecuniary goals anymore. Hence, when non-pecuniary goals are important, the entrepreneurs should be even more risk-averse than the general population. The definition of social entrepreneurship fits the entrepreneur that is looking for non-pecuniary benefits as described by Xu and Ruef (2004) and this implies that the social entrepreneur is more risk-averse than the commercial entrepreneur when making financial decisions.[94]

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[92] Mair and Marti (2005), p. 6.
[93] As stated earlier, this is no longer the case. The paper written by Hoogendoorn, Van der Zwan and Thurik (2011) is not published yet.
[94] This will later lead to H5, H6 and H7.

Weerawardena and Mort (2006) also state, that social entrepreneurs look for innovative ways to assure that their ventures will have access to resources as long as they are creating social value.

They name the following reasons for this observation:

1. The social entrepreneurs have no access to multiple sources of funding like commercial entrepreneurs have.
2. Social entrepreneurs are heavily constrained in generating own funds for their operations.
3. The revenues come from diverse sources such as client fee for services, government grants, donations, sponsorships and there is great uncertainty associated with government funding, and increased competition for the donor dollar.
4. Social entrepreneurs find it difficult to forecast their revenue streams with a certain degree of accuracy.
5. Once a resource commitment is made there is no possibility of revoking that commitment.[95]

This goes hand in hand with the interest to keep the business running smoothly without taking financial risks mentioned earlier in this thesis. It is Weerawardena and Morts (2006) observation, that based on the unique financial situation of the social entrepreneur "(…) the aspect of (financial) risk position social entrepreneurs clearly away from for-profit entrepreneurs."[96]

The view of Weerawardena and Mort is shared by Dees (2001) who agrees that social entrepreneurs are "(…) faced with rising costs, more competition for fewer donations and grants, and increased rivalry from for-profit companies entering the social sector, nonprofits are turning to the for-profit world to leverage or replace their traditional sources of funding."[97]

However, one could think that individuals that are willing to engage in social entrepreneurship despite all the described difficulties have to be more willing to take risks

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[95] Weerawardena, Mort (2006), p. 29.
[96] Weerawardena, Mort (2006), p. 29.
[97] Dees (2001), p. 55.

than their commercial counterparts. The argument is that in order to engage in social entrepreneurship a higher risk tolerance is needed in order to successfully deal with the difficulties linked to the unique characteristics of social entrepreneurship and the developments that can be observed in social entrepreneurship that have been described earlier such as increased competition and fewer available funds. It is possible to think, that individuals who engage in social entrepreneurship are more willing to take risks or have a higher tolerance for risk but are more afraid of threats that endanger or interfere with their social mission, like financial risks, because this mission is of such importance for them. However, there are very few studies that test those assumptions.[98]

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[98] Hoogendoorn, Van der Zwan, Thurik (2011), p. 6.

## 5. Formulation of hypotheses

Based on the presented theories and assumptions, a variety of hypotheses are formulated that examine the relationship between social entrepreneurship, entrepreneurship and risk. These hypotheses will be tested in the next section of this thesis.

In order to make a contribution to answer the question if entrepreneurs are really more likely to be willing to take risks compared to non-entrepreneurs the following hypotheses will be tested.

*H1: Entrepreneurs are more likely to be willing to take risks than non-entrepreneurs.*

In a second step, two factors that are suspected to be the drivers of willingness to take risks in the entrepreneurial context will be analyzed. Those drivers are tested because they represent possible non-pecuniary and pecuniary benefits of entrepreneurship that have been mentioned in the previous section of this thesis. Therefore H2 and H3 will test those suspected drivers.

*H2: Entrepreneurs who have a preference for self-employment because of the personal independence, self-fulfillment or the task that they believe entrepreneurship offers them, are more likely to be willing to take risks than entrepreneurs who have a preference for self-employment because of other reasons.*

*H3: Entrepreneurs who have a preference for self-employment because of the better income prospects that they believe entrepreneurship offers them, are more likely to be willing to take risks than entrepreneurs who have a preference for self-employment because of other reasons.*

According to the academic literature that has been discussed there are differences between social- and commercial entrepreneurs. The main goal of this thesis is to test if these two types of entrepreneurs differ in their willingness to take risks. This thesis will therefore not only look at the differences between entrepreneurs and non-entrepreneurs, but also focus on differences between different groups of entrepreneurs. This will be tested in two different ways.

In a first step there will be a test if there are significant differences in the willingness to take risks and in a second step this thesis will make an attempt to test how exactly those differences look like. This will be done to answer the following hypothesis:

*H4: Social entrepreneurs are more willing to take risks than commercial entrepreneurs.*

H4 suggests that there is a suspected higher willingness to take risks among social entrepreneurs. However as it has been discussed in the previous section of this thesis, social entrepreneurs seem to be very interested in keeping their venture on track and running because the social mission is very important to them and they do not want to endanger this mission. This might implement that social entrepreneurs are more afraid of specific risks that endanger their social mission or at least that makes them feel that their social mission is endangered. Based on the study of Xu and Ruef (2004) this thesis will test how financial factors affect social entrepreneurs. It is possible that even if social entrepreneurs are more willing to take risks than commercial entrepreneurs, they might still be more afraid of specific (e.g. financial) threats that endanger their social mission than commercial entrepreneurs. Therefore the following hypotheses, with respect to those specific threats, will be tested.

*H5: Social entrepreneurs are more afraid of losing their property than commercial entrepreneurs.*

*H6: Social entrepreneurs are more afraid of the risk of personal failure than commercial entrepreneurs.*

*H7: Social entrepreneurs are more afraid of going bankrupt than commercial entrepreneurs.*

## 6. Empirical research

### 6.1.        Data

In order to test the formulated hypotheses the Flash Eurobarometer Dataset 2010 will be used. The Flash Eurobarometer Data is a survey on entrepreneurship. More precisely, it is about the people's entrepreneurial mindset. The questionnaire tries to examine the motivation, choices, experiences and obstacles linked to self-employment. The results of previous surveys have helped EU policy makers to understand problems and develop future policy responses.

The 2010 survey is based on data from interviews with 26,168 persons in 36 countries. The survey includes the EU27, the EEA / EFTA countries (Norway, Iceland, and Switzerland), Turkey, and Croatia. As in the past, the United States of America was also covered by the survey. For the first time, countries from Asia (Japan, South Korea and China) were also included in the Eurobarometer Dataset.

The main advantage of this dataset is that it focuses on the individual-level and contains the detailed answers of the interviewed persons to a variety of questions linked to their employment status. This allows a close look at specific areas of interest concerning the individual level and offers the possibility to differentiate between  groups of individuals within the dataset as well.

The exact questions of the Flash Eurobarometer questionnaire 2010 that have been used for the empirical part of this thesis can be found in the Empirics Part 1 of the Appendix.

In the next section of this thesis, the variables that are necessary to test the formulated hypotheses are presented. The exact methodology that will be used is presented afterwards.

### 6.2. Dependent variable

### 6.2.1. Willingness to take risks

Based on the data, willingness to take risks is defined by question D10a of the Flash Eurobarometer questionnaire 2010. The individuals who have answered this question had to say if they strongly agree, agree, disagree or strongly disagree with the statement: 'In general, I am willing to take risks'.[99] Table 3 gives an overview of the answers that have been given to this question.

**Table 3: Distribution of the dependent variable "Willingness to take Risks"**

| Answer | Frequency | Percent |
|---|---|---|
| Strongly Agree | 3,882 | 14.83 |
| Agree | 11,662 | 44.57 |
| Disagree | 8,000 | 30.57 |
| Strongly Disagree | 2,053 | 7.85 |
| DK/NA | 571 | 2.18 |
| Total | 26,186 | 100 |

As mentioned before, the focus of this thesis is to explain the differences of the willingness to take risks between entrepreneurs and social entrepreneurs and, in addition, to identify drivers that influence the willingness of the individuals to take risks. "Willingness to take Risks" has been selected as the dependent variable, for the reason that this variable is consistent with the main focus of this paper, that is, explaining the differences in risk taking propensity between different types of entrepreneurs.

Individuals have to give an answer to what extent they are willing to take risks. This question has been asked to all individuals who have been interviewed for the Flash Eurobarometer Dataset. These individuals have to consider whether they "Strongly Agree", "Agree", "Disagree", or "Strongly Disagree" with the statement "In general, I am willing to take risks". Therefore this variable can be considered as a factual observation of an entrepreneurs' "Willingness to take Risks".

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[99] The exact question can be found in the Empirics Part 1 of the Appendix.

In order to be able to use this variable for the regression that will be conducted later in this thesis it was necessary to recode the variable into the value "1" in case the individuals have stated "Strongly Agree" and "Agree", – and the value "0" if the individuals "Disagree" or "Strongly Disagree", hence the individuals are not willing to take risks. The 571 individuals that have answered DK / NA have been eliminated from the dataset. Table 4 provides an overview of the new, recoded variable that will be used for the regressions to test the formulated hypotheses.

**Table 4: Dependent variable "Willingness to take Risks" after the transformation**

| Willing to take Risks | Number of Observations |
|---|---|
| **0** | 10,053 |
| **1** | 15,544 |

### 6.2.2. Social entrepreneurs and commercial entrepreneurs

In order to define Social Entrepreneurs the same way that it has been done in the literature review of this thesis, question 11f of the questionnaire will be used. For this thesis, the publication of Mair and Marti (2005) has been used to define the social entrepreneur. This definition allows a clear focus on entrepreneurship that tries to address an unmet social- or ecological need. They view social entrepreneurship as a process involving the innovative use and combination of resources to pursue opportunities to catalyze social change and / or address social needs. Question 11f of the Flash Eurobarometer questionnaire reflects this definition.

Individuals who have been involved in starting a business had to give an answer to the question to what extent "Addressing an unmet social or ecological need" was of importance when they founded their venture.

This question has been asked to all individuals who have been interviewed for the Flash Eurobarometer Dataset. These individuals have to consider whether it was "Very Important", "Rather Important", "Rather not Important", or "Not Important at all" while founding their venture. Therefore, this variable can be considered as an observation of the importance of social change and / or social needs.

2,441 individuals have stated that is was "Very Important" for them, 3,494 individuals stated it was "Rather Important", 1,958 answered it was "Rather not Important" and for 1,135 individuals it was "Not Important at all". 999 individuals answered "DK / NA" to this

question. These 999 observations have been eliminated from the dataset. Table 5 provides an overview of the distribution of the answers to this question.

**Table 5: Distribution of the variable "Addressing an unmet social- or ecological need"**

| Answer | Frequency | Percent |
|---|---|---|
| Very Important | 2,441 | 24.34 |
| Rather Important | 3,494 | 34.85 |
| Rather not Important | 1,958 | 19.53 |
| Not Important at all | 1,135 | 11.32 |
| DK/NA | 999 | 9.96 |
| Total | 8,892 | 100 |

In order to be able to use this variable for the regression that will be conducted later in this thesis it was again necessary to recode the variable into the value "1" in case the individuals have stated "Very Important" and "Rather Important" – and the value "0" if the individuals stated "Rather not Important" or "Not Important at all", hence the individuals are not socially or ecologically motivated at all. By doing so it is possible to stress the importance of "addressing an unmet social or ecological need" for the social entrepreneur and define the social entrepreneur according to the presented theory.

In the theoretical part of this thesis it has been stated that financial criteria are the main motivational factors that push or pull an individual into commercial entrepreneurship. As opposed to the social entrepreneur, the main reason is not to "address an unmet social or ecological need". Therefore the commercial entrepreneurs are represented by the value "0". The 999 individuals that have answered DK / NA have been eliminated from the dataset.

Table 6 provides an overview of the new, recoded variable that will be used for the regression.

**Table 6: Dependendent variable "Social Entrepreneurs" after the transformation**

| Social Entrepreneurs | Number of Observations |
|---|---|
| 0 | 3,093 |
| 1 | 5,935 |

### 6.3. Independent variables

### 6.3.1. Entrepreneurs

Individuals have to give an answer to question 8 of the questionnaire asking "Have you ever started a business or are you taking steps to start one?" This question has been asked to all individuals who have been interviewed for the Flash Eurobarometer Dataset. These individuals could answer "Yes", "No" or "DK/NA". This definition of the entrepreneur is consistent with Reynolds et al.'s (2005) definition earlier in this thesis in the "What is an Entrepreneur?" section. By using this definition it is possible to take into account the total early-stage entrepreneurial activity as well as the existing, established ventures from the conception stage onwards. This definition of the entrepreneur includes retired individuals as well. The justification for this is that an individual might keep certain entrepreneurial characteristics and keep his attitude towards risk even if he or she is not working anymore.

6,613 individuals have answered this question with "Yes", 19,353 have answered "No" and 202 individuals have answered "DK / NA". These 202 observations have been eliminated from the dataset. In order to be able to use this variable for the regression that will be conducted later in this thesis it was necessary to recode the variable into the value "1" in case the individuals have stated "Yes", – and the value "0" if the individuals stated "No". Table 7 provides an overview of the new, recoded variable that will be used for the regressions. This definition is consistent with the presented definition of entrepreneurship earlier in this thesis.

**Table 7: Independendent variable "Entrepreneurs" after the transformation**

| Entrepreneurs | Number of Observations |
|:---:|:---:|
| 0 | 19,353 |
| 1 | 6,613 |

### 6.3.2. Social entrepreneurs and commercial entrepreneurs

Some models constructed for this thesis make use of the definition of social- and commercial entrepreneurs as an independent variable. In this case, the definition and transformation of social entrepreneurs will not be the same as if it is a dependent variable. The models that use social entrepreneurship as an independent variable are the ones that are analyzing the willingness to take risks of social entrepreneurs and for these purposes a stricter definition of social entrepreneurs will have a bigger explanatory power. Again "addressing an unmet social or ecological need" is used to define social entrepreneurs. This time however, only the 2,441

individuals have stated that is was "Very Important" for them, are considered to be social entrepreneurs. This stricter definition allows for a clearer statement about the willingness to take risks of individuals who stated that the social- or ecological mission was very important to them. Table 8 provides an overview of the distribution of the answers to this question.

**Table 8: Independent variable "Social Entrepreneurs" after the transformation**

| Social Entrepreneurs | Number of Observations |
|---|---|
| **0** | 6,587 |
| **1** | 2,441 |

### 6.3.3. Drivers of willingness to take risks

To find out about the drivers of individuals that make them more willing to take risks, question 3 of the questionnaire is used. This question has been asked to all the individuals who have stated that they prefer to be self-employed rather than employed, therefore expressing their preference for self-employment. Because this question has been asked to all the individuals who have a preference for self employment the individuals who are not engaged in entrepreneurship need to be ruled out of the dataset. Based on the formulated hypotheses this thesis will examine the role that answer 3a) has on the willingness to take risks as well as answer 3c). In order to exclude people that are not engaged in entrepreneurship, only people that have answered question 8 with "yes" are taken into account.

Individuals that have answered question 3 with a) express that they have a preference for self-employment because they are looking for personal independence, self-fulfillment or an interesting task. Those individuals are assigned the value "1", their counterparts the value "0". Individuals that have answered question 3 with c) express that they have a preference for self-employment because of better income prospects. Those individuals are assigned the value "1", their counterparts the value "0". Table 9 gives an overview of the two variables after the transformation.

**Table 9: Independendent variables "Drivers" after the transformation**

| Independence/Fulfilment/Task | Number of Observations |
|:---:|:---:|
| 0 | 3,829 |
| 1 | 2,996 |
| **Income Prospects** | **Number of Observations** |
| 0 | 9,221 |
| 1 | 863 |

### 6.3.4. Types of risks

In order to analyze the different types of risk, parts of question 14 of the Flash Eurobarometer dataset will be used. The parts of the question that will be used are the questions concerning the loss of property, the risk of a personal failure, and the risk of bankruptcy. If a type of risk concerns the individual, the value "1" is assigned, if it does not concern the individual, the value "0" is assigned. Individuals had to make a first choice and a second choice when they answered this question. For this thesis only the answer they gave for their first choice will be used because it reflects what they are most afraid of.

**Table 10: Independent variables "Types of Risks" after the transformation**

| Loss of Property | Number of Observations |
|:---:|:---:|
| 0 | 21,823 |
| 1 | 4,345 |
| **Risk of a personal Failure** | **Number of Observations** |
| 0 | 23,912 |
| 1 | 2,256 |
| **Risk of going bankrupt** | **Number of Observations** |
| 0 | 19,554 |
| 1 | 6,614 |

### 6.4. Control variables
**Gender**

Women are commonly stereotyped as being more risk averse than men in specific circumstances such as financial decision making.[100] Entrepreneurship, taking place in a competitive business environment, consists of a variety of financial decisions. For this reasons the model will control for the effect of gender. To be precise, a "male" dummy variable is introduced, taking the value "1" in case the individuals' gender is male and the value "0" if the individual is a female.

**Age**

It is a common assumption that risk-aversion increases with age. Morin and Suarez (1983) stated that there is a direct relationship between the two. In this thesis, age will be accounted for by building dummy variables for six different age categories. By doing so, it is possible to take age directly into account and to also get some results as to what extent age influences the willingness to take risks.

The model will separately control for individuals between the age of 15–25, 26–35, 36–45, 46–55, 56-65 and the age group of 66–97 will be used as the reference category. Therefore the results of the displayed age categories have to be interpreted relative to the age category 66–97.

**Perceived Income**

Wealth is an important factor when looking at the willingness to take risks. Morin and Suarez (1983) controlled for income when they examined the relationship between age and willingness to take risks. They found that households with high income are more willing to take risks than low income households. In order to control for the perceived income, the model will use question D9 of the questionnaire to create different income categories. The income category "medium" will be used as the reference category. Therefore the results of "high" and "low" have to be interpreted relative to "medium". Table 11 shows how the variable has been transformed.

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[100] Fehr-Duda, De Gennaro, Schubert, R. (2006), p. 283.

**Table 11: Control variable "Perceived Income"**

| Perceived Income | Statement |
| --- | --- |
| High | Live comfortably on the present income. |
| Medium | Get by on the present income. |
| Low | Find it difficult to manage on the present income. & Find it very hard to manage on the present income. |

### Countries

In addition to gender, age, and perceived income, there might be cultural drivers that have an important effect on the willingness to take risks. For this reasons we will introduce country dummies for the 36 countries that can be found in the Flash Eurobarometer dataset in order to control for the country effects as a proxy for the cultural effects.

The cross country differences in willingness to take risks are not the central focus of this thesis and the results will not be shown. It is however important to control for the country effects because of the importance of cultural effects when examining social entrepreneurship and the willingness to take risks. All models used in this thesis control for this country effects and the Netherlands are used as the reference category.

### 6.5.    Methodology

As this thesis examines if one defined group (entrepreneurs and non-entrepreneurs as well as social entrepreneurs and commercial entrepreneurs) is more likely to be willing to take risks than the comparison group, models that can predict the probability of occurrence, therefore showing which group is more likely to be willing to take risks, are the right choice. The proper model to explain the relationship between a binary dependent variable and one or more binary independent variables, as is needed here after the shown transformations, is a binary logistic regression model. The binary logistic regression model is able to predict the probability of occurrence, the odds ratio, between the defined variables. The odds ratio is defined as:

Odds Ratio = Prob. of the event happening / Prob. of the event not happening[101]

The odds ratio that is obtained by using the binary logistic regression has to be interpreted in terms of the odds change. If the value of the odds ratio is $> 1$, this means that if the independent variable increases, the odds of occurrence of the dependent variable increases. A value of $< 1$ on the other hand indicates, that as the independent variable increases, the odds of the dependent variable occurring decrease.[102]
There are other models, like the probit model, that could be used in this case, but the interpretation of the results of the binary logistic regression model fit the context of this thesis well.

The assumptions and critical points of the binary logistic regression are all met. Those assumptions and points are:[103]

- No multicollinearity.
- Sample size.
- Linearity.
- Independence of errors.

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[101] Field (2009), p. 271.
[102] Field (2009), p. 288.
[103] Field (2009), p. 273.

Multicollinearity in logistic models is based on high correlations between the variables. The correlation table in the Empirics Part 2 of the appendix shows the absence of multicollinearity.

Binary logistic regression model have sample size requirements as they use maximum likelihood estimations that rely on large-sample asymptotic normality. The rule that has been applied here is that the number of observations divided by the number of independent variables should be at least 20.[104] Model 1b, the model with the smallest amount of observations still uses 5921 observations and 46 independent variables (including the 36 country dummies). This gives a higher number than 20.

According to Field (2009), "(…) the assumption of linearity in binary logistic regression assumes that there is a linear relationship between any continuous predictors and the logit of the outcome variable."[105] This assumption has been tested by looking at the significance of the interaction term between the independent variable and its log transformation.[106]

The assumption of the independence of errors is the same as it is for ordinary last square regression. In order for this assumption to be fulfilled, the data is not allowed to be related, "(...) for example, you are not allowed to measure the same people at different points in time"[107], which is not the case here.

In addition to the binary logistic regression that will be used to test H1, H2, H3, H5, H6, H7 and H8 this thesis will make use of the ordered logistic regression to test H4. The ordered logistic regression allows that the willingness to take risk can be analyzed by leaving it in its order from 1 − 4 and to analyze the probability that a social entrepreneur gives a certain answer. This is not possible with the binary logistic regression that only allows the dependent variable to take the value 1 or 0.

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[104] Harrell (2001).
[105] Field (2009), p. 273.
[106] Field (2009), p. 273.
[107] Field (2009), p. 273.

## 6.6. Results

### 6.6.1. Entrepreneurs and risk

The results of the first model, the binary logistic regression of entrepreneurship on the willingness to take risks, are displayed as odds ratios. As Table 12 shows, the results are clear and significant. All the variables, except the perceived income low, are significant at the 1% level. The model shows, that entrepreneurs are significantly more likely to be willing to take risks than non-entrepreneurs. The odds ratio of 1.927 is significant on the 1% level. This odds ratio has to be interpreted like it has been shown before.

1.927 = Prob. of the event happening / Prob. of the event not happening

This means, that an entrepreneur is almost twice (by the ratio of 1.927) as likely to be willing to take risks compared to his counterpart, the non-entrepreneur. The other odds rations in the results section can be interpreted in the same way.

Therefore, according to this model, *H1: Entrepreneurs are more likely to be willing to take risks than non-entrepreneurs* is supported.

Another very interesting finding is that males are significantly more likely to be willing to take risks than females.

As it has been explained earlier in this thesis, the perceived income categories have to be interpreted relative to the income category "medium" which is not displayed in Table 11. The results suggest that individuals' who perceive their income to be high, are more willing to take risks than individuals who can be found in the medium category. Intuitively this makes sense because only individuals who have capital are willing to take risks with it. The variable perceived income low is not significant and no statement about the influence on the willingness to take risks can be made.

When looking at the five different age categories that are displayed in Table 12, another interesting result can be found. The results suggest that all age categories have a significant effect on the willingness to take risk but that the odds ratio gets smaller the older the individuals are. In other words, the younger an individual is, the more likely he or she is to be willing to take risks. The displayed results have to been seen relative to the age category 66 – 97 which has been used as the reference category. This is also the reason why all the odds

rations are > 1 but getting smaller the higher the age category. This result is in line with what you would suspect when looking at the influence that age has on the willingness to take risks. As it has been mentioned in the control variable section of this thesis, the differences in the willingness to take risk between countries is not the main focus of this thesis and therefore the results are not displayed. Nevertheless, all the models are controlled for country effects. The results are displayed by using odds ratios and they are similar through the whole research and can be found in the appendix under Empirics Part 2, Model 1a. The differences between the country dummies that are displayed in the appendix are a confirmation of the expected cultural effects and serve as a justification that all models are controlled for the country effects. Through the whole research the USA is the country where the individuals are the most likely to be willing to take risks and Japan is always among the countries where the individuals are the least likely to be willing to take risks.

**Table 12: Binary logistic regression of entrepreneurship (1 = Entrepreneurs, 0 = Non-entrepreneurs) on the willingness to take risks. Odds ratio for the binary logistic regression is displayed, together with the standard errors.**

_____

| Independent Variable | Odds Ratio | | SE | | |
|---|---|---|---|---|---|
| Entrepreneur | 1.927 | *** | 0.065 | | |
| | | | | | |
| Control Variables | Odds Ratio | | SE | | |
| Male | 1.373 | *** | 0.039 | | |
| Per. Income High | 1.223 | *** | 0.045 | | |
| Per. Income Low | 0.970 | | 0.031 | | |
| Age 15 - 25 | 3.565 | *** | 0.199 | | |
| Age 26 - 35 | 2.110 | *** | 0.109 | | |
| Age 36 - 45 | 1.686 | *** | 0.074 | | |
| Age 46 - 55 | 1.520 | *** | 0.064 | | |
| Age 56 - 65 | 1.187 | *** | 0.050 | | |
| | | | | | |
| Number of obs. | 24'547 | | | LR chi2 (44) | 2419.85 |
| Pseudo $R^2$ | 0.0735 | | | Prob. > chi2 | 0.000 |

_____

Dependent variable: "In general, I am willing to take risks".

Variable takes the value ''1'' if Strongly Agree / Agree is answered; it takes the value ''0'' if Disagree / Strongly Disagree is answered.

*** denotes significance at the 1%; ** at the 5%; * at the 10% level.

### 6.6.2. Drivers of willingness to take risks

To test *H2: Entrepreneurs who have a preference for self-employment because of the personal independence, self-fulfillment or the task that they believe entrepreneurship offers them, are more likely to be willing to take risks than entrepreneurs who have a preference for self-employment because of other reasons* as well as *H3: Entrepreneurs who have a preference for self-employment because of the better income prospects that they believe entrepreneurship offers them, are more likely to be willing to take risks than entrepreneurs who have a preference for self-employment because of other reasons* a binary logistic regression model will be used. The results of the regression can be found in Table 13.

**Table 13: Binary logistic regression of the drivers of risk-taking on the willingness to take risks. Odds ratio for the binary logistic regression is displayed, together with the standard errors.**

_____

| *Independent Variable* | *Odds Ratio* | | *SE* | | |
|---|---|---|---|---|---|
| Independence/s-f/task | 1.602 | *** | 0.103 | | |
| Income prospects | 1.381 | *** | 0.134 | | |
| | | | | | |
| *Control Variables* | *Odds Ratio* | | *SE* | | |
| Male | 1.409 | *** | 0.087 | | |
| Per. Income High | 1.099 | | 0.088 | | |
| Per. Income Low | 1.036 | | 0.075 | | |
| Age 15 - 25 | 3.303 | *** | 0.444 | | |
| Age 26 - 35 | 2.596 | *** | 0.192 | | |
| Age 36 - 45 | 1.960 | *** | 0.183 | | |
| Age 46 - 55 | 1.970 | *** | 0.141 | | |
| Age 56 - 65 | 1.493 | *** | 0.075 | | |
| | | | | | |
| Number of obs. | 5921 | | | LR chi2 (44) | 503.85 |
| Pseudo $R^2$ | 0.0723 | | | Prob. > chi2 | 0.000 |

_____

Dependent variable: "In general, I am willing to take risks".

Variable takes the value ''1'' if Strongly Agree / Agree is answered; it takes the value ''0'' if Disagree / Strongly Disagree is answered.

*** denotes significance at the 1%; ** at the 5%; * at the 10% level.

The odds ratios of 1.602 and 1.381 are both significant at the 1% level. H2 as well as H3 are supported. We can conclude that entrepreneurs who have a preference for self-employment because they think it offers them independence, self-fulfillment, an interesting task or better income prospects, are more likely to be willing to take risks than their counterparts, the entrepreneurs that have a preference for self-employment for other reasons than the ones tested here. The odds ratio of independence, self-fulfillment and an interesting task is higher than the odds ratio of the income prospect. This is might be an indication, that an entrepreneur who is motivated by non-pecuniary benefits is more willing to take risks than an entrepreneur who is motivated by pecuniary benefits. It has to be noted that there is a bias in the sample selection that has been used to test H2 and H3. Only individuals that have already self-selected to be engaged in entrepreneurship have been taken into account. To be able to make more precise statements about other possible drivers, further research is needed and the relationship needs to be tested separately. The results in Table 13 are just an indication that non-pecuniary motivation might lead to higher willingness to take risks than pecuniary motivation. The explanatory power however is limited due to the small sample size.

### 6.6.3. Social entrepreneurs and risk

In order to test *H4: Social entrepreneurs are more willing to take risks than commercial entrepreneurs* this thesis will use an ordered logistic regression as well as a binary logistic regression model. The ordered logistic regression allows that the dependent variable "Willingness to take risk" does not need to be transformed and can stay in the order from $1 - 4$. The results of the regression are significant for social entrepreneurs. Therefore we find evidence to confirm that social entrepreneurs and commercial entrepreneurs differ in their willingness to take risks. The exact results of the ordered logistic regression can be found in the Empirics Part 2 of the appendix under model 2a. The results are not displayed here because the ordered logistic regression model does not directly confirm H4. It is only used to illustrate the probability that a social- and a commercial entrepreneur have given a specific answer to question 11f. The results are presented in Table 14.

**Table 14: Probabilities of the answers given by social entrepreneurs and commercial entrepreneurs to question 11f of the Flash Eurobarometer questionnaire.**

| Willingness to take Risks | Social Entrepreneurs | Commercial Entrepreneurs |
|---|---|---|
| **Strongly Agree** | 0.116 | 0.090 |
| **Agree** | 0.448 | 0.403 |
| **Disagree** | 0.332 | 0.373 |
| **Strongly Disagree** | 0.104 | 0.134 |

Those calculations are based on the results given by the regression that can be found in the Empirics Part 2 of the appendix under model 2a and on the logistic distribution and the different cuts given by the ordered logistic regression. The probability of a Social Entrepreneur answering "strongly agree" is:

$-0.285 + x <= -2.308$, $x = -2.023$, $p = 1 / (1+e^{2.023}) = 0.116$

The probability of a Commercial Entrepreneur answering "strongly agree" is:

$x <= -2.308$, $p = 1 / (1+e^{2.308}) = 0.090$.

To answer *H4: Social entrepreneurs are more willing to take risks than commercial entrepreneurs* this thesis will again use a binary logistic regression model. The results can be found in Table 15. As Table 15 shows, evidence is found that confirms H5. Social entrepreneurs are indeed more likely to be winning to take risks than commercial entrepreneurs. The result, an odds ratio of 1.158, is > 1 and significant at the 1% level and therefore H4 is supported. This confirms the suspected relationship between social entrepreneurship and the willingness to take risks. The exact reason for this relationship however is not explained by this research. One possible explanation might be the importance of the social mission that has been mentioned earlier in this thesis.

In addition, the results of the control variables that have been found in the previous model are confirmed as well.

**Table 15: Binary logistic regression of social entrepreneurship (1=Social entrepreneur, 0=commercial entrepreneur) on the willingness to take risks. Odds ratio for the binary logistic regression is displayed, together with the standard errors.**

_____

| _Independent Variable_ | _Odds Ratio_ | | _SE_ | | |
|---|---|---|---|---|---|
| Social Entrepreneur | 1.158 | *** | 0.065 | | |
| | | | | | |
| _Control Variables_ | _Odds Ratio_ | | _SE_ | | |
| Male | 1.371 | *** | 0.067 | | |
| Per. Income High | 1.308 | *** | 0.086 | | |
| Per. Income Low | 1.051 | | 0.059 | | |
| Age 15 - 25 | 3.068 | *** | 0.368 | | |
| Age 26 - 35 | 2.057 | *** | 0.192 | | |
| Age 36 - 45 | 1.837 | *** | 0.146 | | |
| Age 46 - 55 | 1.598 | *** | 0.121 | | |
| Age 56 - 65 | 1.264 | *** | 0.099 | | |
| | | | | | |
| Number of obs. | 8596 | | | LR chi2 (44) | 498.56 |
| Pseudo $R^2$ | 0.047 | | | Prob. > chi2 | 0.000 |

_____

Dependent variable: "In general, I am willing to take risks".

Variable takes the value ''1'' if Strongly Agree / Agree is answered; it takes the value ''0'' if Disagree / Strongly Disagree is answered.

**\*\*\*** denotes significance at the 1%; **\*\*** at the 5%; **\*** at the 10% level.

### 6.6.4. Differences between social entrepreneurs and commercial entrepreneurs

In order to answer *H5: Social entrepreneurs are more afraid of losing their property than commercial entrepreneurs, H6: Social entrepreneurs are more afraid of the risk of personal failure than commercial entrepreneurs* as well as *H7: Social entrepreneurs are more afraid of going bankrupt than commercial entrepreneurs* a binary logistic regression model is used again. This time, social entrepreneur is used as the dependent variable and the defined types of risks function as the independent ones. The results of the regressions can be found in Table 16.

**Table 16: Binary logistic regression of the types of risk on social entrepreneurs. Odds ratio for the binary logistic regression is displayed, together with the standard errors.**

_____

| Independent Variable | Odds Ratio | | SE |
|---|---|---|---|
| Loss of property | 0.954 | | 0.059 |
| Risk of a personal Failure | 1.219 | ** | 0.102 |
| Risk of going bankrupt | 1.117 | * | 0.065 |
| | | | |
| **Control Variables** | **Odds Ratio** | | **SE** |
| Male | 0.805 | *** | 0.036 |
| Per. Income High | 0.704 | *** | 0.039 |
| Per. Income Low | 1.201 | *** | 0.065 |
| Age 15 - 25 | 1.811 | *** | 0.195 |
| Age 26 - 35 | 1.281 | *** | 0.112 |
| Age 36 - 45 | 0.958 | | 0.071 |
| Age 46 - 55 | 0.922 | | 0.066 |
| Age 56 - 65 | 0.942 | | 0.072 |

| | | | |
|---|---|---|---|
| Number of obs. | 8722 | LR chi2 (44). | 177.18 |
| Pseudo $R^2$ | 0.015 | Prob. > chi2 | 0.000 |

_____

Dependent variable: "addressing an unmet social or ecological need", definition of Social Entrepreneur.

Variable takes the value ''1'' if very important / rather important is answered; it takes the value ''0'' if rather not important / not important at all is answered.

**\*\*\*** denotes significance at the 1%; **\*\*** at the 5%; **\*** at the 10% level.

These results show that the risk of the loss of property is not significant; therefore we cannot make a statement if social entrepreneurs are more likely than commercial entrepreneurs to be afraid of the loss of property. The risk of a personal failure however is significant on the 5% level and the risk of going bankrupt is at the 10% level. Both odds ratios are bigger than 1,

indicating that social entrepreneurs are more likely to be afraid of the risk of a personal failure and the risk of going bankrupt than their counterpart, the commercial entrepreneurs.

According to this model, *H5: Social entrepreneurs are more afraid of losing their property than commercial entrepreneurs,* has to be rejected.

However, there is evidence to support *H6: Social entrepreneurs are more afraid of the risk of personal failure than commercial entrepreneurs* as well as *H7: Social entrepreneurs are more afraid of going bankrupt than commercial entrepreneurs.*

The results confirm that social entrepreneurs seem to take their venture very personal as they are more afraid of a personal failure than commercial entrepreneurs. The finding that loss of property is not significant but the risk of going bankrupt is can be considered as being ambiguous. A possible explanation is that social entrepreneurs see their social mission directly endangered by the risk of going bankrupt but not endangered by the loss of their property. In their mind, there might be a distinction between their property and their venture, therefore the loss of their financial means does endanger their social mission but the loss of their property does not. Those explanations however are only suspected reasons and further research is needed to confirm them.

Another very interesting finding is that only the first two age categories are significant, therefore having an effect of social entrepreneurship. Hoogendoorn, Van der Zwan and Thurik (2011) state that the relation of age and social entrepreneurship us u-shaped, meaning that younger and older individuals tend to engage in social entrepreneurship. The results of this specific research cannot confirm those findings. The results of this research implement that younger individuals between the age of 15 − 35 are more likely to engage in social entrepreneurship.

In contrast to the previous models, the results concerning the gender and the income show a different picture. Males are according to this model less likely than females to engage in social entrepreneurship and individuals with a low perceived income are more likely to engage in social entrepreneurship. This would suggest that females might show more empathy compared to males. The same accounts for individuals who perceive their income to be low. In the latter case, the reason might be that these individuals have directly experienced certain things and decide to engage in social entrepreneurship because of their own, personal experiences.

## 7. Conclusion

By using the classic academic literature as well as more recent studies and publications a variety of hypotheses that focus on the relationship between entrepreneurship, social entrepreneurship and risk have been formulated in the hypotheses section.

It can be stated, that the classic academic literature often looks at the role of the entrepreneur in an economical context and not on the individual characteristics of the entrepreneur. Nevertheless we have learned a lot from the classic literature about the importance of risk when looking at entrepreneurship. The more recent academic literature about entrepreneurship and social entrepreneurship is heavily influenced by the assumptions, statements and findings of the classic writers. Nevertheless, some relationships and hypotheses have not been tested yet.

This thesis made an attempt to answer a variety of questions by testing different hypotheses with the help of empirical models.

In a first model the hypotheses that entrepreneurs are more willing to take risks than non-entrepreneurs has been tested. This was followed up with two hypotheses about possible drivers of the willingness to take risks. The main focus of this thesis however, was to examine if there are significant differences between social entrepreneurs and commercial entrepreneurs with respect to their corresponding willingness to take risks. In a last step the types of risks were analyzed in order to find out if social entrepreneurs are afraid of different risks than commercial entrepreneurs. The results of the empirical research are summarized in Table 17.

**Table 17: Summary of the empirical results**

_____

| Dependent Variable: <br> *Willingness to take Risks* | *Empirical Result* | *Hypotheses (not) supported* |
|---|---|---|
| Willingness to take risks of entrepreneurs compared to non-entrepreneurs | + | H1 supported |
| Influence of the personal independence, self fulfillment and the task as a driver of the willingness to take risks. | + | H2 supported |
| Better income perspective  as a driver of the willingness to take risks. | + | H3 supported |
| Social entrepreneurs and commercial entrepreneurs differ in their willingness to take risks. Social entrepreneurs are more willing to take risks. | + | H4 supported |
| Dependent Variable : <br> *Social Entrepreneurs* | *Empirical Result* | *Hypotheses (not) supported* |
| Social entrepreneurs are more afraid of the loss of property than commercial entrepreneurs. | 0 | H5 not supported |
| Social entrepreneurs are more afraid of personal failure than commercial entrepreneurs. | + | H6 supported |
| Social entrepreneurs are more afraid of the risk of going bankrupt than commercial entrepreneurs. | + | H7 supported |

_____

By testing H1 this thesis made a contribution to the still often discussed question if entrepreneurs are more or less willing to take risks than non-entrepreneurs. Most studies that find that entrepreneurs are not more willing to take risks, base their results on empirical comparisons between entrepreneurs and managers and they argue that there is no significant difference between the two groups. This comparison seems problematic because entrepreneurs often have a managerial role and managers often act entrepreneurial. Therefore a comparison between entrepreneurs and non-entrepreneurs seems more appropriate than a comparison between entrepreneurs and managers to answer the question of the willingness to take risks. As it has been shown in the results section, the regressions found significant results for entrepreneurs, therefore finding support for H1. The conclusion of this research is that entrepreneurs are generally indeed more willing to take risks than non-entrepreneurs. This

finding is in line with the views of the classic academic literature presented earlier in this thesis and a variety of more recent publications. The goal was to make a contribution to the still often discussed question if entrepreneurs are indeed more willing to take risks than non-entrepreneurs. It can be concluded that this is the case and that this thesis was successful in the attempt to contribute to answer the presented question.

In addition to this finding two hypotheses were formulated and tested to find out about possible drivers of the willingness to take risks. The motivational effect of the personal independence, the self-fulfillment and the interesting tasks, as well as the possible income perspective were suspected to increase an individual's willingness to take risks. The empirical test showed that individuals who are engaged in entrepreneurship because of the mentioned drivers are indeed more likely to be willing to take risks than individuals who are not. For those reasons H2 as well as H3 are supported and we can conclude that there are motivational drivers who have an effect on the willingness to take risks.

H4 the hypothesis about social entrepreneurship and commercial entrepreneurship, are the ones that show the main focus of this thesis. The goal was to answer the question if social entrepreneurs are more or less willing to take risks than commercial entrepreneurs. The hypotheses are based on a wide variety of academic publications as well as on recent observations like increased competition and less available funding. The idea was that because of all those barriers and developments that make social entrepreneurship such a difficult area to start a venture in, the individuals who are still willing to engage in social entrepreneurship have to be more willing to take risks than commercial entrepreneur. In order to answer this question an ordered logistic regression model has been used as well as a binary logistic regression model. The finding of the ordered logistic regression was that social entrepreneurs do differ from commercial entrepreneurs; the finding of the binary logistic regression was that social entrepreneurs are more likely to be willing to take risks than commercial entrepreneurs. These results are very relevant because of the increasing importance of social entrepreneurship and because there are barely no studies available that examine this relationship.

In a last step, a binary logistic regression model was used to find out if social entrepreneurs are afraid of different threats or risks than commercial entrepreneur. The previous finding was that social entrepreneurs are more willing to take risks than their commercial counterpart.

Nevertheless it was suspected that they might be more afraid of certain threats than commercial entrepreneurs. The reasoning behind that is that social entrepreneurs are very interested to keep their business going and they are afraid of threats that might endanger the social mission that is so important for them. The dataset allowed to test for certain risks that a commercial entrepreneur or a social entrepreneur might encounter. The result was that social entrepreneurs are indeed more afraid of a personal failure and of the risk to go bankrupt than commercial entrepreneurs. No significant results were found for H5, the risk of losing the property. The result that social entrepreneurs are more afraid of a personal failure than commercial entrepreneurs might be explained by the importance the social mission has to an individual who decides to engage in social entrepreneurship. The risk of going bankrupt can be seen in the same vein. It was suspected that social entrepreneurs are more afraid of the risks that endanger their social mission like for example financial threats. The risk of going bankrupt represents exactly that because they could not keep their venture running if they go bankrupt and the empirical research confirms the suspected relationship that was formulated in H6 and H7.

In addition to the presented results a variety of control variables has been used while testing H1 to H8. Even if these control variables were not the central point of focus of this research, they nevertheless showed some interesting findings and trends. They confirmed the suspected positive relationship between the male gender and the willingness to take risks. On the other hand this research found that females are more likely to be engaged in social entrepreneurship than males are. Also in line with what one might intuitively suspect is that the willingness to take risk seems to be higher the younger an individual is.

Even if these variables were not the main focus of this thesis, they still help to complete the picture of entrepreneurship and social entrepreneurship. Unfortunately, the full picture is not available yet and the next section of this thesis will give some reasons why.

## 8. Limitations and further research

On one side, the models constructed and used for this thesis to test the presented hypotheses have quite some explanatory power and the variables have been shown to be highly significant. On the other hand, there are some limitations that have to be taken into account when interpreting the presented results.

A first difficult decision has been encountered while choosing the fitting definitions for this thesis like for example the definition of the entrepreneur or the social entrepreneur. The subject is highly complex and there are a variety of different definitions that might lead to different results. Therefore this thesis used a set of definitions that fit the purpose of this thesis. Due to the chosen definitions however, certain aspects of entrepreneurship and social entrepreneurship have not been taken into consideration. As a result, one might criticize that this thesis has not taken into account "hybrid" ventures that have commercial and social goals at the same time. In this area, further research is recommended to take those ventures into account as well.

The Flash Eurobarometer questionnaire provides a unique dataset that allows to examine the entrepreneurial mindset of the individuals that have answered the questions. The questions however are not based on an objective answering procedure like for example a scientific experiment, designed to test the actual willingness to take risks. Therefore it is possible, that an individual has answered that he or she is very willing to take risks when in fact relative to others, she or he is in fact less willing to take risks. This can be considered as a constant bias in the given answers. This bias is encountered in other questions of the dataset as well because the questions are answered by self-assessing individuals. It is possible that for example individuals from the US are just seemingly more willing to take risks because entrepreneurs from the US feel like it is expected from them to be risk-liking. Further research that tries to make the questionnaire more objective is recommended.

In addition to the described bias certain questions are not complete enough to fully answer the research question. This is the most serious limitation of this research. Especially the list of drivers of the willingness to take risks and the risks that different kinds of entrepreneurs are afraid of does not seem to be complete.
The research was limited to test the personal independence, the self-fulfillment and the task as well as the better income perspective to have an influence on the willingness to take risks.

Probably there are other drivers as well but the dataset did not allow to test them. The same problem has been encountered when testing the different kinds of risks that social- and commercial entrepreneurs are afraid of. In this area further research is needed.

Those two limitations can be explained by the fact that the questionnaire has not been designed to answer the differences between social- and commercial entrepreneurs.

The limitations of the models and the research are also reflected by the $R^2$. Most of the tested variables are highly significant, but the $R^2$ never exceeds the value 0.073, meaning that 92.7% of the variance remains unexplained. This shows that the models do have some explanatory power, but further research is needed to find out more about the various relationships and to explain more of the remaining variance.

Nevertheless the presented research was able to achieve its goals and test the formulated hypotheses. The presented limitations show where future research is needed and explain that in order to fully understand social entrepreneurship a special questionnaire to find out more about social entrepreneurship is needed. However, one can be confident that if social entrepreneurship continues to gain importance this will be done in the future.

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# Appendix

Table 2: Definitions and descriptions of social entrepreneurship and social entrepreneurs, Source: Zahra et al. (2009), p. 521.

| Source | Definition |
|---|---|
| **Leadbetter (1997)** | The use of entrepreneurial behavior for social ends rather than for profit objectives, or alternatively, that the profits generated from market activities are used for the benefit of a specific disadvantaged group. |
| **Thake and Zadek (1997)** | Social entrepreneurs are driven by a desire for social justice. They seek a direct link between their actions and an improvement in the quality of life for the people with whom they work and those that they seek to serve. They aim to produce solutions which are sustainable financially, organizationally, socially and environmentally. |
| **Dees (1998)** | Play the role of change agents in the social sector, by: 1) Adopting a mission to create and sustain social value (not just private value), 2) Recognizing and relentlessly pursuing new opportunities to serve that mission, 3) Engaging in a process of continuous innovation, adaptation, and learning, 4) Acting boldly without being limited by resources currently in hand, and 5) Exhibiting heightened accountability to the constituencies served and for the outcomes created. |
| **Fowler (2000)** | Social Entrepreneurship is the creation of viable socio-economic structures, relations, institutions, organizations and practices that yield and sustain social benefits. |
| **Brinkerhoff (2001)** | Individuals constantly looking for new ways to serve their constituencies and add value to existing services |
| **Mort et al. (2002)** | A multidimensional construct involving the expression of entrepreneurially virtuous behavior to achieve the social mission…the ability to recognize social value creating opportunities and key decision-making characteristics of innovation, proactiveness and risktaking. |
| **Drayton (2002)** | A major change agent, one whose core values center on identifying, addressing and solving societal problems. |
| **Alford et al. (2004)** | Creates innovative solutions to immediate social problems and mobilizes the ideas, capacities, resources and social arrangements required for social transformations |
| **Harding (2004)** | Entrepreneurs motivated by social objectives to instigate some form of new activity or venture. |
| **Shaw (2004)** | The work of community, voluntary and public organizations as well as private firms working for social rather than only profit objectives. |
| **Fuqua School (2005)** | The art of simultaneously pursuing both a financial and a social return on investment (the "double" bottom line) |
| **Schwab Found-ation (2005)** | Applying practical, innovative and sustainable approaches to benefit society in general, with an emphasis on those who are marginalized and poor. |
| **NYU Stern (2005)** | The process of using entrepreneurial and business skills to create innovative approaches to social problems. "These non-profit and for profit ventures pursue the double bottom line of social impact and financial self-sustainability or profitability." |
| **MacMillan (2005)** | Process whereby the creation of new business enterprise leads to social wealth enhancement so that both society and the entrepreneur benefit. |
| **Tan et al. (2005)** | Making profits by innovation in the face of risk with the involvement of a segment of society and where all or part of the benefits accrue to that same segment of society. |
| **Mair and Marti (2006a)** | …a process of creating value by combining resources in new ways…intended primarily to explore and exploit opportunities to create social value by stimulating social change or meeting social needs. |
| **Peredo and McLean (2006)** | Social entrepreneurship is exercised where some person or group….aim(s) at creating social value…shows a capacity to recognize and take advantage of opportunities…employ innovation…accept an above average degree of risk…and are unusually resourceful…in pursuing their social venture. |
| **Martin and Osberg (2007)** | Social entrepreneurship is the: 1) identification a stable yet unjust equilibrium which the excludes, marginalizes or causes suffering to a group which lacks the means to transform the equilibrium; 2) identification of an opportunity and developing a new social value proposition to challenge the equilibrium, and 3) forging a new, stable equilibrium to alleviate the suffering of the targeted group through imitation and creation of a stable ecosystem around the new equilibrium to ensure a better future for the group and society. |

# Empirics Part 1

Flash Eurobarometer Dataset, used questions for this thesis from the final questionnaire:

**D1.** **Sex**
- male ............................................................................................................1
- female ........................................................................................................2


**D2.** **Exact Age**:
- exact age ................................................................................................[_][_]
- refusal/no answer ......................................................................................00


**D9.** **Which of the following phrases describe best your feelings about your household's income these days:**

[READ 1 - 4 – ONLY ONE ANSWER]

- Live comfortably on the present income.............................................................1
- Get by on the present income ........................................................................2
- Find it difficult to manage on the present income ..............................................3
- Find it very hard to manage on the present income ...........................................4
- DK ..............................................................................................................5
- Refusal to answer.........................................................................................6


**D10.** **Do you strongly agree, agree, disagree or strongly disagree with the following statements?**

[READ OUT – ROTATE – ONE ANSWER ONLY FOR EACH ITEM]

- strongly agree..............................................................................................1
- agree...........................................................................................................2
- disagree .......................................................................................................3
- strongly disagree ..........................................................................................4
- [DK/NA] ......................................................................................................9

a) In general, I am willing to take risks ......................................................1 2 3 4 9
b) Generally, when facing difficult tasks, I am certain
   that I will accomplish them ...................................................................1 2 3 4 9
c) My life is determined by my own actions, not by
   others or by chance ..............................................................................1 2 3 4 9
d) If I see something I do not like, I change it ...........................................1 2 3 4 9
e) I stand up to the opinion of others (colleagues,
   friends, supervisors) when it is important  ............................................1 2 3 4 9
f) I am an inventive person who has ideas .................................................1 2 3 4 9
g) I am optimistic about my future ...........................................................1 2 3 4 9
h) I like situations in which I compete with others  ...................................1 2 3 4 9
i) When confronted with difficult tasks I can count
   on luck and the help of others ..............................................................1 2 3 4 9

**Q3.** **Why would you prefer to be self-employed rather than an employee?**

a) Personal independence/self-fulfilment/interesting tasks ...................................................1
b) Realisation of a business opportunity ...............................................................................2
c) Better income prospects…………………… ...................................................................3
d) Freedom to choose place and time of working ................................................................4
e) Lack of attractive employment opportunities....................................................................5
f) Members of family / friends are self-employed…………………….................................6
g) Favourable economic climate…………………… ..........................................................7
h) To avoid uncertainties related to employment .................................................................8
i) To contribute to society .....................................................................................................9
j) Other, ...............................................................................................................................10
k) DK/NA...............................................................................................................................99

[1 QU]

**Q8.** **Have you ever started a business or are you taking steps to start one?**

- yes......................................................................................................................................1
- no .......................................................................................................................................2
- [DK/NA]..............................................................................................................................9

**Q11.** **For each of the following elements, please tell me if it was very important, rather important, rather not important or not important at all for making you take steps to start a new business or take over one.**

- Very important....................................................................................................................1
- Rather important ................................................................................................................2
- Rather not important ..........................................................................................................3
- Not important at all .............................................................................................................4
- [DK/NA] ..............................................................................................................................9

a) Dissatisfaction with regard to your previous situation ...........................................1 2 3 4 9
b) An appropriate business idea ..................................................................................1 2 3 4 9
c) Contact with an appropriate business partner ........................................................1 2 3 4 9
d) Receiving the necessary financial means...............................................................1 2 3 4 9
e) A role model ...........................................................................................................1 2 3 4 9
f) Addressing an unmet social or ecological need .....................................................1 2 3 4 9

**Q14.** **If you were to set up a business today, which are the two risks you would be most afraid of? Is it:**

[READ OUT – ROTATE – MAXIMUM TWO ANSWERS]

- The uncertainty of your income ...................................................................................1
- Job insecurity ...............................................................................................................2
- The risk of losing your property ..................................................................................3
- The need to devote too much energy or time to it........................................................4
- The possibility of suffering a personal failure ............................................................5
- The possibility of going bankrupt ................................................................................6
- [DK/NA]........................................................................................................................9

a) First mention ................................................................................. 1 2 3 4 5 6 9
b) Second mention ............................................................................. 1 2 3 4 5 6 9

**Empirics Part 2**

**Model 1a:** **Probit regression of entrepreneurship (1 = Entrepreneur, 0 = Non-Entrepreneur) on the willingness to take risks.**

**Probit Regression**

| Independent Variable | Coef. | | SE |
|---|---|---|---|
| Entrepreneur | 0.398 | *** | 0.020 |

| Control Variables | Coef. | | SE |
|---|---|---|---|
| Male | 0.192 | *** | 0.017 |
| Per. Income High | 0.122 | *** | 0.022 |
| Per. Income Low | -0.019 | | 0.199 |
| Age 15 - 25 | 0.770 | *** | 0.033 |
| Age 26 - 35 | 0.459 | *** | 0.031 |
| Age 36 - 45 | 0.322 | *** | 0.026 |
| Age 46 - 55 | 0.258 | **** | 0.025 |
| Age 56 - 65 | 0.107 | *** | 0.026 |

| | |
|---|---|
| Number of obs. | 24'547 |
| Pseudo $R^2$ | 0.0735 |
| LR chi2 (44). | 2419.96 |
| Prob. > chi2 | 0.0000 |

Dependent variable: "In general, I am willing to take risks".

Variable takes the value ''1'' if Strongly Agree / Agree is answered; it takes the value ''0'' if Disagree / Strongly Disagree is answered.

*** denotes significance at the 1%; ** at the 5%; * at the 10% level.

**Model 1a: Logit regression regression of entrepreneurship (1 = Entrepreneur, 0 = Non-Entrepreneur) on the willingness to take risks. Results of the country dummies.**

| Country | Odds Ratio | Std. Error | p-Value |
| --- | --- | --- | --- |
| Austria | 0.824 | 0.095 | 0.000 |
| Bulgaria | 1.471 | 0.178 | 0.000 |
| Belgium | 0.917 | 0.089 | 0.000 |
| China | 0.832 | 0.083 | 0.000 |
| Croatia | 0.773 | 0.092 | 0.000 |
| Cyprus | 1.543 | 0.191 | 0.001 |
| Czech_R | 0.631 | 0.061 | 0.000 |
| Denmark | 1.161 | 0.137 | 0.000 |
| Estonia | 1.075 | 0.127 | 0.000 |
| France | 1.536 | 0.151 | 0.000 |
| Finland | 1.063 | 0.127 | 0.000 |
| Germany | 1.045 | 0.100 | 0.000 |
| Greece | 1.198 | 0.118 | 0.000 |
| Hungary | 0.419 | 0.041 | 0.000 |
| Iceland | 0.551 | 0.064 | 0.000 |
| Italy | 1.971 | 0.203 | 0.120 |
| Japan | 0.376 | 0.036 | 0.000 |
| Latvia | 0.786 | 0.093 | 0.000 |
| Lithuania | 0.618 | 0.073 | 0.000 |
| Luxemburg | 1.267 | 0.150 | 0.000 |
| Malta | 1.432 | 0.176 | 0.000 |
| Norway | 1.296 | 0.159 | 0.000 |
| Poland | 1.322 | 0.132 | 0.000 |
| Portugal | 1.070 | 0.105 | 0.000 |
| Romania | 2.127 | 0.279 | 0.481 |
| Slovenia | 1.070 | 0.126 | 0.000 |
| Slovakia | 0.871 | 0.101 | 0.000 |
| South Korea | 1.003 | 0.100 | 0.000 |
| Sweden | 1.018 | 0.121 | 0.000 |
| Switzerland | 1.089 | 0.127 | 0.000 |
| Turkey | 0.632 | 0.075 | 0.000 |
| UK | 1.028 | 0.098 | 0.000 |
| US | 2.342 | 0.245 | 0.000 |

Reference country: Netherlands

## Model 1b:     Probit regression of the drivers of willingness to take risks.

**Probit Regression**

| Independent Variable | Coef. | | SE |
|---|---|---|---|
| Independence/s-f/task | 0.276 | *** | 0.037 |
| Income prospects | 0.188 | *** | 0.056 |
| | | | |
| **Control Variables** | **Coef.** | | **SE** |
| Male | 0.203 | *** | 0.036 |
| Per. Income High | 0.058 | | 0.047 |
| Per. Income Low | 0.014 | | 0.042 |
| Age 15 - 25 | 0.702 | *** | 0.077 |
| Age 26 - 35 | 0.567 | *** | 0.068 |
| Age 36 - 45 | 0.404 | *** | 0.058 |
| Age 46 - 55 | 0.404 | **** | 0.055 |
| Age 56 - 65 | 0.243 | *** | 0.057 |
| | | | |
| Number of obs. | 5921 | | |
| Pseudo $R^2$ | 0.072 | | |
| LR chi2 (44). | 503.18 | | |
| Prob. > chi2 | 0.0000 | | |

Dependent variable: "In general, I am willing to take risks".

Variable takes the value ''1'' if Strongly Agree / Agree is answered; it takes the value ''0'' if Disagree / Strongly Disagree is answered.

*** denotes significance at the 1%; ** at the 5%; * at the 10% level.

**Correlation table, including significance at the 5% level:**

| | Risktaking | Entrepreneur | Male | Income High | Income Low | Age Group 1 | Age Group 2 | Age Group 3 | Age Group 4 | Age Group 5 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Risktaking** | 1.000 | | | | | | | | | |
| **Entrepreneur** | 0.135* | 1.000 | | | | | | | | |
| **Male** | 0.098* | 0.157* | 1.000 | | | | | | | |
| **Income High** | 0.069* | 0.029* | 0.053* | 1.000 | | | | | | |
| **Income Low** | -0.043* | -0.006 | -0.058* | -0.357* | 1.000 | | | | | |
| **Age Group 1** | 0.121* | -0.084* | 0.052* | 0.048* | -0.083* | 1.000 | | | | |
| **Age Group 2** | 0.058* | 0.014* | 0.016* | -0.017* | -0.006 | -0.125* | 1.000 | | | |
| **Age Group 3** | 0.025* | 0.044* | -0.016* | -0.004 | 0.011 | -0.164* | -0.165* | 1.000 | | |
| **Age Group 4** | 0.007 | 0.063* | -0.008 | -0.004 | 0.023* | -0.180* | -0.181* | -0.228* | 1.000 | |
| **Age Group 5** | -0.056* | 0.0114 | -0.019* | 0.000 | 0.022* | -0.178* | -0.179* | -0.225* | -0.233* | 1.000 |

**Model 2a:** **Ordered logistic regression of social entrepreneurship (1 = Social Entrepreneur, 0 = Commercial Entrepreneur). Coefficients are displayed, together with their standard errors.**

**Ordered Logistic Regression**

| Independent Variable | Coef. | | SE | Cuts | Coef. | SE |
|---|---|---|---|---|---|---|
| Social Entrepreneur | -0.285 | *** | 0.047 | Cut 1 | -2.308 | 0.105 |
| | | | | Cut 2 | -0.026 | 0.101 |
| *Control Variables* | *Coef.* | | *SE* | Cut 3 | 1.870 | 0.106 |
| Male | -0.308 | *** | 0.040 | Cut 4 | 3.479 | 0.132 |
| Per. Income High | -0.286 | *** | 0.053 | | | |
| Per. Income Low | -0.027 | | 0.048 | | | |
| Age 15 - 25 | -0.897 | *** | 0.091 | | | |
| Age 26 - 35 | -0.667 | *** | 0.078 | | | |
| Age 36 - 45 | -0.537 | *** | 0.068 | | | |
| Age 46 - 55 | -0.410 | *** | 0.065 | | | |
| Age 56 - 65 | -0.290 | *** | 0.069 | | | |

| | |
|---|---|
| Number of obs. | 8722 |
| Pseudo $R^2$ | 0.0281 |
| LR chi2 (44). | 605.17 |
| Prob. > chi2 | 0.0000 |

Dependent variable: "In general, I am willing to take risks", definition of the willingness to take risks.

Variable takes the value ''1'' if Strongly Agree, "2" if Agree, "3" if Disagree and "4" if Strongly Disagree is answered.

**\*\*\*** denotes significance at the 1%; **\*\*** at the 5%; **\*** at the 10% level.

## Model 2b: Probit regression of social entrepreneurship (1 = Social Entrepreneur, 0 = Commercial Entrepreneur) on the willingness to take risks.

**Probit Regression**

| Independent Variable | Coef. | | SE |
|---|---|---|---|
| Social Entrepreneur | 0.086 | *** | 0.033 |

| Control Variables | Coef. | | SE |
|---|---|---|---|
| Male | 0.188 | *** | 0.029 |
| Per. Income High | 0.161 | *** | 0.039 |
| Per. Income Low | 0.028 | | 0.387 |
| Age 15 - 25 | 0.670 | *** | 0.069 |
| Age 26 - 35 | 0.439 | *** | 0.056 |
| Age 36 - 45 | 0.369 | *** | 0.048 |
| Age 46 - 55 | 0.286 | *** | 0.045 |
| Age 56 - 65 | 0.146 | *** | 0.047 |

| | |
|---|---|
| Number of obs. | 8596 |
| Pseudo $R^2$ | 0.047 |
| LR chi2 (44). | 503.20 |
| Prob. > chi2 | 0.000 |

Dependent variable: "In general, I am willing to take risks".

Variable takes the value ''1'' if Strongly Agree / Agree is answered; it takes the value ''0'' if Disagree / Strongly Disagree is answered.

**\*\*\*** denotes significance at the 1%; **\*\*** at the 5%; **\*** at the 10% level.

## Model 3:     Probit regression of the types of risk.

**Probit Regression**

| Independent Variable | Coef. | | SE |
|---|---|---|---|
| Loss of Property | -0.028 | | 0.038 |
| Risk of a Personal Failure | 0.119 | ** | 0.050 |
| Risk of going bankrupt | 0.068 | * | 0.035 |
| | | | |
| *Control Variables* | *Coef.* | | *SE* |
| Male | -0.131 | *** | 0.028 |
| Per. Income High | -0.215 | *** | 0.034 |
| Per. Income Low | 0.111 | *** | 0.033 |
| Age 15 - 25 | 0.354 | *** | 0.063 |
| Age 26 - 35 | 0.151 | *** | 0.053 |
| Age 36 - 45 | -0.025 | | 0.045 |
| Age 46 - 55 | -0.048 | | 0.044 |
| Age 56 - 65 | -0.036 | | 0.046 |

| | |
|---|---|
| Number of obs. | 8722 |
| Pseudo $R^2$ | 0.015 |
| LR chi2 (44). | 176.67 |
| Prob. > chi2 | 0.000 |

Dependent variable: "addressing an unmet social or ecological need", definition of Social Entrepreneur.

Variable takes the value ''1'' if very important / rather important is answered; it takes the value ''0'' if rather not important / not important at all is answered.

**\*\*\*** denotes significance at the 1%; **\*\*** at the 5%; **\*** at the 10% level.