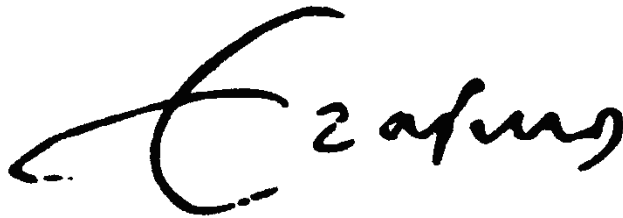


MSc Economics & Business  
Master of Science in Entrepreneurship, Strategy & Organizations Economics

# Sustainable Entrepreneurship and its Viability



Erasmus School of Economics, Rotterdam

Master Thesis

Supervisor: Dr. Brigitte Hoogendoorn

Co-Reader: Dr. Jolanda Hessels

Author:

Leonaris Rey  
Student No.: 308868

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## Abstract

Sustainability is on the rise in popularity and lucrativeness in today's world view, but not without additional costs. In order for sustainability to get the push that it needs to become mainstream in the economy, radical changes must occur. The greatest source of such change in a market is entrepreneurship, but is *sustainable* entrepreneurship valuable enough to pursue? Namely for a breed of economists that thrive on profit-maximization? With that said, the objective is to find out: are sustainability practices related to the viability of sustainable entrepreneurship?

This research paper utilized survey data from the SME Policy Panel Measurement (MKB Beleidspanel Meting) from 1975 Dutch small and medium-sized enterprises to determine the answer. CSR in large companies is seeing the majority of the focus in sustainability and profit relationships, which is why this research aims to observe this relationship for the smaller, more populated SME sector. The three pillars of sustainable entrepreneurship - social, environmental and economical - are individually assessed to solve the query through hypotheses formulated for each of these three sustainable factors. Regression analysis is used to observe the relationships between these three pillars and the viability of these SMEs.

The results suggest that out of the three factors, the social pillar is positively related to viability. Along with there being no strong relationship between the three factors and viability is the result that there is no evidence for negative associations with pursuing sustainability in SMEs and viability. This research paper concludes that with these results, there should be no reason to reject the pursuit of sustainable entrepreneurship with the growing benefits that it brings, despite its adverseness to the core concept of entrepreneurship and profit maximization.

*Keywords: Sustainability, Entrepreneurship, Viability, Social, Environment, Profitability*

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I dedicate this thesis in loving memory to my late Godmother, Mrs. Jane Laveist.

Leonaris Rey

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## Preface

Entrepreneurship is a path I've envisioned for quite a long time. Entrepreneurship runs in my family from my father to his brothers to my only brother. It was the idea to run my own company after seeing and benefitting from the advantages first hand. The only thing I needed to settle on was in what specialization I would focus on as an entrepreneur. After an enlightening Master seminar three years ago headed by Erasmus University professor Nel Hofstra, I saw the appeal of sustainable entrepreneurship and set my sights on this for the direction of my entrepreneurship. However, being a truly sustainable company comes with additional costs that a typical entrepreneur would not willingly incur, and such additional costs do not fit the mold of a typical entrepreneur to take on in a business plan. This by definition is what makes sustainable entrepreneurship quite rare as entrepreneurs thrive on cost-effectiveness.

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## **Chapter 1 - Introduction**

Currently, more and more sustainable products are showing up in various markets, in both the commercial and business sectors. According to *begreenfriendly.com*, with knowledge as recent as end of July 2011, small and large companies alike are running with the eco-friendly craze as of late, sparked by a noticeable boom in eco-friendliness. From biological meat in supermarkets – biologically-bred farm animals that live healthier, grow healthier and are fed fertilizer-free food – right down to eco-friendly bags that are made out of recycled, bio-degradable materials. This trend is expected to continue to grow as society becomes more aware of the importance of the protection of the planet's resources and peoples' well-being which come to light ever so often – with the latest shocking reminder of the planet's need of protection being 2010's huge Gulf of Mexico oil spill, the worst oil spill in U.S. history, courtesy of BP<sup>1</sup>.

The reason why this research is deemed important is that besides the chance to fulfill the curiosity of discovering if sustainable entrepreneurship is viable, this research aims to encourage and influence other start-up SMEs and discover whether despite the extra costs that sustainable entrepreneurship incur, there is a relationship between sustainability and viability - or at least show them how to operate in order to be viable. Compiling various theories that help to define what sustainable entrepreneurship is, what it should contain, the mindset needed for it, and using the results of the regression to show it in various perspectives. There is an abundance of articles defining the concept of sustainable entrepreneurship, and cases for corporate social responsibility (CSR) for large companies, with mixed results concerning the relationship between CSR practice and firm performance ranging from McGuire et al. (1988) to McWilliams and Siegel (2000) to Mackey et al. (2005). None so far has scientifically shown whether sustainability can be feasible for entrepreneurship, specifically for small and medium enterprises (SMEs) - the entities that make up over 99% of the economy in Europe, employing over 90 million people<sup>2</sup>. As the literature section will explain in the following chapter, entrepreneurship facilitates innovation and change, so if there is any way to ensure the prosperity and progression of sustainability, sustainable entrepreneurship is the key.

What makes this research unique is that this paper goes in-depth into seeing if SMEs instead of incumbent firms that are actively pursuing aspects of sustainable entrepreneurship (social, environmental and economical) are viable. Previous research tailoring specifically to the capacity of this

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<sup>1</sup> Gulf of Mexico Disaster Unfolds, Huffington Post, 2010

<sup>2</sup> European Commission - Small Business Act Press Release, February 2011 – ec.europa.eu

particular inquiry has not been published at the time of this research, and research in profitability of sustainable entrepreneurship in itself is scarce, with even the handful of papers that only discuss the subject supporting this scarcity as well. Dean and McMullen (2005) explicitly mention that aside from Anderson and Leal (1997, 2001) discussing a free market approach to environmental issues, little else was found in terms of theory in accordance to sustainable entrepreneurship. Hall et al. (2010) concur by stating that sustainable-oriented publications in mainstream entrepreneurship journals are scarce, and a plentiful amount can instead be found in non-entrepreneurship journals. At the time of research, Hall et al. (2010) state that out of the two entrepreneurship journals that were published in the Top 40 academic journals in the world, only one of them published papers on sustainable development, and there were only two of those papers published.

After intensively searching for the closest related research matter, the most comparable research found in this regard was conducted by Vijfvinkel, Bouwman and Hessels (2011), where they cater primarily to environmental sustainability in SMEs, although communication of sustainability efforts to employees is focused on as well. Their conclusion is that environmental sustainability shares a significant positive relationship with firm performance, and in terms of profitability, companies that communicate with their employees about their sustainability efforts perform significantly better. The next-closest research in terms of this subject matter leaves the territory of sustainable entrepreneurship and ventures into Corporate Social Responsibility (CSR), which aims at corporations instead of SMEs. Here, research in terms of gauging profitability while maintaining sustainable practices delivers more results than for sustainable entrepreneurship, although still amounting to somewhat scarce quantities of studies. Aupperle, Carroll and Hatfield (1985) did not find a relationship between social responsibility and profitability in corporations, even when testing varied levels of social orientation. Cochran and Wood (1984) find a highly-significant positive relationship between average age of corporate assets and social responsibility ranking, however if this average age control variable is eliminated, it results in a false relationship between CSR and financial performance in corporations. Cochran and Wood (1984) go on to say that even with controlling for asset age, there is a weak relationship between CSR and financial performance. Tsoutsoura (2004) on the other hand, concludes that there is a positive, significant relationship between CSR and better financial performance after tests using empirical methods. McWilliams and Siegel (2011) conclude that strategic CSR can prove to be an asset to a company as it motivates personnel, which in turn lowers personnel costs. Capital costs lower as well if CSR is successful in lowering the risk profile of the company - all the while enhancing company reputation for overall quality above all previous statements. Hence, given the mixed results on the relationship of CSR and firm

performance and the scarcity of previous research on sustainable entrepreneurship and performance, the following research question is formulated:

***“Are sustainability practices related to the viability of sustainable entrepreneurship?”***

To be able to answer this research question, this research will observe if a certain level of activity in each of the three aspects of sustainable entrepreneurship can be associated with company viability in SMEs.

This research paper will proceed as follows - in Chapter 2, a literature review will provide the necessary definitions that are central to this paper and give an overview of the current state of the literature concerning sustainability and viability. Chapter 3 introduces the data used in this paper and reviews the exact results of the survey data's relevant questions, complete with visual representations. Chapter 4 concerns the methodology and describes the data used in more detail and how the research question is solved. In Chapter 5, the results of the binary regression analyses are presented. Chapter 6 will discuss the limitations of the research, with the thesis ending with conclusions and recommendations in Chapter 7.

Now that the scope and purpose of this research paper are defined, the literature and key definitions necessary to understand the mindset of a sustainable entrepreneur will be given in the following chapter. An anthology of economists brought together with the common aspiration of entrepreneurship will help the reader envision the ideal outlook of what an entrepreneur should comprise of in order to be sustainable. From there, the review moves onward to the insight to become a viable sustainable entrepreneur in the economy, concluding with the hypotheses for this paper.



## **Chapter 2 - Literature Review**

As mentioned earlier, sustainable entrepreneurship may seem odd as entrepreneurship is principally associated with accomplishing certain goals while maximizing profits in the most efficient way possible. Shane and Venkataraman (2000) make it a point to highlight this characteristic in their paper where they create a conceptual framework for entrepreneurship. Projecting a sustainable outlook for their business venture strays from profit maximization due to the added costs of sustainable goods and practices that entrepreneurs can forego by simply going for the cheapest alternative. Intuitively, sustainable goods and services are typically known to be more costly, sometimes extraordinarily so, than non-sustainable counterparts. For just one example, the Institute of Materials Research and Engineering (IMRE) conducted a survey on September 19<sup>th</sup> & 23<sup>rd</sup>, 2011, where out of 812 total voters, nearly 90% of architects and 82% of interior designers agree that sustainable products cost more than their non-sustainable counterparts<sup>3</sup>. Aupperle et al., (1985) reaffirms this by stating that socially-responsible firms are at a competitive disadvantage due to the extra costs they incur which reduce profits, especially as these costs could be avoided completely, or remunerated by individuals or the government. Even if the demand exists for a sustainable product, the extra risks, startup and maintenance costs may prove to be overwhelming for the proposal of a startup business. Entrepreneurship with sustainability as a main ingredient can be concluded to be less common by definition, but fortunately there have been several economists with the foresight to see how entrepreneurs with a sustainable mindset can help improve the economy while at the same time include social developments, help reduce consumption of the world's limited resources and possibly create new, optimal substitutions for them, who will be discussed in the following subsections.

To properly set this literature review in motion, it is only right to define the terms that are the main columns to the infrastructure of this paper, which are: the entrepreneur, sustainability, sustainable entrepreneurship and viability.

### **2.1 - Entrepreneurship**

The term entrepreneurship has changed throughout time ever since its conception. Hébert and Link (1982) provide an overview of how the concept of entrepreneurship evolved - from initial concepts when military leaders in the pre-classical times banked on risk for substantial returns, to classical stage-philosopher Richard Cantillon bottling up this concept as an individual taking risk in return for profit, then changing that concept to a profit-seeking intellectual who knew to provide the right good at the

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<sup>3</sup> IMRE survey: <http://www.greenlodgingnews.com/survey-gauges-designer-attitudes-toward-sustainable>

right time. Then onto the neo-classical times of Max Weber and Joseph Schumpeter where Weber described the entrepreneur as the young individual that disrupted the traditional state of the economy, personally gaining customers and introduced lower prices - and Schumpeter's view that the person in charge of an entrepreneurship was in fact not a risk-taker, but an innovator and directly responsible for dynamic change. Harbison (1956) later on stated that a single individual could only perform all necessary entrepreneurial functions in a very small firm, and since most firms need a hierarchy of individuals to perform these functions, the entrepreneur is in essence an organization.

In its most basic modern definition, entrepreneurship is the act of an individual starting their own business. However, in economic terms, the majority would agree the general view that entrepreneurship involves the creation of a new business enterprise and bearing its risks in exchange for foreseen profit opportunities. Others would also agree with both of the following depictions of entrepreneurship: being the vessel for innovations hitting and shifting the market, or the act of simply monitoring the current market to satisfy demands that are presently unfulfilled.

The type of entrepreneurship that this research paper mainly identifies with, and sees as the most beneficial for revolutionizing progress for sustainability, is as defined by the infamous economist Joseph Schumpeter's "creative destruction". The entrepreneur, according to Schumpeter, is innovation-driven, whether by a totally-new concept or innovative change that renders the past methods and products obsolete. In this sense, wasteful and harmful products and production means are replaced by less resource-depleting or equally or enhanced substitution products. With the fact that this paper utilizes business ownership survey data regardless of the level of innovation, it also implies the view of Gartner (1985) when he detailed a conceptual framework for new venture creation.

In theory, entrepreneurship is ideal for growth of the economy, as it creates new businesses, which in turn creates new jobs, intensifying the level of competition and possibly increasing productivity via technological change (Acs, 2006). Particularly if there is a necessity for change and the consumers in this market are willing to accept this change. Van Praag and Versloot (2007) strengthen this concurrence concretely with the importance of entrepreneurship with the conclusion that entrepreneurship creates ample amounts of job creation, productivity growth and is responsible for high quality innovations entering the economy. These benefits in turn even lead to technological spillovers that benefit the rest of the market by long-term employment growth rate increase. Stimulation of entrepreneurship may contribute to an economy that needs to be injected with a remedy, and in the case of this paper, it is to see if ecological operations can be viable, and it just may be so if it becomes the economical norm.

Innovators are usually the ones responsible for getting the ball rolling for advancement in a market where it is far easier to rely on the sales of the same successful product - especially when economies of scale come into play, all the while ignoring the ecological effects of using inefficient components and outdated means of production. As innovation is the main driver to entrepreneurship, if the entrepreneur is successful in his sustainable breakthrough and the market accepts this novelty and gravitates towards it, the rest of the competitive market will have no choice but to either conform or built upon their concept in order to remain relevant in the market. A model based on this concept of innovation versus imitation was created by Iwai (1983) which showed that although other firms' imitation may create equilibrium of technology in the economy, innovation's purpose is to perpetually disrupt this equilibrium, and it is this dynamic struggle that governs the level of technology in that particular economy. This pressure over time sees the economy evolve as even the lowest denominators match up to the higher-ups in the market, but there will never be a distribution of perfect technical knowledge as new technical knowledge continues to stream into the economy, with the rest of the competitors lagging behind, always trying to catch up.

## **2.2 - Sustainability**

In the literal sense, sustainable refers to, *"of relation to, or being a method of harvesting or using a resource so that the resource is not depleted or permanently damaged"*. Alternatively, it is *"of relating to a lifestyle involving the use of sustainable methods"*, both according to the Webster's dictionary. The Chambers Concise Dictionary defines the root word of sustainability - **sustain** - among other things, as *"to hold up, to bear, to support, to provide for, to maintain, to prolong, to support the life of"* - selecting the definitions that fundamentally define sustainability at its core.

However, in the quest to determine the meaning of the term "sustainability" in an economic sense leads to an abundance of definitions, some straying far from others in terms of relation to each other, even more so than if a quest for the most plausible definition of an entrepreneur came about. Daly (1991), for example, conceded that there is no single distinct definition for sustainability, but everyone should concur that it is *"both morally and economically wrong to treat the world as a business in liquidation"* – in other words, to treat the planet and its resources simply as something that comes and goes in the struggles of the economy. Heinen (1994) stated that no single approach to sustainable development is "consistently useful" - there are different structures, different societies, different conservation programs and different needs to be fulfilled in sustainability issues around the globe. The International Union for the Conservation of Nature (IUCN), the University of New England (UNE) and the World Wildlife Fund

(WWF) (1991) converged with the declaration that sustainable growth, sustainable use and sustainable development should not be treated as one and the same, as sustainable growth counteracts the fact that nothing physical can grow indefinitely, sustainable use can only be applied to renewable resources, and sustainable development in the economic sense meant *“improving the quality of human life whilst living within the carrying capacity of the ecosystems”*. Nonetheless, the definition of sustainability that this paper has decided to side with, is that of Gro Harlem Brundtland (1987), which is *“sustainable development is development that meets the needs of the present without compromising the needs of future generations to meet their own needs”*. Any organization that fully satisfies the terms of this statement truly adheres to what the foundation of sustainability should be all about, as it is an outlook that not only completely disregards present-time selflessness, and satisfaction without gluttony, but it ensures that upcoming prospectors can be given at the minimum equal opportunities from the pool of resources. A definition hardly anyone, if any at all, would have a disagreement with, which is why it was chosen as the model definition of sustainability for this research paper. A sustainable company should in fact operate with this philosophy while balancing economical, social and environmental aspects.

### **2.3 - Sustainable Entrepreneurship**

Looking at the few, varied descriptions of sustainable entrepreneurship throughout various papers, they all convey the same definition: conducting business which commits to ethical standards and behavior, contributing to economic development, all the while maintaining a progressive upkeep of the well-being of society - including the labor-force and their families, their communities and the world on a whole, for the present and future inhabitants.

Corporate Social Responsibility (CSR) is often brought up in comparison to sustainable entrepreneurship, but there is still a notable difference between the two. CSR focuses mainly on corporations and the responsibility of the corporation to be aware of the people and environment around it, and to give back to the local community in methods outside of its mandatory obligations. This, however, does not necessarily include the offerings of environment-friendly products and services like sustainable entrepreneurs do, nor does it specifically include the internal operations of the company in terms of personnel or production methods. This is why this research paper sides more with the terminology of sustainable entrepreneurship, which pertains to social, ecological and economical aspects both internally and externally, rather than corporate social responsibility. There may be overlap, but as this paper focuses on SMEs, CSR is therefore not a main concern.

An entrepreneur with the mind-frame to solve an exact, particular sustainability problem (widely known as Sustainability Entrepreneurship, note the difference from Sustainable Entrepreneurship, which this paper focuses on) can be beneficial once an opportunity arises that the entrepreneur can put to use, but until then, the situation may remain the same – resources may still be used up in uneconomical ways, and it is a flawed way to conduct sustainable operations, however well-meant it may be. Sustainable Entrepreneurship, on the other hand, strives to set a universal mindset to practice sustainable methods throughout the organization, from internal personnel to purchased goods from partners, from top to bottom.

**Figure 1.1 - Sustainability Entrepreneurship versus Sustainable Entrepreneurship**



*The above diagrams illustrate how sustainability entrepreneurship caters to one singular goal, while sustainable entrepreneurship<sup>4</sup> caters to all social, ecological and economical aspects regardless of vision by living a sustainable work style and living by sustainable rules and boundaries.*

With the outlook of sustainable entrepreneurship as illustrated above, the economy can globally enhance itself not only just in certain situations, e.g. only when the opportunity arises for personal profit, but at all times. Striving to make sustainable entrepreneurship a norm can result in a higher-quality standard of living and operations for the social, ecological and economical sectors that can only continue to improve as long as it is upheld. For an illustrative comparison of the above diagrams, sustainability entrepreneurship can be seen as the reaction to detecting a demand for, for example, a solar-powered smartphone solely for profit gain, although this entails a sustainable product. The company producing this phone may be doing so purely for exploiting an opportunity and may not necessarily share a sustainable viewpoint of business. Sustainable entrepreneurship involves the assertion that every step and every factor abides by its three fundamental aspects for the people and resources involved, regardless of product. The people's social and ethical well-being are at more than

<sup>4</sup> Diagram based on the 'Triple Bottom Line' as per John Elkington (1998).

sufficient levels, the production methods are non-wasteful and non-detrimental as well, and not just the products themselves. In short, one can say that sustainable entrepreneurship sees the focus on the internal processes and everything surrounding the outputs of a business, while sustainability entrepreneurship focuses on opportunity fulfillment in the market.

With these main definitions identified by the paper, the next step is to continue on to review relevant literature and research to help strengthen this paper's standings and quest to determine if sustainable entrepreneurship is indeed viable or not.

## **2.4 - Viability**

As this is one of the key concepts to the research question it will be defined in this subsection. The root word of viability, *viable*, is defined as “*capable of living, developing, or germinating under favorable conditions*” as per the conglomerate view of various English dictionaries. It describes its prefix as if it was a living, prosperous, growing entity which is why it was a perfect global definition to a company that is at minimum covering all costs, continuing to grow in size and output and makes a positive return in turnover. Effectively, in economic terms, this would be seen as being profitable over years in time, or profitable to remain out of financial danger for years. Since the survey data used to answer our research question is cross-sectional data for the year 2008, viability will be defined as making a positive return before taxes.

## **2.5 - Essentials of a sustainable entrepreneur**

Janssen (2001) presented a list of ten guidelines that he believed should be adhered to in becoming a sustainable entrepreneur. These ten guidelines will be presented in the following synopsis.

According to him, the company should firstly begin with reducing environment damage, respect human rights and hold their employees in high regards in terms of well-being. Venturing into sustainable entrepreneurship should be crafted by their own resolution, and not just as a response from outside pressure – in other words, it should be a genuine yearning to engage in a sustainable enterprise, and not just because of, for example, new trends or competition. Commencing in sustainable entrepreneurship should have their targets and goals clearly outlined, and these targets and goals should be closely related to the enterprise's principles and activities, integrated into what it primarily does, and not be seen as a side-project for example. These targets and goals should be closely related to the consumer's needs, which this paper sees as to assure that these sustainable measures are part of what the consumers use, and the market grows to assert them as the norm – not to mention that these should be

abided by on a long-term basis. Relationship between sustainability and their activities and production process should be tangible and clear to define, and consumers and sustainable organizations should be able to have a clear outlook of company investments in relation to sustainable entrepreneurship. The consumer should not be a victim via price hikes in consequence to sustainable practices, while ensuring that they do not over-emphasize their endeavors in sustainable entrepreneurship.

Bos (2002) added one more guideline to the list – the company should make sure that its sustainable practices are upheld by the enterprise on a whole, and not just by the management. Meaning that throughout the entire pyramid structure of the enterprise, from the very top ranks to the most basic of tasks, sustainable practices are being maintained.

## **2.6 - Sustainable Entrepreneurship benefitting Small and Medium-sized Enterprises**

With the main concepts explained in the previous subsections, the purpose of this subsection is to show how the combination of sustainable entrepreneurship and SMEs can not only be beneficial for SMEs themselves, but for the advancement of the economy on a whole.

In addition to the previous points stated, Crals and Vereeck (2004) also brought up SMEs' significant impact on the economy in terms of growth and employment. Most noteworthy is the acknowledgement that individually, SMEs' impact on the economy is comparatively minute to its representation as a collective, which is responsible for around 95% of all private sector firms in most modern nations, forming a major portion of all economic activity (Schaper, 2002). Exports in major continents also owe SMEs a sizable portion of economical activity, anywhere between 26 to 60%, which even includes the most developed countries as well (Schaper, 2002).

Bos (2002) touches on the gains that all companies receive when abiding by a sustainable lifestyle and the consequences for not doing so, namely the consequence of receiving bad publicity being seen as unethical – negatively affecting their reputation which then in turn possibly resulting in profit, share value and income loss. He also raises the view of idealism – where more companies consider themselves more than just a profit-maximizing organization, and even if not led by idealism, they at the very least would gain public favor by making their affection for people and the planet known. Finally, for a company, it allows them to distinguish themselves from others, with encouraging results from returns on funds, using flourishing examples at the time like the ABN-AMRO Sustainable World Fund and SNS Eco Shares Funds, along with the gauging of the Dow Jones Sustainability Group Index which showed that sustainable enterprises outperformed other enterprises in the economy.

Subsequently, Bos (2002) discussed the gains to specifically to SMEs – pursuance of sustainable entrepreneurship could kindle internal dynamics for people and production management, resulting in bolder investment engagements that could lead to superior steps in technology and personnel acquirement for greater, higher-quality returns in the long run. Most particularly those SMEs that offer their services and products to large companies who themselves turn out to be sustainability practitioners themselves that require sustainable-minded suppliers. SMEs should be aware and prepared for such proposition opportunities to avoid risking opportunity loss to other SMEs that did in fact follow the sustainability route to be able to be picked up as a supplier, especially when taking the increased costs of undertaking under sustainable means of operation into account and having guaranteed sales and consumption in return. Another point is the advantage of mingling with the local community and strengthening ties in with the social aspect of sustainable entrepreneurship, something that the growing trend of large, international companies can have competing with. By getting more involved with local communities, the advantage of interpersonal relationships may sway interest in favor of that particular SME instead of the general, corporate-only, non-personal image of the larger companies, something that they will have much difficulty in competing with. Examples of other benefits touched upon in brief are the positive image and reputation gained from these practices, lesser dependence on diminishing resources, more efficient production due to superior technologies and staff skill, higher quality of risk control to especially avoid situations like environmental debacles, labor disputes and the like, less to deal with if government makes a turn for more social and environmental requirement improvements and a greater motivational source for current employees to enjoy their work environment - plus incentive for new employees to join the company. (Bos, 2002)

With the gains, there will also be the obstacles that SMEs face, which Hilton (2000) brought to light at the time. Aside from the tens of thousands of SMEs that picked up eco-efficient practices - not even making a notable impact compared to the millions that had yet to implement them in Europe - even fewer than that were even aware of such concepts of sustainable operating and manufacturing processes. Fortunately, this is not the case in 2011 with how much the awareness for ecological welfare has grown and brought up regularly on a global scale. Yet, a few of the problems that Hilton detailed still exist and plague SMEs to this day, especially those of the micro size. With the technology and more sustainable-minded edification and regulations of today, most of those points have been drastically reduced in terms of hazards, such as lack of external communication or lack of awareness of tools and techniques. However, there are still areas where these SMEs can lack in, such as resources in the sense



of time and money, capabilities in the sense of skills and knowledge, hands-on personal involvement with customers and flexibility in change of direction. (Hilton, 2000)

Despite the fact that this paper does not side with the concept of sustainability entrepreneurship, it is undeniable that it still accomplishes sustainability, albeit for different reasons, in a constricted scope and with different intentions. Conversely, a combination of this opportunity seeking along with fulfilling the rest of the essentials for sustainable entrepreneurship could prove to be remarkable, as explained below.

Krueger (2005) took sustainable entrepreneurship and what is by definition sustainability entrepreneurship and made an interesting blend which took the opportunity element of entrepreneurship and “broadened” it – not just transforming economic opportunities, but opening them up to social and environmental frontiers as well. The area of sustainability entrepreneurship that he takes and changes to something that this research paper agrees with is opportunity seeking. Not just waiting for opportunities to arise and turn around into success, but to actively search for opportunities – construct or enact them – this is how he saw a solution for strategy planners who failed to see potentially rewarding ecological opportunities.

Entrepreneurs have this potential to establish trends that the rest of the market follow – it’s in their nature to spot an opportunity, pursue it and profit from it, with other companies playing catch up if it grows. The dilemma is coming up with this opportunity in the first place, which is much easier said than done. Krueger (2005) defined how these environment-based opportunities can be found in the five statements in the following paragraph.

Firstly, he acknowledged that “*organizations do not see opportunities, individuals do*” – in order for an organization to consider itself one with a strong allegiance to visualize potential opportunities, it must consist of members that are strong opportunity seekers. Secondly, using our natural tendency to categorize everyday situations to categorize environmental issues into opportunities and threats as an entrepreneur would do for any other market; and continue onwards in distinguishing those categories, determining feasibility of success step by step. In other words, creating multiple opportunities, and then comparing them with each other to make the decision(s) for the best choice in terms of viability and value. Thirdly, he states that recognizing opportunities are a reflection of an intentional process. Meaning that, as intentions are driven by desires and what is determined to be feasible, a sustainable-minded entrepreneur is the type of person to be able to solve and start the trend of resolving for

economical problems. If they truly are eco-minded, their solution, in addition to entrepreneurship tendencies, will kick off an economically-growing trend that is social and environmentally friendly as well. Fourthly, he brings up the mental mold that all entrepreneurs (in this case, innovators) share regardless of their field of vision, and the steps of planning execution that distinguishes entrepreneurs from non-entrepreneurs – he shows confidence in the idea that entrepreneurs have mental approaches that are either opportunity- or threat-based, the order depending on perception of the environment. Finally, he brings up that many literature sources on entrepreneurship and innovation are in unison about the concept of intentionality (being focused towards a subject or goal) and self-efficacy (the belief that you can accomplish anything you set your mind to).

In short, SMEs' almost total occupation of market operations show that they are at the head of the pack for today's hope for innovations - combined with the monetary and reputational benefits (as opposed to reputational risks) to sustainable entrepreneurship, it is a worthwhile venture to take on despite the disadvantages that SME tend to encompass. The key to this is to retain the opportunity-seeking prowess of an entrepreneur while still upholding the social and environmental aspects on all fronts. Finally, by honing these entrepreneurial skills and turning opportunity into produce with the will of a truly eco-minded entrepreneur, appealing trends can optimistically catch on to transform the market to employ a more sustainable atmosphere.

The next sub-chapter starts with the research of Crals and Vereeck (2004) where the origins of the concept of Small and Medium Enterprises (SMEs) and their potential as sources of sustainable entrepreneurship are discussed. Sustainable entrepreneurship in its earlier days of conception was mostly exercised by larger, more industrial companies, which could by definition be classified as CSR in today's times. It was noted that as the costs and level of complexity of sustainable entrepreneurship were at such high levels, SMEs, almost as a collective, were dissuaded from pursuing and maintaining this standard of operations. Especially with the preconception of entrepreneurship being fixated on maximization of profit, this standard did not mesh well with the goals of the majority of entrepreneurship pursuers.

Crals and Vereeck (2004) then continue to define the three P's that sustainable development is said to deal with, introduced by Elkington (1997): People, Planet and Profit. These three, even including the last one, Profit, must all be achieved before the business can be considered sustainable according to the vision of this paper.

## **2.7 - People, Planet, Profit**

The following three P's are essentially the backbone to this research paper, as they can be seen as the pillars of sustainable entrepreneurship. All of the authors that have given their piece on sustainable entrepreneurship have commonly incorporated these three in some shape or form, deliberately or not. These three basic pillars, once all fulfilled together, are essential to what not only constitutes to a successful example of sustainable entrepreneurship, but an enterprise that promotes perpetuation.

These three P's, or collectively the 'The Triple Bottom Line', are introduced by Elkington (1997). This paper is in full agreement with Crals and Vereeck (1994) for the focus on the three P's of Elkington (1997) as they serve as the main pillars for sustainable entrepreneurship as the diagram on the previous page illustrated. The following paragraphs will explain the three P's in short detail.

**People:** referring to the social and ethical aspects of a company and how they are handled and prioritized, i.e. the people that the company includes in its circle. Aspects such as human rights and their enforcement, the waiver of fraud and corruption in the business, condemning of child labor use, gender stance and discrimination in the work space, share of profits amongst management and labor, behavior rules and tolerance, etc. Hereafter referred to as social aspects.

**Planet:** Crals and Vereeck (2004) acknowledge that the Earth was not passed down from people before us, but in actuality it is entrusted to us by the future generation – in other words, we in the present are responsible for making sure that there is a more-than-adequate amount of natural resources from the planet for future inhabitants to, at the bare minimum, live as comfortably as we are right now. Therefore, the second P, Planet, refers to the effect and solutions that a company has on the natural resource supply and the landscape. Areas such as environmental care, eco-efficiency, development of sustainable technology, eco-design and the like are the main issues that are looked at in this component of the three P's. They state that in a business sense, there are two conclusions: either environmental upkeep becomes a priority in the same intensity as profit maximization, or the maintenance of environmental upkeep becomes an obstruction to profit maximization, which is why it is exceedingly important to create a proper integration between the two to ensure success. Hereafter referred to as environmental aspects.

**Profit:** This P on the contrary, does not focus solely on the word in the literal sense of financial gains, but instead covers the allocation of excess funds into meaningful, helpful ways aside from self-gratification in cost-efficient ways and more into supplementary progression, such as investing into upgraded

sustainable means of production and distribution, sponsoring and donating, allocation into labor remuneration and so on. They conclude this section by stating that there is no definition of sustainable entrepreneurship that is set in stone seeing as how ideas and the world are dynamic in nature, and while the first two P's give the attention to the social and ecological views of the people and planet, the final P is what the ideal business venture should be in nature. It also directly ties into the viability aspect of this research, which is key to its goal of determining if sustainable entrepreneurship is viable. Hereafter referred to as economical aspects.

The previous research outlined here in this paper should hopefully put anyone that reads it into the mindset of what it takes to conduct sustainable entrepreneurship. The next step is to now look at the hypotheses and see how they will tie into answering the research question.

## **2.8 - Hypotheses**

To answer the research question to this paper, the following hypotheses were constructed, inspired by the three pillars discussed above in Chapter 2.7 that define sustainable entrepreneurship:

*H<sub>1</sub> = SMEs that encompass active policies towards social aspects are more likely to be viable*

*H<sub>2</sub> = SMEs that encompass active policies towards environmental aspects are more likely to be viable*

*H<sub>3</sub> = SMEs that encompass active policies towards economical aspects are more likely to be viable*

Here, the three hypotheses correspond directly to each pillar - people to social, planet to environmental, and profit to economical.

For definition purposes, active as mentioned in each hypothesis is defined as contributing to said aspect, and not merely abiding by acceptable moral standards in a passive manner. With each of these hypotheses, there will be a null hypothesis which pertains to *not* encompassing active policies in each respective aspect. The null hypothesis for each will be rejected when these aspects are shown to be related to viability in the surveyed SMEs. These three hypotheses represent the three core aspects of sustainable entrepreneurship as detailed in the literature review. Additionally, as the following chapter will clarify, each of the three aspects mentioned above contain a respective group of variables, which will be used to determine whether each null hypothesis will be rejected or not. Now that the literature and key definitions have been explained, the actual results of the survey questions will be analyzed in great detail via descriptive statistics in the following chapter as a prelude to the methodology and regression results.

## **Chapter 3 - Data**

In order to test the hypotheses presented in the previous chapter, data from the Small and Medium Enterprise survey conducted by EIM are used. This chapter introduces the data and provides descriptive statistics of the relevant questions for answering the research question. It will deal strictly with the description of relevant data and questions. The viability measure question, followed by the sustainability factor questions will be the first to be discussed, concluding with the descriptive analysis for the size measure question.

### **3.1 - Data Description**

This paper utilizes data from the EIM Business & Policy Research, which carries out research in entrepreneurship. EIM regularly conducts surveys with SMEs multiple times per year, and one particular survey, called the SME Policy Panel Measurement (MKB Beleidspanel Meting) contains information gained specifically from 1975 Small and Medium Enterprises. The data from this survey is from the year 2008 and the questions from it cater directly to facilitate the goal of this thesis, as the questions answered could be turned into variables that could be put to use to answer the research question.

The survey, a 110-question questionnaire in the national language Dutch, was conducted via telephone to owners, managers and accountable employees with the position to answer company-sensitive questions. The respective companies of these respondents are all member companies of the SME Policy Panel. The questions ranged from asking how many people are presently in employment at the company, how many were employed the year before, were there any people employed two years ago, to asking how much turnover excluding taxes did the company make last year, in which monetary categories did the amount fit into, did turnover increase or decrease from two years ago to asking about the priority of employees in business operations to whether the company uses green energy and if they are environmentally certified.

The exact size of the 2008 sample is 1975 SMEs, all of them being members of the EIM SME Policy Panel. This survey was conducted over the telephone, and in the following pages, the most relevant questions to this paper will be presented and descriptive statistics will be provided. To begin, we will start with the viability measure question, the definition of viability having been given in the prior chapter. All of the visual chart percentages total up to 100%, i.e. all 1975 SMEs, and each chart shall be prefaced by the question with which the variable results' answers are generated.

For every questionnaire response in this research data, only the responses in the scope of 'Yes' and 'No', and proper, definitive responses will be taken into account for regression analysis. Any response in the scope of not applicable, unknown or unwilling to say will be labeled as *missing data* and thus excluded from the regression analysis.

Descriptive analyses are made for all of the questions important to this paper. Visual interpretations of the results are made in bar chart form via SPSS outputs, and are posted in the results chapter to assist each analysis. Each bar chart will show the percentage distribution to each answer of the specific question. These analyses also include results for skewness, and kurtosis, levels will be shown under each chart. The skewness (0 = normally distributed, >0 = tail extends to the right, <0 = tail extends to the left) and the Kurtosis (0 = normally distributed, >0 = distribution peaks, <0 = distribution flattens) levels show the shape of the distribution of the data for each question.

### **3.2 - Viability Description**

The question that is the source of the viability measure is: *"What was the result before taxes that your company made in the year 2007?"*, which was the year before this survey was taken. The answer required exact figures in euro for the result after taxes for each company, and if they could not give a figure, they could choose from the following: to say they had a profit but did not know how much, a loss but did not know how much, the result was not yet known, choose not to say, and finally choose if they had made more than a million in euro.

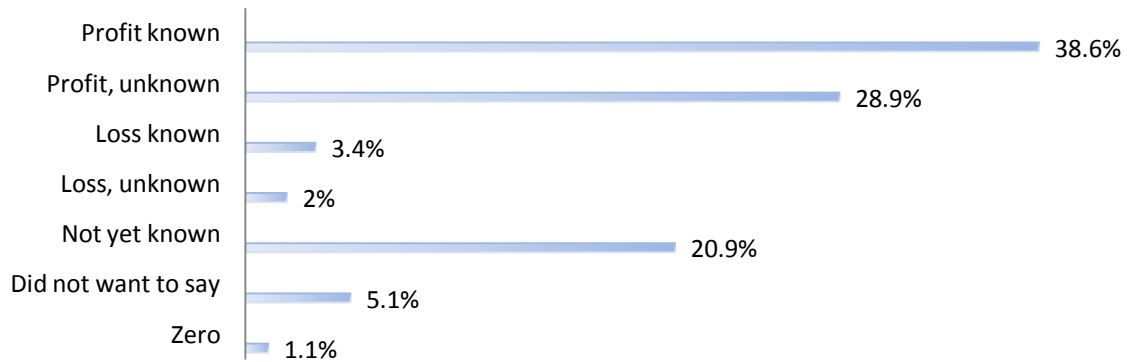
Based on the results of this question, **38.6%** responded with exact figures of profitable returns, including those responding with a return of 1 million+ in euro. **28.9%** knew they earned a profit, but did not know how much the exact amount was. This was not including the amount that knew exactly how much profit they earned and gave the exact figure.

**3.4%** gave exact negative figures, and **2.0%** knew they were at a loss but did not know by how much. Combined, these two figures gave a total of **5.4%** at a definite loss, regardless of the amount being known or not.

**20.9%** stated that their returns were not yet known. **5.1%** did not want to say what their return was – as assumptions were not allowed for this paper, only definite responses, this was also excluded from being classified as either Viable or Non-Viable. Reason being that these companies not only could be seen as making negative returns, but positive as well. However, as the exact figures were purposely held back from these respondents, it was unwise to include these figures. Finally, for the amount of companies

that did not contribute to giving either a positive or negative figure in the survey, **1.1%** stated that their returns were at 0, meaning that they broke-even. However, this is still excluded from being classified as either Viable or Non-Viable per definition of this paper. These three final responses are not vital to the regression, and as such with this and the rest of the questions, are labeled as missing. With the above information, the chart found below was created.

**Graph 3.1 - "What was the result before taxes that your company made in the year 2007?"**

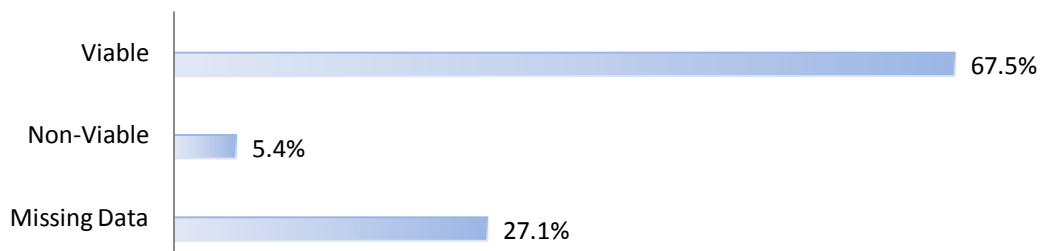


Source: MKB Beleidspanel Meting

Skewness: .400, Kurtosis: -1.381 | N: 1975

With the above percentages given, the next step will be to visually show the outcome split into the two crucial groups for the sake of simplicity. This gives us a total overall percentage of Viable SME companies being 38.6% + 28.9% (SMEs that knew they had profit but not exactly how much) = **67.5%**. Totaling up the known and unknown losses at 3.4% and 2% respectively gives the result of **5.4%** being **Non-Viable**, and the remainder of the indefinite answers combine to show that **27.1%** of the responses are labeled as **Missing Data**, i.e., irrelevant to this paper’s research, and will be disregarded, leaving only the Viable and Non-Viable company groups. These statistical figures are visualized below.

**Graph 3.2 - Dependent Variable: Viability**



The graph above shows that over two-thirds of the 1975 SMEs interviewed met the criteria of this paper's definition of 'viability', or in figures: 1333 SMEs. Despite these results, it is noted that these solely represents the year 2008 - this does not mean that companies that were not viable continued to remain non-viable in the further years or vice-versa.

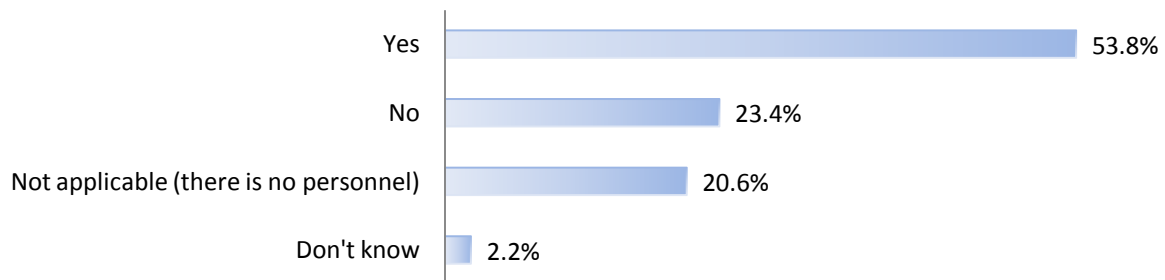
The following sub-chapter will describe the independent variables in similar detail.

### 3.3 - Sustainability Factors

Here, the questions that created the independent variable will be given, described and shown in a visual representation per question and segmented per sustainability factor, beginning with the Social factors.

#### Social Factors

Graph 3.3 - Does your company pay above-average attention to the personnel?



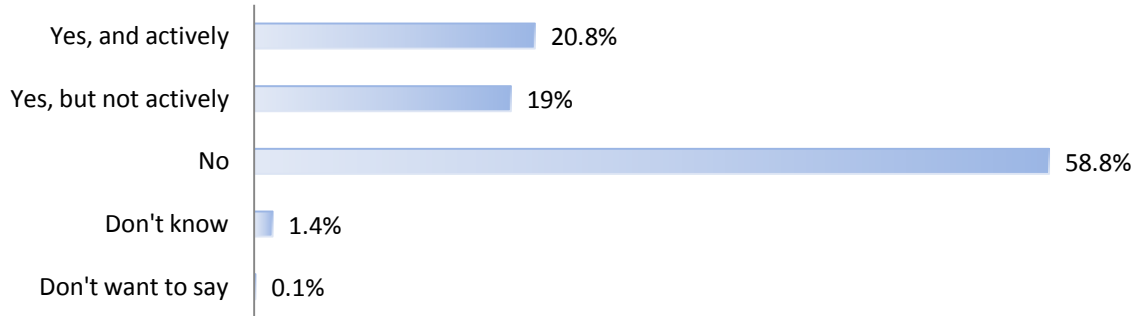
Source: MKB Beleidspanel Meting

Skewness: .795, Kurtosis: -.663 | N: 1931

Looking into the people part of sustainability, more than half (**53.8%**) said that they paid above-average attention to their personnel, with **23.4%** saying that they didn't do so, **20.6%** saying that it wasn't applicable to their company in the sense that they didn't have personnel, and closed out with **2.2%** saying that they did not know. This shows that more than half of these SMEs see that the well-being of the people responsible for the existence of the company should always have some sort of priority to it.



**Graph 3.4 - "The search for more socially-responsible production methods, products or services"**  
**Does your company do this...**



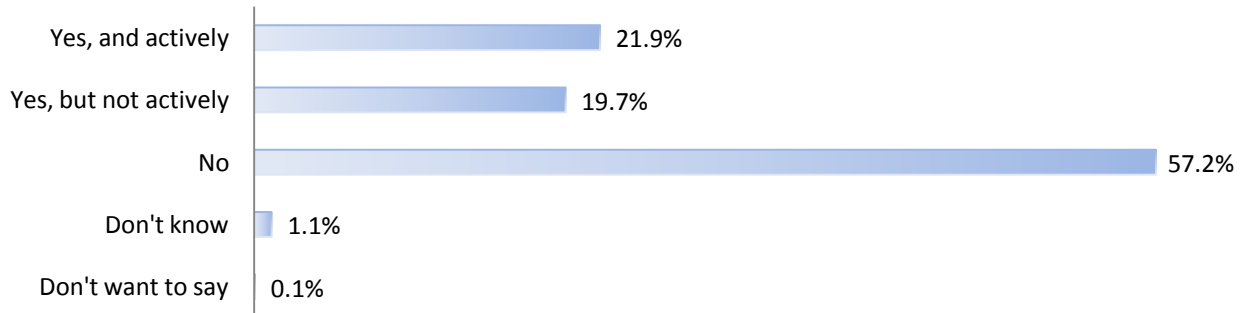
Source: MKB Beleidspanel Meting  
 Skewness: -.703, Kurtosis: -.837 | N: 1946

With this measure, the survey inquired how many companies were looking into more socially-responsible production methods, products or services. **20.8%** actively did so, with another **19 percent** doing so as well but passively. What this can be seen as, is that 19% of the companies avoided being a part of socially-wrongful acts, while 20.8% were not just simply abiding by socially acceptable standards, but were actually performing socially-advancing activities for society. Both of these results combined for a sustainable rate for the group of **39.7%**. On the other hand, **58.8%** said that did not do so at all, **1.4%** said that they didn't know, and **0.1%** did not want to say.

The next group of factors is the Environmental factors.

### Environmental Factors

**Graph 3.5 - "The search for environmentally-friendly production methods, products or services."**  
**Does your company do this...**



Source: MKB Beleidspanel Meting  
 Skewness: -.662, Kurtosis: -.994 | N: 1952

This measure looked to see if companies purposely wanted to evolve into being more sustainable by upgrading to more environment-friendly production methods, products or services, which had **21.9%** saying that they were actively pursuing such methods, and **19.7%** saying that they did so, but not actively. These two responses accounted for **41.7 percent** of the sustainable measure, leaving a little under half of the companies wanting to contribute to their markets in a green way, spreading a positive trend. For the non-sustainable measure, **57.2%** that they were not looking into environment-friendlier outputs, **1.1%** saying that they didn't know if the company was doing so, and **0.1%** saying that they did not want to say.

**Graph 3.6 - Is your company environmentally-certified?**



Source: MKB Beleidspanel Meting

Skewness: -1.459, Kurtosis: 6.4 | N: 1937

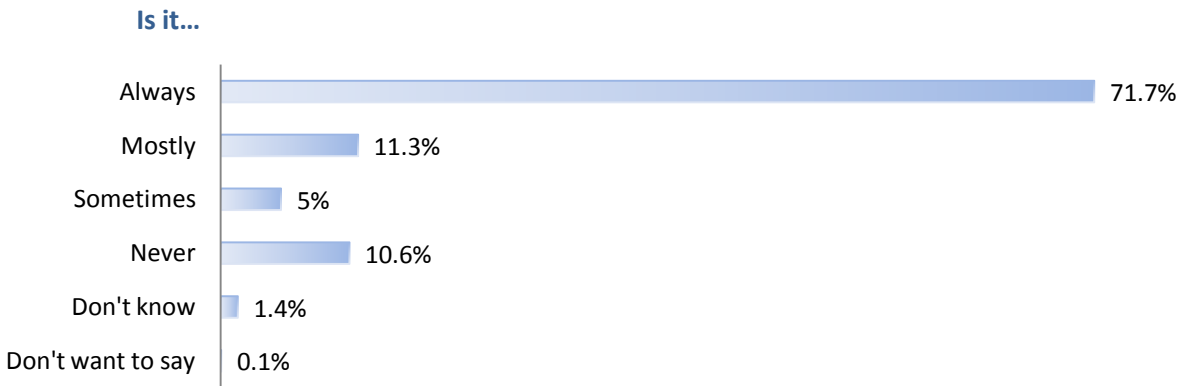
Possibly the most important question to this paper from the survey, as an environmentally-certified company is an all-around green company, which means looking at all fronts including energy, water efficiency and indoor environmental quality were reviewed and graded on a scale for environmental standards. While it is not shown at what level these companies are rated, or under which measure they are certified, looking at the US's LEED (Leadership in Energy and Environmental Design) which is an internationally-recognized green building certification system, their company has to be reviewed and graded on a scale in several different aspects of environmentally-friendly factors<sup>5</sup>. If they satisfy all pre-requisites and earn a minimum of points, then they received certification, where they could truly be seen as a green company.

Out of all the companies, only less than 9 percent (**8.1%**) were environmentally certified, with **90%** saying that they were not, and **1.9%** saying that they did not know. At first, the 90% may seem discouraging, but as the certification was described above, the company must take the initiative to put

<sup>5</sup> USGBC.org – How to achieve certification - <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1991>

itself up for review by the certifiers to even be considered for certification. As the results of this survey have shown so far, although only **8.1%** has achieved this certification, that does not mean that the rest of the companies do not practice sustainable measures at all whatsoever – it could also simply mean that they never put their company up for certification - whether they did not take the time to do so, found it unnecessary, or were even in the process of doing so. Unfortunately this was not asked in the survey to really find out.

**Graph 3.7 - To what degree does your company separate waste?**

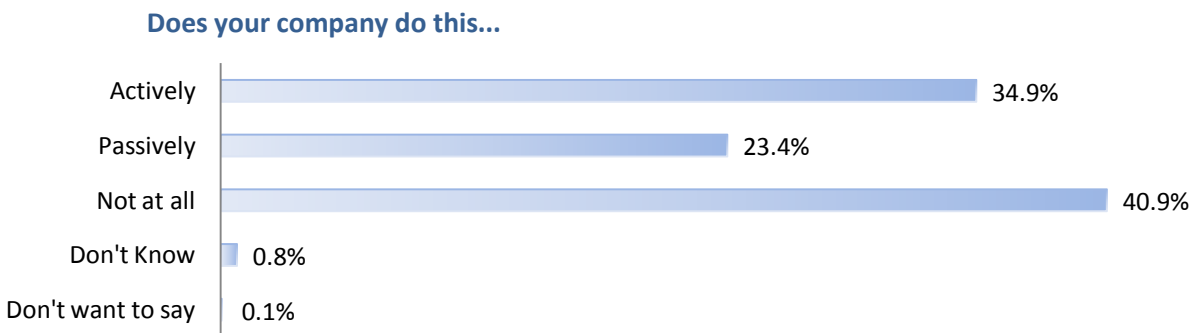


Source: MKB Beleidspanel Meting

Skewness: 1.682, Kurtosis: 1.473 | N: 1946

In the highest seen percentage for not only a sustainable response, but for any response in general for this research, an outstanding **71.7%** always separated their company refuse, with an additional **11.3%** doing it most of the time, and finally **5%** of the companies doing it sometimes. This total accounted for a dominant **87.9%** sustainable score for the companies, followed by **10.6%** saying that they never separated their refuse, **1.4%** saying that they didn't know and **0.1%** did not want to say.

**Graph 3.8 - "Keeping track of the amount of waste from the company"**



Source: MKB Beleidspanel Meting

Skewness: -.068, Kurtosis: -1.536 | N: 1497

Here, more than a third of the companies actively kept track of the amount of waste their company produced at **34.9%**, with another **23.4%** passively keeping track, bringing the total sustainable score to **58.3%**. A sizable amount of **40.9%** did not keep track whatsoever, while a minor **0.8%** did not know and **0.1%** did not want to say.

**Graph 3.9 - Does your company use green energy?**



Source: MKB Beleidspanel Meting  
Skewness: 0.25, Kurtosis: -.285 | N: 1809

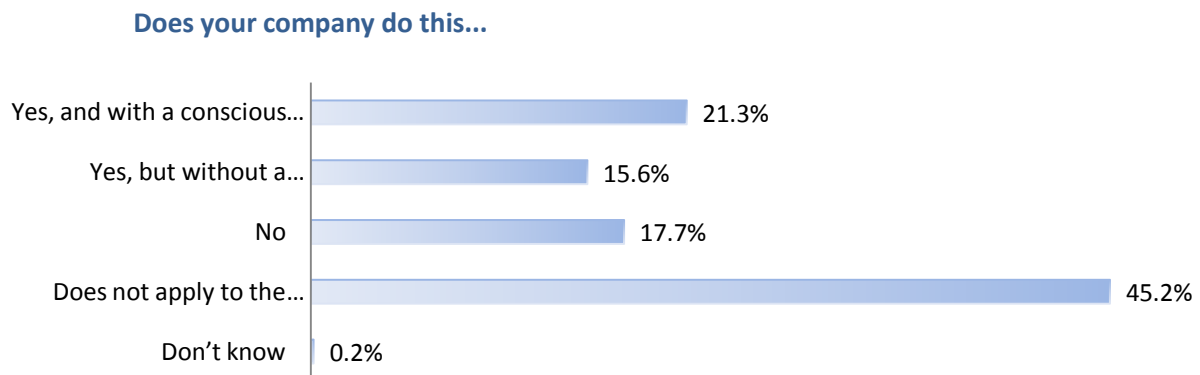
About a third of the companies (**28.4%**) were using green energy, in other words, energy produced in a way that is less harmful and pollutant to the environment than fossil fuel energy sources like coal and oil, with examples being among the likes of solar, wind and hydro energy<sup>6</sup>. **63.2 percent** did not use green energy, and **8.4%** did not know how whether the company used green energy or not. However, these results should not be seen as shocking, as green energy in general is not a commonplace source of energy now, let alone in 2008 – with so many factors for SMEs to account for, looking for suitable, affordable residences, they typically would not be running on green energy.

Closing out the three factors of sustainability, the Economical factors will now be detailed.

<sup>6</sup> What is Green Energy? - <http://www.wisegeek.com/what-is-green-energy.htm>

## Economical Factors

Graph 3.10 - "Production or selling of environmentally-friendly products"



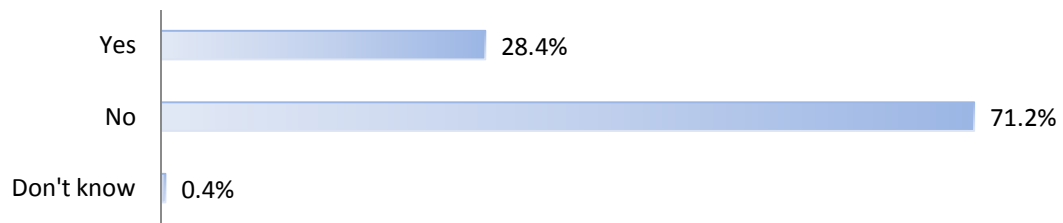
Source: MKB Beleidspanel Meting

Skewness:  $-0.482$ , Kurtosis:  $-1.348$  |  $N: 1972$

One of the more interesting results in the sustainability measures was from this question, which showed the companies that not just conducted their daily operations in a sustainable way, but actually produced or sold environmentally-friendly products. **21.3%** of the SMEs did so with a conscious strategy, meaning that this was their full intent to be a sustainable-producing company, with **15.6%** also producing or selling, but not with a conscious strategy, which could mean anything from doing so purely to supply specifically-requested products to clients or just to capitalize on an opportunity in the market for the time being. This brought the sustainable score here to **36.9%**, and looking at the topic at hand, this could qualify as the most promising figure in all of the variables as it shows companies that embraced the idea of putting sustainable goods on the market.

**17.7%** of the SMEs did not produce sustainable goods, which is an answer that can hopefully be changed as technology improves to ensure that more products can be qualified as environmentally-friendly. An additional **45.2%** stated that it was not applicable to their company, which is an interesting observation to note as it is close to half of the survey group that came to this conclusion. One rational explanation for such a large amount responding with not applicable is because these companies could be in the field of rendering services rather than physical goods. **0.2%** said that they did not know if their company produced or sold environmentally-friendly products.

**Graph 3.11 - "Has your company in the last six months released any new products or services on the market?"**



Source: MKB Beleidspanel Meting

Skewness:  $-.854$ , Kurtosis:  $-.917$  | N: 1967

A noteworthy statistic to observe was the fact that only **28.4%** of the SMEs released a new product or service to the market in the last six months. The majority of these SMEs did not (at **71.2%**) while **0.4%** did not know at all. This could be seen in two perspectives – perhaps the companies that did not release any new products or services had already hit their niche for the market, or even more likely, this could possibly be due to the financial crisis of 2008 preventing them from affording the extra costs to do so.

**Graph 3.12 - "Has your company in the last six months implemented any improvements or renovations in the internal company processes?"**



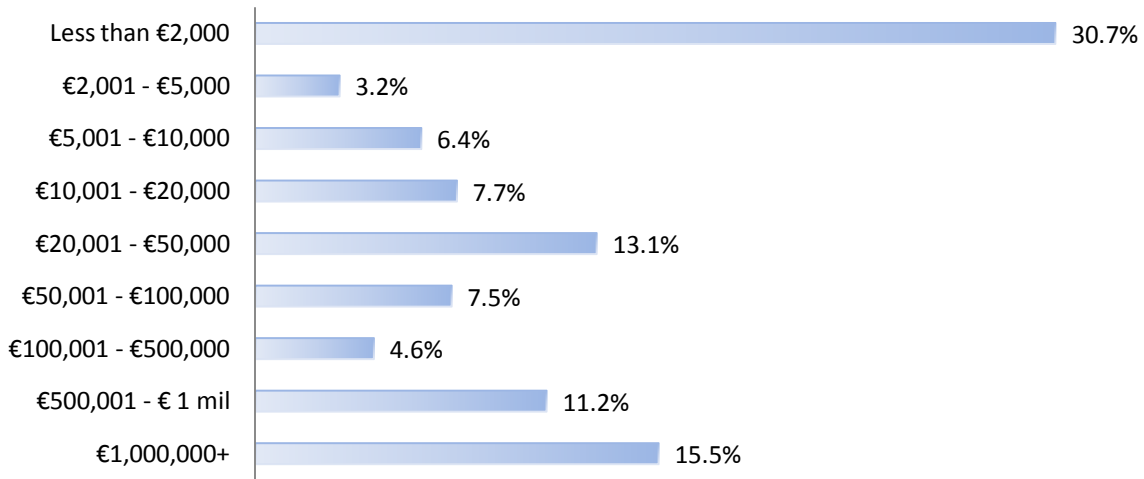
Source: MKB Beleidspanel Meting

Skewness:  $.147$ , Kurtosis:  $-1.828$  | N: 1970

Slightly over half of the SMEs (**52.5%**) implemented improvements or renovations to their internal company processes in the last six months, while **47.3%** did not make any internal progress in company processes at all, with **0.3%** saying that they did not know.

The next independent variable shows the amount of investment made the year before and its results. Just as for the question on current amount of employees was too large to be conveniently shown in this data chapter, the recoded results shall be visualized instead due to the size of the raw descriptive frequencies. These results will shown below.

**Graph 3.13 - "For what amount did your company investment in last year, in 2007?"**

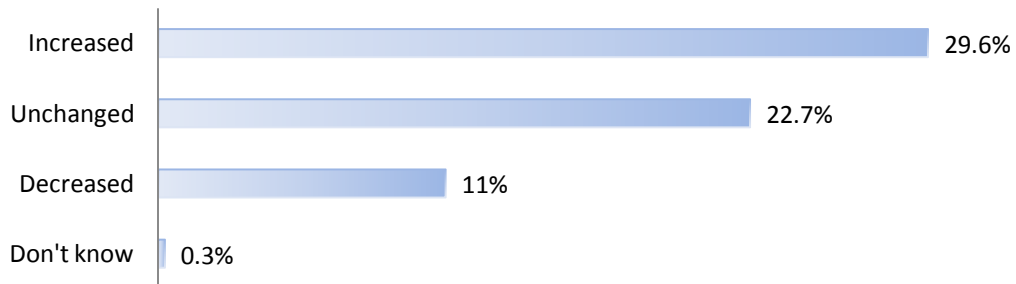


Source: MKB Beleidspanel Meting

Skewness: .447, Kurtosis: -1.188 | N: 1975

From the results it can be seen that the highest volume bracket at **30.7%**, or slightly over a third of the companies, invested between zero and €2,000 into the enterprise. A remarkable result however, is that **15.5%** of the SMEs invested more than a million euro into their enterprise, with the raw frequencies showing a few going well into over one hundred million euro. The third-highest bracket at **13.1%** showed a modest amount of investments at between €20,000 and €50,000. To close out these results, the frequencies table gave a total average investment for the 1975 SMEs at €359,718.66, which again is a remarkable result for this group. It is to be noted again that these were investments made the year before in 2007, before the EU financial crisis of 2008 took place.

**Graph 3.14 - "Have the investments in 2007 in comparison to 2006 increased, remained unchanged or decreased?"**



Source: MKB Beleidspanel Meting

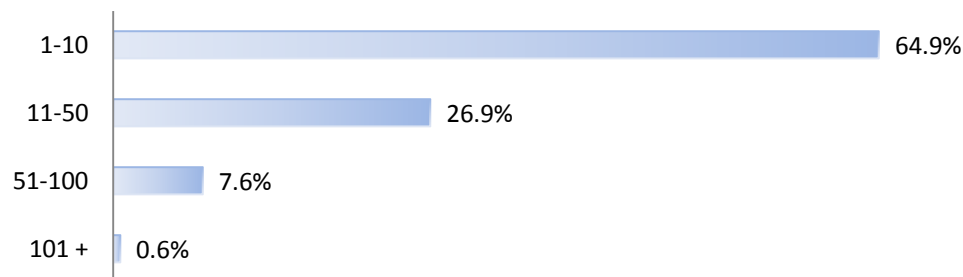
Skewness: .579, Kurtosis: -.863 | N: 1251

With this question, it shows that almost a third of the SMEs (**29.6%**) saw their company increase the amount of investments made the year before over the year before that. This could be seen as a possible indicator for company success, but as it is not a guaranteed indicator, it is merely used for observation purposes. **22.7 percent** continued with the same investment strategy as the year before it, while **11%** saw a reduction in investment and **0.3%** did not know in comparison to the year before.

### 3.4 - Control Variable

Here, the control variable question, namely to control for the size of the company will be discussed and detailed. This question was chosen as it was the only question in the entire survey suitable enough that remained a constant for all of the SMEs which could affect the outcome of this research. For the sake of convenience due to the size of the raw descriptive frequencies for this question, the recoded results shall be visualized instead.

**Graph 3.15 - "How many people - including yourself - are currently employed?"**



Source: MKB Beleidspanel Meting

Skewness: 1.339, Kurtosis: 1.045 | N: 1975

Going by the European Commission's definitions of enterprise sizes by headcount as of January 1<sup>st</sup>, 2005<sup>7</sup> (the latest size definition to this date), which are:

- < 10 employees: micro-sized enterprise
- < 50 employees: small-sized enterprise
- < 250 employees: medium-sized enterprise

it can be seen that **64.9%** of the companies that responded were of the micro-sized category, **26.9%** of the companies were of the small-sized category, and according to the raw frequency results, none of the companies qualified for the < 250 employees criteria for the medium-sized enterprise category. It is

<sup>7</sup> EU SME sizes: [http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/index\\_en.htm](http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/index_en.htm)



noted that the highest amount of employees in a single enterprise in this survey was 110, in which five companies shared this record. Although the remainder of the groups are not officially classified according to EU size regulations, they are still essential to the research to observe the impact on 'viability' as the size of the enterprise increases.

The next step is to now look at the data and see how it will tie into answering the research question, how the regressions were constructed, with the breakdown and descriptions of the variables included in them. This will be done in the following chapter.

## **Chapter 4 - Methodology**

This chapter tests this research paper's three hypotheses by means of regression analysis. To do so, the dependent and independent variables created to be used in the regression model, how these variables are chosen and recoded and how the regression model will be constructed are all described. First, a look at defining the main regression and the variables that it contains.

### **4.1 - Definition of the regression and its variables**

The regression method used is a binary logit model with 'viability' as the dependent variable. All of the survey question responses are recoded via SPSS in order to enhance the interpretation of the regression results. As stated in the beginning of this paper, the term viability is defined as making a positive return before taxes, no matter how small the return. A binary variable is created with the survey question asking the respondent for their result before taxes for 2007. With these specific figures, it will be simple to use a number range to declare the negative results missing, and thus turn the pure-positive results into a dependent variable to measure how these independent variables had an impact on 'viability' - in other words, positive returns. To create this variable, all of the responses were recoded into a binary variable so that any positive (profitable) figures were given a 1, and all negative (losses) figures were given a 0 (zero). As the model contains a dependent variable that is dichotomous (of two possible results), a binary logistic regression was the best choice to run for this model. With this method, combined with the recoded variables, the scientific explanation of the impact of the independent variables on the dependent will be more robust. Equation 1-1 defines the dependent variable below.

$$Y = \begin{cases} 1 & \text{if firm is viable} \\ 0 & \text{if firm is not viable} \end{cases} \quad (1-1)$$

In the data set, there are twelve questions on sustainability, each related to one of the three pillars of sustainability. In order to test the hypotheses, the aim is to include several variables for each of the pillars. Since we expected that the answers to the question are highly correlated, a selection of questions is made based on the correlation matrix. This selection process was performed with the correlation matrix of sustainable variables (Appendix 1).

Four of these variables are ultimately excluded from the regression analysis due to their highly-correlated results as well as their similarity to other variables in the correlation matrix, but are found intriguing to observe and visualize nonetheless in the data chapter. One exception to this is the variable TheEnviroP, as the results, despite its high correlation, are a perfect counterpart to the economical group of variables to round out the group in an already-scarce group of variables. As it also pertains

slightly to the environmental aspect at the same time unlike any of the other variables, it would be a waste to not include this variable in the regression analysis.

These variables detailed the amount of investments made by these SMEs the year before the survey was taken (Graph 3.13), whether they kept track of the waste the company generated (Graph 3.8), if their company used green energy (Graph 3.9) and the standings of the amount of investments they made in the last two years prior to the survey (Graph 3.14).

For the independent variables, the 8 remaining sustainable questions are used to be transformed into the variables that are used in combination with the dependant variable. This is done by grouping the multiple answer possibilities from the survey into groups to rate how sustainable the surveyed members were. The energy- and environment-related questions typically follow the format of a question followed by between 4 to 7 numbered possible answers; the first answer represents total agreement to the energy and environment question at hand. The sustainability value of each answer gradually decreases with each answer right down to total disagreement, with the final two possible answers always being “Don’t know” and “Don’t want to say”. The last answer, “Don’t want to say”, represented 0.1 to 0.3% of the group throughout the survey so it did not have any significant impact for measuring sustainability, despite the possibility of going either way.

Below, the questions are all recoded in terms of sustainability with the following point system:

- 2 points for total agreement / yes responses, as this represents full sustainability
- 1 point for partial agreement / sometimes responses
- 0 points for total disagreement / no responses, as this represents zero sustainability
- Any responses that fell into the “Did not know” or “Didn’t want to say” were classified as missing.

The control variable chosen for the regression was the question regarding company size. By controlling for size, this research is taking into account that the size of the company could influence the results of this test and will minimize their effect on the dependent and independent variables.

The question on company size was “How many people – including yourself – are currently employed?” and the results were recoded and graded according to the following size brackets:

- 1 – 10 employees = 1 point
- 11 – 50 employees = 2 points
- 51 – 100 employees = 3 points
- 101 and more = 4 points

The regression formula constructed is found below as Equation 1-2:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \varepsilon$$

(1-2)

After the variables were finalized, they were thus grouped into three categories: Social/Personnel, Environmental and Economical.

The variables chosen to represent Social/Personnel were:

- $\beta_1 X_1$  = ThePersonnel - "Does your company pay above-average attention to the personnel?"
- $\beta_2 X_2$  = ThePeopleSearch - "The search for more socially-responsible production methods, products or services"

The variables chosen to represent Environmental were:

- $\beta_3 X_3$  = TheEnviroSearch - "The search for environmentally-friendly production methods, products or services."
- $\beta_4 X_4$  = TheECertification - "Is your company environmentally-certified?"
- $\beta_5 X_5$  = TheWasteSeparate - "To what degree does your company separate waste?"

The variables chosen to represent Economical were:

- $\beta_6 X_6$  = TheEnviroP - "Production or selling of environmentally-friendly products"
- $\beta_7 X_7$  = NewProducts - "Has your company in the last six months released any new products or services on the market?"
- $\beta_8 X_8$  = NewImprove - "Has your company in the last six months implemented any improvements or renovations in the internal company processes?"

The control variable chosen was:

- $\beta_9 X_9$  = Size - "How many people – including yourself – are currently employed?"

Lastly, each of the three groups of social, environmental and economical variables was put into individual regressions along with the control variable Size to observe their influence on 'viability' per group. This separation also served the additional role to experiment if the associations with the dependent variable changed when examined independently as factor groups instead of as a whole.

## **Chapter 5 - Results & Discussion**

Four regressions consisting of all three individual sustainability groups plus all three combined are presented below and the most notable results from each shall be analyzed and elaborated on. See Table 5.1 on the following page for these results.

To begin, the point of choosing these variables and deciding to run these regressions based on the three factors of sustainability was to see the results first-hand from actual SMEs in operation. The idea was to observe the results in terms of viability and sustainability, and by running a regression on these observations, detect associations that can show if a certain level of sustainability really is related to a certain level of viability. Making note of these associations in these various scenarios and compiling them together, a synopsis be made to answer the research question to this thesis. Additionally to that, the results show entrepreneurs that although a sustainable way of operations could be seen as costly, it can be seen as a sacrifice that can pay off greatly in the end, while at the same time contributing to society, the planet and the stimulation of the market.

Looking at all four regression results and their significance levels, each of the three hypotheses have been tested and the research question can be answered, by observing each group's influence on 'viability' individually, and together as a combination of all three factors of sustainable entrepreneurship, with each regression being controlled for size.

The first regression's results will be discussed below.

### **5.1 - Regression Results**

Table 5.1 shows the combined results of the four regression models conducted via the binary logistic regression method. As mentioned in the methodology section earlier, the dependent variable 'viability' is a binary variable where viable companies were given a value of 1 while non-viable companies were given a value of 0. 'Viability' was the dependent variable for all four regression models, with each of them being controlled for company size. The  $R^2$  value chosen to be used for this binary logistic regression table was the Nagelkerke  $R^2$  instead of the Cox & Snell  $R^2$ , because of its perfect model fit, and it has a proper maximum of 1, making the value better to interpret.

Table 5.1 - Combined Regression Analysis for sustainable entrepreneurship factor influence on 'Viability' Where 1=Viable; 0=Non-Viable. Each model shows the effect (B) and standard error (S.E.) per variable.

	Model 1		Model 2		Model 3		Model 4	
	<i>B</i>	<i>S. E.</i>	<i>B</i>	<i>S. E.</i>	<i>B</i>	<i>S. E.</i>	<i>B</i>	<i>S. E.</i>
<i>Social</i>								
ThePersonnel	.034**	.020					.038*	.021
ThePeopleSearch	-.039**	.023					-.017	.027
<i>Environmental</i>								
TheEnviroSearch			-.058**	.023			-.061**	.027
TheECertification			-.045	.030			-.047	.030
TheWasteSeparate			-.004	.033			-.003	.034
<i>Economical</i>								
TheEnviroP					-.024	.023	.000	.026
NewProducts					-.067	.052	-.047	.056
NewImprove					.041	.051	.057	.055
<i>Control Variable</i>								
Size	-.129	.142	.021	.140	-.081	.138	-.079	.151
No. of observations	1409		1392		1450		1338	
Pseudo R <sup>2</sup>	.008		.017		.005		.028	

Dependent variable: 'Viability' | Pseudo R<sup>2</sup> represents the Nagelkerke R<sup>2</sup> | Significance level at 10% = \*, 5% = \*\*, 1% = \*\*\*

The four models found in Table 5.1 consist of the Social, Environmental, Economical and combination of all three factors which are the three pillars of sustainable entrepreneurship as detailed in this research paper. Model 1 to 3 test the association between dependent variable and one of the three pillars (i.e. social, environmental & economical) and Model 4 combines and three as one. Each of the first three groups represents each hypothesis created for this research paper in order to answer this paper's research question, with the last regression representing all three groups as one.

Model 1 entails whether the company paid above-average attention to their personnel (ThePersonnel) and whether their company searched for more socially-responsible production methods, products or services (ThePeopleSearch). Model 2 inquires whether the company searched for more environmentally-friendly production methods, products or services (TheEnviroSearch), whether the company was environmentally-certified (TheECertification) and whether they separated company waste

(TheWasteSeparate). Model 3 compares the three questions dealing with whether the companies produced or sold environmentally-friendly products (TheEnviroP), whether the company released any new products or services on the market in the last six months (NewProducts) and whether their company implemented any improvements or renovations in the internal company processes (NewImprove). Finally, Model 4 examines all nine variables. In each model, the size of the company is controlled for.

The purpose of the table's visual representation of the associations was to show these associated relationships between the dependent and independent variables, and that although they are related to 'viability' in the nature of regression analysis, they are not necessarily the cause of 'viability' in these SMEs, as these companies being viable could be the reason for the results of these variables. In that same vein, it is also probable that viable companies are exercising sustainable practices because they are able to afford it.

For each variable in Table 5.1, the effect (B) signifies how well that particular independent variable is associated with the dependent variable (in this case, 'viability') and whether this association is positive or negative. The stars next to the effect indicate the significance level of this association.

The analysis of the outcome for each regression shall be given in the following subsections.

#### **5.1.1 - Model 1 - Testing the influence of Social factors on Viability**

Table 5.1 shows that looking solely at social aspects of sustainable entrepreneurship in Model 1 that both ThePersonnel and ThePeopleSearch are significant at the 5% level, with ThePersonnel sharing a positive significant relationship with 'viability'. On the contrary, ThePeopleSearch has a negative significant relationship. This suggests that companies that give above-average attention to their personnel are more likely to be viable. On the other hand, the results also suggest that searching for more socially-responsible production methods are negatively associated with viability.

Linking these results with the corresponding Hypothesis 1, it can be seen that the social factors test does support Hypothesis 1, although only with half the variables as giving above-average attention to personnel shared a positive significant relationship, it was the opposite for continuing to search for more socially-responsible outputs with a negative relationship. This shows that this was only partially supported.

### **5.1.2 - Model 2 - Testing the influence of Environmental factors on Viability**

Model 2 tests the environmental group of variables, and as seen in Table 5.1, all variables in this column shared a negative relationship with 'viability'. The only significant variable in this group concerns the company's search for more environmentally-friendly production methods, products or services (TheEnviroSearch) with a negative significant relationship at the 5% level. This suggests that viable companies are associated with reduced searching for more environmentally-friendly outputs, but this can be viewed in several lights, namely that they had already reached their goal for their product or production methods or it was proven to be too costly to continue pursuit for improvement. Keeping in mind that this survey only recorded the responses of these companies for a single year, this is not to say that these companies did not settle to being satisfied at their current level and did not strive to grow in the following years.

For the second variable, having an environmental certification has a negative association with 'viability', although the effect is insignificant. The theory does list the benefits of an eco-friendly company, for example: offering sustainable services to larger sustainable companies, an unique point of distinguishing your company from others, gaining the favor of the public for your pro eco-stance (Bos, 2002) despite the extra effort it takes to pass the criteria to attain certification; however, it is logical that the result shows a negative association, given that 90% of the companies in the survey were not e-certified, and it is unknown how many were actually actively pursuing an e-friendly image. Christmann and Taylor (2006) suggest that a reason for this low amount of e-certification is that companies base their certification levels on customer expectations, preferences and monitoring. In other words, they only go the extra mile to attain certification if it strategically benefits them in a way that increases company benefits.

Finally, the results of this model show that a company separating their waste has a negative, insignificant association with 'viability'. This may be explained by type of industry (certain recycled waste can be sold for monetary returns) or this relationship may be influenced by the recycling facilities and their availability in the companies' region. Companies not choosing to separate waste could simply not be doing so because it is an extra inconvenience, and the possibility to confirm this was beyond the scope of this research.

Thus, it can be concluded that with Model 2 results, Hypothesis 2 is shown to not be supported as all three environmental variables shared a negative relationship with 'viability'.



### **5.1.3 - Model 3 - Testing the influence of Economical factors on Viability**

The third model concerns the results of the economical factors in association with 'viability', and here, none of the variables shared a significant association. Thus, this means that there is no convincing evidence that, segregated as a separate group, none of the economical factors here are associated with 'viability'. Despite their insignificance, these variables still remain crucial to the analysis as again, this analysis does not consider these relationships as causal, but as associations.

Therefore, with the Model 3 results, it is concluded that Hypothesis 3 was also not supported.

### **5.1.4 - Model 4 - Testing the influence of all three factors on Viability**

The final model shows the regression results of all three sustainability factors simultaneously in relation to 'viability', leaving only two out of the eight independent variables remaining significant. Both of the significant variables in the full regression column increased their beta (B) value slightly, signifying a slightly stronger association between the sustainability factors and 'viability', despite an increase in significance for ThePersonnel, rising from a 5% significance level to 10%.

It is seen that companies paying above-average attention to their personnel retained a positive significant association to 'viability' in the full regression, keeping all other variables constant, but now at a 10% level. This continues to show that the positive association between taking extra care of one's employees and viable companies still exists whether the social factors are examined separately or on a whole with the rest of the sustainable factors together.

Companies searching for more environmentally-friendly production methods, products or services retained its negative, significant association with 'viability' at the 5% level, showing that not much has changed in this regard as well when including all other sustainable variables in the regression.

However, one factor became insignificant when included in the full regression, namely the search for more socially-responsible production methods, products or services (ThePeopleSearch). Going from the separate social factor group to the full regression saw this variable go from a 5% significance level to insignificant, with its beta value more than halved in the process. This indicates that ThePeopleSearch is not a strong result. Since there is such a dramatic change from adding the rest of the variables to the regression, this means that there is no confidence in the relationship between 'viability' and ThePeopleSearch. This in turn means that ThePeopleSearch cannot be indicative in this research, although its negative relationship in Model 1 already confirms this statement.

Regardless of this last change, the overall view per sustainability factor group has not changed in relation to each of the three hypotheses, nor a final conclusion. Observing each sustainability factor group individually and collectively, there have been only minor, trivial changes. Looking at the total variance between the models, although the  $R^2$  had increased going from Model 1 through 3 to Model 4, the results in general remain rather limited.

Now that the results have been presented, and before the conclusion is reached, the limitations to this research paper shall be discussed. The following chapter will proceed to disclosing the limitations that were encountered throughout the journey of this research paper.

## **Chapter 6 - Limitations**

The main limitation to bring to light is that this research paper's dataset is based on cross-sectional data and not panel data. Additionally to this is the year that the data was recorded, which was in 2008. Looking at just these two limitations alone means that the results were not as recent as the time this paper was written, so ideas, policies and processes may have changed and improved, or possibly worsened from that time until now. SMEs that performed well in the sustainability test may possibly have gotten less sustainable, or may not even exist anymore, or vice-versa - companies that were classified as non-sustainable may have improved their operations and could be seen as sustainably-operational now. Also, as this was the year of the 2008 European financial crisis, companies which did not meet this paper's criteria for viability may have been eligible in the years before the crisis occurred, or years afterwards. Even companies that were deemed viable could have had their viability level dampened as a financial crisis has an effect on company viability. In terms of sustainability, this crisis could have possibly influenced choices for going for cheaper, less sustainable means of operation and production to cope with financial struggles.

Due to the nature of this one year, cross-sectional data, the proxy for 'viability' has no other alternative but to be seen as a current, one-time profit rather than being viable in the literal sense of growing prosperity. This dilutes the concept and vision of viability that was given in the literature review and results in a simplified proxy for the sake of completion under limitations for this research paper. A greater time span over a number of years would allow the proxy to reach its full realization as described in the literature review.

An important note to make which is inherent to the methodology is that regression results do not indicate a causal relationship, but rather an association. Again, panel data would be desirable in order to explore the causal mechanisms in the relationship between sustainability and viability.

EIM does in fact conduct a survey test to its SME members on a yearly basis, so data as current as 2011 was available for use. However, after going through all of the questionnaires from 2008 through 2011, the 2008 questionnaire proved to be the most suitable for this paper as it was the only one with questions on sustainability. None of the questions pertaining to sustainability resurfaced in the subsequent surveys, which is why the decision was made to use the 2008 dataset.

This survey data is only limited to SMEs in The Netherlands, but it shall be extrapolated to give an outlook on SMEs on a whole in regards to sustainable entrepreneurship, and with a sample size of almost 2000 SMEs, this will be more than sufficient to do so.

Finally, as this was a survey that was conducted by EIM and not from this research paper, there were possible inquiries that could be asked, but as this survey was not in the hands of this research, some things were left unknown. For example, with the sustainability questions, were these SMEs already as/not sustainable as they answered in the survey? Was there growth in sustainability or decline in it?

Now that the results and their limitations have been explained, the conclusion and recommendations will be given based on the results and literature presented earlier.

## **Chapter 7 - Conclusion and Recommendations**

Sustainability's rapid growth in popularity today shows that it demands attention and it demands change to help shed the image of costliness in the market to increase consumer adaption. Entrepreneurship is the spark of an economy, and sustainable entrepreneurship is the spark needed to make sustainability desirable to more and more consumers. This research paper's unique focus is to find out what others have not done yet for SMEs - find out if actively pursuing the three pillars of sustainable entrepreneurship is viable.

With the results of these four regressions in Chapter 5, the associations of each of these four different regressions in relation to 'viability' was shown and a proper answer to the research question can be given, which is, is sustainable entrepreneurship viable?

To first tackle the research question, a quick recap of the three hypotheses constructed to answer this question will be given below:

*H<sub>1</sub> = SMEs that encompass active policies towards social aspects are more likely to be viable*

*H<sub>2</sub> = SMEs that encompass active policies towards environmental aspects are more likely to be viable*

*H<sub>3</sub> = SMEs that encompass active policies towards economical aspects are more likely to be viable*

As stated earlier, each of the first three pillars of sustainable entrepreneurship correspond to each of the three hypotheses of this research paper.

Looking at the first pillar, the social aspects, the results are in line with this paper's view of the social aspects of sustainable entrepreneurship, namely the interpersonal relationships touched on by Bos (2002). As was described in the literature review, employees that enjoy their work environment are motivated to be more productive in their company, and this reputation as an employee-friendly company is an incentive for new employees to join their company. Thus, it is expected to see that companies that tend to take above-average care of their employees would see profitable returns in return. Looking at the response to more socially-responsible outputs, one can say that as a viable company has built up such a positive reputation as a people's company that they feel that it is not necessary to continue to broaden their horizons in this aspect. A partial reasoning for this thought is mainly the additional costs in pursuing these extra benefits, especially when they can be covered by the government or the employees themselves as Aupperle et al., (1985) touched on.

However, as theory from Bos (2002) pointed out, there can be lucrative advantages to obtaining the image of a source of socially-responsible goods and services, particularly at an SME-sized enterprise which grants their company benefits at an interpersonal level which larger companies find difficulty in competing with. There may be extra costs in striving for this goal, but the reward may prove to outweigh the costs immensely if the goal of winning brand loyalty and trust of the people is achieved.

The second pillar, the environmental aspects, did not support an association with viability at all. However, as these SMEs were not all 100% labeled as sustainable companies but rather SMEs being tested for their levels of sustainability, these results should not discourage SMEs from employing environmental measures and improvements to their companies and their products. The economy of today has continued its rapid shift in focus to greener, more biological products, and not only does this benefit the planet ecologically, but it can also be seen as ecological opportunities for entrepreneurs as Krueger (2005) made light of in his combination of sustainable and sustainability entrepreneurship.

Lastly, just as the second pillar, the economical aspects also do not support an association with viability. As this section dealt greatly with the innovative point of view aside from implementing and selling new products, it must be restated that as this is cross-sectional data based on a single period of time in a year, it is difficult to gauge this observation of new products and change being insignificant to company viability. There are many possible reasons for this result such as companies already finding their product or service niche by the time of this survey, having already gone through structural improvements or new product releases six months prior to this survey, or even planning to do so some time in the future, which are all beyond the scope for the time period of the survey. The companies producing or selling environmentally-friendly products sharing an insignificant association with viability at the time of the survey should see a change when looking at today's awareness for ecological welfare, in combination with the advancement of today's technology.

Thus, with the answers above, here is the research question once again: **are sustainability practices related to the viability of sustainable entrepreneurship?** The answer according to these results is, yes, partially. However, as the results show, there is no strong association between the three pillars of sustainability and viability. This in turn also shows that there is no negative association in actively pursuing sustainable measures and viability in SMEs. This conclusion shows that there are no grounds for belief that pursuing a sustainable means of operation will result in company failure, and should not be a reason for SMEs to reject sustainable entrepreneurship.

Future research is required to determine the right amounts of each sustainability aspect - social, environmental and economical - as this paper does not specifically test for this. Nonetheless, the literature of Crals and Vereeck (2004) suggest various views for each sustainability factor for SMEs to pursue a sustainable means of operation.

Crals and Vereeck (2004) state that the right amounts of the three P's of must be intermingled to ensure that the company can continue to exist to bring their sustainable method to the market to influence others in it and around it. Too much of the profit view will have you overlooking the planet and people, reducing the planet's limited resources and not catering to the people's needs and additional well-being. Too much of the people and planet and not enough profit diminishes your existence in the economy by failing financial-wise, which may see the company leave the market completely, or go in a different direction than initially intended.

Non-Viable companies with sustainable operations may find themselves fulfilling the People and the Planet P's – but not the Profit. What they need to do to be a *viable* sustainable entrepreneurship is to continue to uphold the two earlier P's, but to revise and strengthen their strategies for increasing sales and turning over a positive return for the Profit P. Whether it is to make connections to establish guaranteed sales of their sustainable products as per Bos (2002), or keep focus on the first two P's but take a page out of the sustainability entrepreneurship philosophy and find or create an opportunity in the market. Full-on sustainability entrepreneurship is not the ideal vision for this paper, however, a proper balance between the two which ensures financial success while still maintaining the principles of People and Planet can be an excellent blend. This is reminiscent of Krueger (2005) and his environment-based opportunity strategies as described in Chapter 2.

Successful sustainable companies that found the right blend of sustainability and profit, and had the right customers should be seen as examples as to operate sustainably in the economy. Although it might not be ideal for these companies to share their structure, methods and sources of income for the sake of competition, if they were to divulge publicly how they manage to be profitable in sustainable operations, it would be seen as encouragement to other SMEs that genuinely share the same sustainable entrepreneurship outlook.

Finally, the non-sustainable companies need to see how the People and Planet P's can benefit themselves, even when they are making losses. Something as small as separating waste (if possible) in order to recycle it can be seen as an additional source of income, no matter how minor it may

contribute to total income. In the social-responsibility sense, to repeat in short, being more active in the community increases brand loyalty so that the community gains trust in your brand name regardless of your product, and word-of-mouth can continue to build this reputation locally, something that large, multinational companies have trouble competing with (Bos, 2002). So no matter the situation, the right mixture of all these factors can ensure that with the right ideas, sustainable entrepreneurship can be viable.

With these results, I can safely see myself continuing to pursue my goal of creating a sustainable entrepreneurship, and hopefully others that read this thesis can be encouraged to do the same, once adhering to the theory and not being discouraged to increase support in People and Planet. Despite the fact that this research was conducted based on data from 2008, the results can be extrapolated to present times, and even the future, as sustainable operations is a necessity that only grows as time passes with the depletion of the planet's resources. If it were possible to expand this paper, my recommendation would have been to share the same sustainable questions over the years to view the progression from 2008 to the present to enhance the explanatory power of this paper even further.

As the final note - while going the sustainable route will incur extra costs, the benefits to moral, planetary and in turn, monetary satisfactory should outweigh the initial entry fee, as any risk-taking, devoted and driven entrepreneur wanting radical change would know.



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## Chapter 9 - Appendix

### Appendix A: Correlation Matrix of Sustainable Variables

		1	2	3	4	5	6	7	8	9	10
1	Viability	1									
2	Size	-.017	1								
3	NewProducts	-.035	.117	1							
4	NewImprove	.004	.275	.286	1						
5	TheEnviroP	-.031	.090	.162	.132	1					
6	TheECertification	-.055**	.099	.003	.059**	.127	1				
7	TheWasteSeparate	-.015	.100	.089	.105	.099	.075***	1			
8	TheEnviroSearch	-.077***	.158	.130	.178	.414	.184	.153	1		
9	ThePersonnel	.030	.274	.112	.267	.134	.052	.026	.120	1	
10	ThePeopleSearch	-.037	.190	.186	.237	.321	.111	.142	.446	.220	1

Significance level at 10% = \*, 5% = \*\*, 1% = \*\*\*