The impact of residual sustainability on stock behaviors

-A quantitative study on Swedish listed companies

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Abstract

Nowadays, the value creation and measurement of the economic performances have changed from traditional ways of maximizing shareholder’s wealth to maximizing stakeholder’s wealth. Companies are responsible for creating value not only for their organizations but also for the society as a whole because CSR issues attract a global attention and most countries are urging the companies to follow sustainable ways. In Nordic countries, Sweden is well known as a pioneer for sustainability and all the CSR activities are disclosed in Sustainability or CSR reports. Although there are many researches related to the impacts of sustainability reporting and CSR performance on firm’s growth or financial performance, a research examining the relationship between CSR performance and stock price volatility of the companies cannot be found. Therefore, we aim to investigate the impact of the residual sustainability which is one of the dimensions to measure sustainability, on stock behaviors and formulated the research question:

What is the impact of Residual Sustainability on stock behaviors?

The purpose of the thesis is to find out how residual sustainability is allocated in terms of monetary value, and whether this allocation of resources creates value for the shareholders or not. This leads to investigate the stock price volatility against the size of residual sustainability of the companies listed on Nasdaq OMX Stockholm.

In adopting research methodology, we followed functionalist paradigm through the assumptions: regulatory side under sociology, objectivism under ontology, positivism under epistemology, and positivism under axiology because we consider that companies are rational entities and aim to provide rational explanation of whether residual sustainability has possible impacts to stock behaviors or not. We answered the research question by adopting deductive approach. Based on exploratory and explanatory research, we designed archival research method to perform quantitative analysis in a cross-sectional study.

We developed our theoretical framework based on Sustainable Enterprise Theory, Legitimacy Theory, Shareholder Theory, Stakeholder Theory and Resource-based view Theory and the analysis was conducted and discussed by relating with those theories. We extracted the data from Eikon Data Stream for years 2015, 2016 and 2017. We used different statistical methods to test normality of our variables, and run the tests with multilinear regression model to address our research question.

The result indicates that there is no statistically significant relationship between residual sustainability and stock behaviors within the specific time frame. The possible reason is that the stock price is well adjusted before creating stock volatility because the sustainability in Sweden is likely to be predicted for the future. Secondly, most of the Swedish companies are fully utilized the residual fund for innovation, talent retention, research and development and other purposes and thereby it may create delay adjustment on stock price until value creation for organization is generated.

Keywords: CSR, Sustainable Enterprise, Residual sustainability, Resource sustainability, stock volatility, Sustainability report, Stock return, Financial slack, ESG.
Acronyms

CSR = Corporate Social Responsibility
ESG = Environmental, Social and Governmental
GRI = General Reporting Initiative
IR = Integrated Reporting
RS = Residual Sustainability
SCA = Sustainable Competitive Advantage
SET = Sustainable Enterprise Theory
STDV = Standard Deviation (Stock volatility)
TR = Total Return
VA = Value Added
VAS = Value Added Statement
RSP = Percentage of Residual Sustainability
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Chapter 1. Introduction

This chapter starts with the background of the study, presenting the reader with an introduction of how the market value of organization has been transformed from price-based evaluation to maximizing stakeholders’ wealth which turns the companies to focus more on CSR issues and follow the sustainable business ways. Moreover, the chapter reviews the existing theories and practices related to the studies of CSR. The research gap related to CSR and stock behaviors is identified in the problematization section which is a foundation of formulating the research question. Thereby, the chapter identifies the facts underpinning the research question and links to the research purpose. At the final part of the chapter, we provide delimitations, ethical and social considerations which are associated with the research topic. We conclude the first chapter by summarizing each chapter in disposition section.

1.1. Background

“In the last 35 years, the market value of organizations has slowly shifted from a price based largely on tangible assets to greater emphasis on intangible assets. The concept of value has fundamentally changed, and with it the dynamics of the global economy (EY, 2016, p. 1)”.

The intangible value creation is a strategic step of the organizations to create value for their organizations themselves and to fulfil social responsibilities for the society as a whole. The management approach of the companies is increasingly focusing on intangible assets, and the value creation and measurement of the economic performances have been shifted away from traditional ways of maximizing shareholders’ wealth to maximizing stakeholders’ wealth. As a result, companies have started focusing on corporate social responsibility (CSR) activities, and performing sustainable practices, especially on environmental, social and governmental (ESG) perspectives to achieve long term economic growth and to create a sustainable business world. It is obvious that organizational sustainability efforts have a big impact not only on businesses but also on the society. Therefore, we can observe that different governmental initiatives and other non-governmental organizations in the Nordic region are putting great efforts to engage in CSR activities for being sustainable countries over decades. Among these Nordic countries, Sweden is ranked as one of the top sustainable countries who is actively performing business practices in sustainable ways (Robecosam, 2016).

1.1.1. Theoretical point of departure

Friedman (1962) argues that the common capitalist approach of companies is to obey minimum laws and social responsibilities. Their profit seeking mentality lets the societal problems for government and public organizations, and it noticeably reflects the perfect notion of shareholder’s theory. However, in order to sustain their business in such a competitive business world, organization needs to focus on the important role of stakeholders. Otherwise, their products or services will be boycotted by stakeholders, in broader sense by the society. Thus, companies are increasingly concerned about to create value for the different groups of stakeholders and performing CSR activities. The reflection of organization’s CSR activities is largely disclosed in sustainable reporting. Thereby, there is a growing interest of sustainability reporting in past few years whereas
it is not mandatory for all the companies. A worldwide survey conducted by KPMG identified that the rate of publishing sustainability reporting by large companies has increased rapidly. In 2005, it was 50%, in 2008 it has increased to 80% and finally it has reached to 95% in the year of 2011 (KPMG, 2005, 2008, 2011). To date, the number of GRI reports from around the world which is stored at Sustainability Disclosure Database reaches to 29506 reports (GRI, 2018).

Academics, governments and sustainability reporting bodies are contributing and urging the companies to report their sustainability performances in order to create a better understanding of sustainable global economy. Therefore, organizations are increasingly adopting the integrated report which combines financial and non-financial information. Among the reporting instruments for integrated reporting, the traditional measure of value added (VA) information from financial statements, namely value-added statement (VAS) is a useful, efficient and reliable instrument for Integrated Reporting (IR) (Haller & Staden, 2014, p. 1191). It can be argued that the standards and practices of sustainability reporting are not uniformed whereas sustainability accounting is well developed based on audited financial statements (Fagerstrom & Hartwig, 2016, p. 36). Therefore, the VAS model is designed simply by separating two components: value creation and value distribution from profit and loss (P&L) statement (Aldama & Zicari, 2012, p. 488). This VAS shows the amount of economic value generated from the business and how much value is distributed among stakeholders (Haller et al., 2016, p. 1). GRI 201-1 (2016, p. 6) clearly states that the reporting organization should disclose its economic performance, by reporting the information about economic value generated from the entity and economic value distributed to the stakeholders. According to this standard, the data can be extracted from its audited financial statements or its internally audited management accounts. Therefore, the disclosure of economic value information is highly relevant for the interest of stakeholders.

The empirical evidences from academic research papers are also supporting the fact that the VA and VAS are useful and relevant measures to access the financial and nonfinancial information, and the researchers claim that VAS is one of the key instruments to improve the efficiency and effectiveness of the integrated reporting which creates benefits not only for shareholders but also for stakeholders (Aldama & Zicari, 2012; Bagienska, 2016, p. 92; GRI, 201, 2016; Haller & Staden, 2014;). Moreover, CSR performance has positive relationship with financial performance (Solomon et al., 2011, p. 1120). Therefore, there are signals that sustainability performance should have clear impact on financial performance. The value creation for shareholders is associated with the changes on stock prices and therefore, the possible impact of the value creation for stakeholders upon the stock volatility should be accessed for the sake of shareholders. Since the distribution of resources to sustainability depends on firms’ financial strength, the organization must manage to obtain and control the valuable resources and capabilities, and the organization, itself, is able to utilize and apply them efficiently in order to accomplish a state of sustained competitive advantage (SCA) (Kraaijenbrink et al., 2010, p. 350). Resource-based theory, therefore, is widely cited in the theoretical issues of management and other academic disciplines as it aims to identify the internal sources of the organization which
play an important role not only in firm’s growth but also sustainable business practices (Kraaijenbrink et al., 2010, p. 350).

1.1.2. Integrated Reporting and Sustainability
To improve the sustainable value creation, the concept of Integrated Reporting (IR) has been proposed and discussed recently in academic and business (Haller & Staden, 2014, p. 1190). According to the international integrated reporting framework (IIRC, 2013, p. 7), “an integrated report is a concise communication about how an organization’s strategy, governance, performance and prospects, in the context of its external environment, lead to the creation of value over the short, medium and long term.” The main concept is that organizations are in need of creating long term value not only for business but also for society as a whole, in terms of sustainable strategy (EY, 2016, p. 1). The process of value creation and value distribution of sustainable organizations is described with three layers (EY, 2016, p. 3). The first layer quantifies the financial capital gains of the organization in terms of stock price. The second layer measures how the value is shared among stakeholders, and the third layer identifies the externalities which generate values to the society as whole. Bagiensak (2016, p. 93) shows that the main concern of stakeholders is how the generated income is allocated to the financial, human and social capital of the firm. Therefore, the value-added model which measures the five dimensions: financial, social, environmental, technological and residual sustainability is one of the key instruments of IR to improve the communication with internal and external stakeholders, and to ensure that organization meets its social responsibility (Fagerstrom & Hartwig, 2016, p. 38).

1.1.3. Residual sustainability & Stock volatility
To date, the empirical evidence suggests that the sufficient allocation of resources: fixed assets, current assets and manpower are key components of the sustainability accounting and they all depend on the efficiency and effectiveness of the resource strategy (Kaur & Lodhia, 2018, p. 359). From the stakeholders’ perspective, the information about the allocation of generated value is most important. Therefore, the GRI standard (201-1) is designed to report all specific disclosures of how organization manages its material resources and create value for the stakeholders. Under this GRI standard (201-1), economic value generated is firm’s revenue; economic value distributed is calculated by adding the value distributions of operation costs, employees’ wages & benefits, payments to providers of capital, payment to government by country and community investments. After these steps, this guidance states that economic value retained can be obtained by subtracting the amount of economic value distributed from economic value generated, if the information is presented in monetary basic (GRI, 2016, p. 6).

Based on traditional VA (cash flow measure), Fagerstrom & Hartwig (2016, p. 38) developed a modified value-added model in which economic value distribution is categorized into five dimensions of sustainability: Financial, Social, Environmental, Technological and Residual sustainability. Among these dimensions, financial, social, environmental and technological sustainability are distributed portions to the stakeholders. However, residual sustainability which is one of the five dimensions is not distributed to the stakeholders, and it is a reasonable amount of value added which is
retained in the company for future use so that the company will not face financial stress in future (Fagerstrom & Hartwig, 2016; GRI 201-1, 2016; Haller & Staden, 2014). Although GRI (201-1) do not use the term of residual sustainability, the purpose and the calculation of economic value retained which is explained in the beginning of this section is same with the purpose and amount of residual sustainability adopted by Fagerstrom & Hartwig (2016, p. 38). Therefore, we can claim that the term: residual sustainability which is retained in the company for future purpose is same with the portion of economic value retained, shown in GRI (201-1, p. 6).

We can observe that the value-added statement (VAS) discloses the reliable information of how the generated value of the company is distributed to the wealth of different groups in our society. However, the portion of residual sustainability is not distributed to the shareholders whereas it is a wealth creation to the stakeholders (Haller & Staden, 2014, p. 1193). All distributed amounts of value added are relevant for accessing the growth of the firm in terms of financial performance, and these VA figures indicate the market position of the firms (Haller & Staden, 2014, p. 1200). Pong & Mitchell (2005, p. 195) also claim that the VA model is more related to the stock movements than the model which is based on accounting profit because the value-added information reveals the better explanations of the market risks. However, there is no clear indication or study of which determinants influence to the size of residual sustainability, and how it can influence to the stock behaviors.

The stock behavior is not static but rather volatile and depends on several internal and external factors (Narayan et al., 2013, p. 661). Internal factors (fundamental) depend on the organization's financial and non-financial operational strengths, and external factors depend on stock market performance which behaves based on the demand of the stocks and people’s confidence to hold the stock for the long term. According to Pintea et al. (2014, p. 823), most of the empirical research which studied the association between the environmental and financial performance of the companies are based on the data from US and European entities where sustainable practices are highly performed. Cheung (2011) conducted the event study to find out how financial market of US stocks reacts to the announcement of the companies’ index inclusion and exclusion on Dow Jones Sustainability World Index over the period 2002–2008. The impacts on US Stock’s price movements were measured in terms of stock return, volatility and liquidity, and the results showed that there were only temporary changes (decrease and increase) in stock return and no strong impacts on stock return and risk (Cheung, 2011, p. 145). From shareholders’ perspective, this study indicates that the US investors less value corporate sustainability. On the other side, the empirical evidence shows that the stakeholders in EU are more sensitive to the sustainability issues. The environmental incidents of non-sustainable entities in EU countries, therefore, affect the stock prices negatively (Lundgren & Olsson, 2009, p. 19). These evidences are highly relevant to conduct a study of the stock movements upon residual sustainability in Sweden. We therefore aim to examine the stock price volatility in relation with internal factors of the firm, residual sustainability.
1.1.4. CSR in Sweden/Nordic countries

Sweden is well known as the world’s most sustainable country and the country scored at the first place in ESG ranking, rated by RobecoSam (2016, p. 4). According to the Global Compact-Network Nordic Countries (2018), “CSR managers from Swedish companies actively participated in establishing the Nordic network”. Moreover, the information states that more than 250 Swedish signatories have registered in UN Global Compact, and 62 Swedish companies are members of Nordic network. To date, Swedish companies are disclosing their CSR practices by publishing voluntary report or sustainability report, and they are in the leading role by integrating sustainable business practices into their strategies and by upgrading their management approach to achieve sustainable business goals. Furthermore, it can be observed that the power of stakeholders and government interventions in Sweden are also at the forefront in engaging CSR activities and creating sustainable economic development. Therefore, the Organization for Economic Co-operation and Development (OECD) survey (2017, p. 14) shows that Sweden achieves a high quality of life due to the growth of sustainable initiatives over the past two decades, and it is identified as one of the most innovative OECD countries which have been embracing with environmental technologies (envirotech) and practices.

1.2. Problematization

As we have mentioned above, there is a positive relationship between the disclosure of sustainable performance and financial performance of a firm in the countries where ESG practices are actively performed in order to achieve sustainable business goals (Cheung, 2011; Lundgren & Olsson, 2009; Pintea et al., 2014). Unlike shareholder-oriented countries such as U.S., we can observe that the stakeholder-oriented country, Sweden, is more sensitive about corporate sustainability, and the financial market reacts on the firm’s CSR efforts due to the stakeholders’ perception about the firm’s value, measured on sustainable performance. Although VAS is one of the key instruments to improve IR (Aldama & Zicari, 2012; Bagienska, 2016; GRI 201, 2016; Haller & Staden, 2014), most of the Swedish companies do not publish VAS separately and the information about economic value generated, economic value distributed, and economic value retained (residual sustainability) are disclosed in financial statement or sustainability report, as a part of the company’s economic performance. From traditional financial approach, the economic value retained is a part of the shareholders’ wealth and there is no proper reason to keep in later use if it will not create value for both shareholders and stakeholders group.

The main concept of VA model is a creation of wealth to stakeholders and the monetary values are presented to show how the generated value is allocated among the different groups of stakeholders. Although the researchers claim that the data from VA model has strong association with market position and stock movement, and the value-added information influences on the firm’s financial and stock performance (Bagiensak, 2016; Haller & Staden, 2014; Pong & Mitchell, 2005). The modified VA approach of Fagerstrom & Hartwig (2016) shows how the economic value generated from the firm’s is allocated to the five dimensions of sustainability. However, there is no clear
indication and no prior empirical study to observe whether the residual sustainability which is not distributed to the shareholders creates wealth to the stakeholders or not. Thereby, our problematization starts from checking connection of residual sustainability and stock price volatility. In this study, the issue is that, if companies keep residual amount from their earnings then does it send a positive signal for future development to the stakeholders and does stock price go up? On the other side, shareholders may perceive that retained value is against their interest because this amount could be distributed as a form of dividend to increase shareholder’s wealth. If it is not distributed, it may lead to decrease the value of stock, resulting from selling decisions. The dilemma of value creation for stakeholders and value protection for shareholders is interesting from a theoretical point of view.

The 2020 vision of EU is to drive for sustainable development and adaptation of long term challenges especially for economic resource efficiency and distribution (European Commission, 2010, p. 3). By addressing the EU vision, Sweden has announced mandatory CSR reporting from the year 2017 (Mazars, 2018), as a means of achieving sustainable long-term development, as the country is pioneer in engaging sustainable economic reforms. It would be interesting to see the new changes in company’s decision-making process, after the imposition of law. However, there will be some incompatibility in CSR reporting as the mandatory reporting laws do not say any unique standards to follow like GRI. In that case, the firm’s economic performance and the allocation of generated value to the sustainability will be influenced as well. However, to authors’ knowledge, there is a research gap which conducts the study about the association between the retained value (Residual sustainability) and stock behaviors, under the incomparable format of the disclosures of sustainability reporting.

1.3. Research Question

The impact of CSR is also as important to the society as for the corporation itself. There are a lot of researches on the impacts of sustainability reporting and CSR performance on firm’s growth or financial performance. However, a research examining the relationship between CSR performance and stock price volatility of the companies cannot be found, and we have observed that the investigation of the connection between CSR and stock price needs broader scope. Moreover, there is a fact that the impact of the sustainability in Swedish companies may be forecasted and consequently adjusted to the stock price. Thus, we came up with an idea to investigate impact of residual sustainability on stock behaviors. Usually, after satisfying the expenditure, the saving of company’s earnings for future purpose including sustainability and profitability for firm’s growth, is known as residual value. We, therefore, want to analyze whether the residual sustainability plays any role in stock price volatility in Swedish stock exchange (NASDAQ OMX Stockholm) or if CSR, and sustainability effect, is embedded in the stock price. The analysis will be conducted through the lens of sustainable enterprise concept and from the perspective of shareholders and stakeholders view. All above mentioned discussions led us to develop the following research question:

**What is the impact of Residual Sustainability on stock behaviors?**
1.4. Research Purpose
As mentioned earlier, our general purpose in this thesis is to investigate the relationship between residual sustainability and stock price volatility. Firstly, we aim to investigate, how do companies allocate VA or resources for residual sustainability as a means of CSR. Also, we try to find out, whether the allocation of residual sustainability is part of CSR or for value creation. After doing so, our next purpose is to investigate the stock price volatility based on size of residual sustainability for the listed companies in Stockholm stock market, and subsequently we will cover all the listed companies based on preset criteria for market generalization. Our research question will be tested by dividing companies in different industries. We will analyze the possible impact for the years of 2016 and 2017 to see the effect of the preparation of mandatory CSR reports in Sweden. Our findings are expected to deliver the better understanding to the investors, companies and mutual fund raisers, whether or not to invest in the companies which retain the portion of value added amount for later use. It will also help the companies to set and manage the size or limit of residual funds to avoid any consequences from impacting negatively stock volatility.

1.5. Theoretical and practical contributions
As a quantitative study which has no prior similar studies, the study aims to expand the literature of shareholder, stakeholder, value-added, SET and resource-based theories by relating with our findings. Since sustainability is a global trend in today economy, our study in Sweden, global sustainable leader, will contribute to a better understanding of the creation of stakeholder’s wealth which is under value added distributions, to the academic scholars, shareholders and stakeholders. Moreover, the research findings will theoretically contribute the different perspectives of whether the allocation of resources influences stock movements and whether it can create benefits to the shareholders or not. Furthermore, since the study will be conducted in stakeholder-oriented country during limited time frame, our finding will broaden and reflect the current practices in sustainable development, and there will be time lag issue which may challenge to the existing empirical evidences: benefits of sustainable economy and financial performance, and the organizational theories. Since the study will be conducted in specific stock market (NASDAQ OMX STOCKHOLM), our findings will be a good foundation for further research to conduct the study in different geographical areas and to examine how the other stock markets will behave on the value-added amount which is retained in the company and can contribute the impacts of sustainability model theoretically to a larger extent. In other words, our study can serve as a benchmark for further investigations to the main determinants of sustainability by relating the fields of accounting and finance. The findings generated from our exploratory and explanatory research, will fill the research gap in existing literature of value-added model and the performances on sustainability. Moreover, this research will be a good foundation for those who aim to examine whether the disclosure of value added distributions in the other four dimensions of sustainability have same impacts on stock movements or not.
1.6. Delimitations

Our study is specific, and the area of the research is narrow because there is no prior study and the research will mainly focus on the association between stock behaviors and residual sustainability of all listed companies traded on NASDAQ OMX Stockholm. Moreover, the study will not concern the effects of other dimensions: Financial, Social, Environmental, Technological on stock volatility, and our study will be applicable to the association between residual sustainability and stock behaviors under the analyzed stock market. Furthermore, we will not analyze the management approach or strategy of how firms allocate the value-added amount among the dimensions and will not investigate the outcomes of CSR performances of the firms. This study aims to measure in monetary terms and will not investigate the investors’ behaviors or views on sustainability which can influence the firm’s value. Due to the limitation of time frame, the time frame of the research is covering stock behaviors against residual sustainability in short term period (2016-2017), and the extend period or longer time frame will affect or challenge the results of our analysis. In addition, the authors are unable to analyze and compare the impacts of the residual sustainability on stock movements in Nordic countries which are in the forefront in sustainable economy because this comparison study needs enough time to extract and analyze the findings, as a first empirical study. From the geographical perspective, the stock movements will be conducted on developed financial market in Sweden, and the reactions of the stocks will not be the same if the study is conducted in developing countries. Therefore, the theoretical and practical contributions of this research are only applicable to the companies in Sweden within the chosen time period. As this is the Master level thesis under the department of business administration, the authors will use the terminology related to business, finance and accounting fields and our process of research and findings are easy to follow by only our target audience such as practitioners, financial analysts, investors, shareholders and stakeholders who have basic business knowledge.

1.7. Ethical and social considerations

Our topic is broadly related with CSR which contributes in greater deal to ethical, social and environmental respect. It is modern organization’s duty for being responsible ethically to the society where it operates to confirm organization’s ethical strategic position and grab attention form the society for business perspective. To comply with EU 2020 vision, companies operating in EU need to ensure the sustainability development in terms of resource efficiency for economic and social progress. In that case, Sweden is a pioneer in creating sustainable business world and Swedish companies have been staying ahead for a number of years.

Shiller (2013, p. 2) argues in his paper that there is a connection between finance and ethical considerations, where finance is considered as a tool of achieving business and social goal. In context to our thesis, we will find out how much portion of earnings are kept in the companies as a residual sustainability, and how much they distribute to the different dimensions of sustainability for the sake of stakeholders from the perspective of ethical and social considerations.
1.8. Disposition

Chapter 1
In the first chapter of this thesis paper, the authors explain the motivation and background of the selected topic. The authors also describe the overview of theoretical and practical contributions within the chosen topic by addressing the knowledge and research gap with the help of problematization. Thereby, the further sections identify the reasons of formulating research purpose and question. At the end of the chapter, the authors accentuate the first part of the research in the light of social and ethical considerations and address the delimitation.

Chapter 2
The second chapter explains the research methodology that the authors employ in this thesis paper. The authors identify the research philosophical assumptions and give argumentations under their chosen perspectives. By following the interrelations among the philosophical assumptions: Sociology, Ontology, Epistemology, Axiology and Methodology, the authors present what they believe about the nature of the society, and how they measure the generated outcomes which are the reality of the world that we live in. This section is complemented respectively by research approach and research design which involves purpose, strategy, method and time horizon of the study.

Chapter 3
In the beginning of the third chapter, the evolution and history of the modern CSR are well identified. In the middle of the chapter, authors discussed about the theories which motivated to develop the hypothesis. The key theories related to this thesis are sustainable enterprise theory (SET), legitimacy theory, stakeholders and shareholder theory and resource-based view. Finally, the authors presented about the stock behaviors and showed how it can be related to the residual sustainability.

Chapter 4
The chapter four presents the empirical study which aim to address the research question. The first part of the chapter explains how the target population is defined and presents how the research sample is collected. It is followed by the sections of identifying the variables and transforming the data to do the statistical analysis. Thereby, the chapter describes about the basic knowledge of multilinear regression model and finally ends the chapter with the explanation and developing of hypothesis testing.

Chapter 5
The chapter five provides the statistical results generated from statistical testing models. The first part of this chapter explains the basic characteristic of population, samples and variables in terms of descriptive statistics which aim to provide better understanding of results. The last part of the chapter shows the results of hypothesis testing and identify whether the results are failed to reject the null-hypothesis or not.

Chapter 6
Chapter 2. Research Methodology

This chapter begins with the discussion of choice of topic and preconceptions in choosing our research topic and identifies the perspective of the thesis which we conduct our research. The chapter presents the research philosophy which we develop by explaining the Sociological, Ontological, Epistemological and Axiological assumptions. Thereby, we define the stand point of our methodological position and explain the reasons of choosing functionalist research paradigm. Moreover, we clarify the facts which is relevant for choosing a deductive research method. Under research design, we provide our arguments for choosing exploratory and explanatory research purpose and explain the reasons of adopting archival research to conduct a quantitative study on a cross-sectional study. As a last part of this chapter, we explain the credibility of our research and ethical and social considerations. Lastly, we conclude the chapter two by reviewing the choice of literatures and summarizing the choice of methodological position.

2.1. Choice of Topic and Preconceptions

Our general knowledge and academic backgrounds that we have studied so far played an important role in choosing our research topic. Through the contents of our accounting, finance and management subjects which taught us about the influence of sustainability issues on business world, our interest is growing in sustainability, and we, therefore want to investigate the interconnections between sustainability, accounting and finance field. The popularity of environmental business practices and engagements in today business environment are an important part of our concerns in developing our research topic. Thereby, we limited our literature research on sustainability, accounting and finance areas. The increasing numbers of scientific journals underpinning CSR issues are also good foundations for us, in relating sustainable business practices with...
reactions of financial markets. By following the feedbacks and guidance from our thesis supervisor, we finalized our research topic, and identified the main aspects of the research topic: residual sustainability and stock behaviors.

In Nordic countries, we have observed that sustainability is a major issue which is always at the forefront in today’s news. Not only businesses but also government are actively participating in CSR issues in terms of global matter. Among these countries, the Swedish Government’s legislation on the disclosure of sustainability reporting which is affected from 2017, has changed the standard from voluntary reporting to mandatory reporting. This shows how Swedish government is ensuring that the companies must conduct the businesses in sustainable ways. In addition, since most public companies have been publishing voluntarily their sustainable activities before government’s legislation, we assume that Sweden is a best proxy to analyze the investor's view on sustainability and find out whether the allocations of firm’s generated value to the sustainability create benefits to the company or not. Moreover, we can observe that the disclosure of sustainable business practices can affect the financial performance of individual companies in terms of profit and costs. Thereby, from our accounting and finance perspectives, we aimed to measure what might be the influence of the accounting figures disclosed in VAS, or the disclosure of economic performance upon stock behaviors traded on financial markets. Among the allocated figures to different dimensions of sustainability, the monetary value which is not distributed to shareholders is a significant component. We, therefore decided to investigate what drives them to reserve the amount for residual sustainability and to measure the interlink against stock movements which is shareholder interest. The entire research process will be remained as objective to ensure that the research is free from bias which may be generated from our eventual preconceptions.

2.2. Perspective of the Thesis
This research paper has been conducted from the perspectives of stakeholders and shareholders. From stakeholders’ perspective, residual sustainability is a monetary value, distributed from the company’s revenue for the sake of stakeholders’ interest, and that relevant amount has been retained in the company for future purpose. On the other hand, the main concern of shareholders is about how the company manages its allocation of resources and how residual sustainability affects to the stock price in public listed companies. Moreover, shareholders are concerned about what might be the possible impacts of residual sustainability on stock volatility and subsequent return to the company which is the shareholders’ interest and firm’s profitability. Therefore, both perspectives guide us from the beginning stage of topic selection to data collection process by showing in what ways the research should be approached and developed methodologically. The contributions of the research, therefore, are entitled to shareholders and stakeholders.

2.3. Research Philosophy
Business research is a well-structured process or organized actions of gathering and analyzing and interpreting specific information (data) in order to contribute to new
knowledge or findings, and to improve understanding of the phenomena underpinning the focused area (Sachdeva, 2009, p. 6). In order to follow the standard pattern of research process from the stage of research design to writing-up the thesis, research methodology guides the authors toward what can be observed, how research should be conducted, and which theoretical assumptions and philosophies should be relied upon, based on chosen research topic (Sachdeva, 2009, p. 7). A research paradigm is a starting point of the research design, and its philosophical framework reflects the research strategy, and guides us how to adopt the alternative as well (Saunders et al., 2009, p. 108). Moreover, research philosophy guides the researchers to be in right path in refining or evaluating the research methodology and method that they approach (Crossan, 2003, p. 48). Therefore, understanding and questioning philosophical issues are very important in conducting research for the researchers to generate better ideas and develop further research questions related to the research topic (Crossan, 2003, p. 47).

2.3.1. Sociological assumptions - Regulatory
Burrell & Morgan (1979, p.1) said that “all theories of organization are based upon a philosophy of science and a theory of society”. Their study claims that all social researchers approach their studies based on the assumptions about the nature of society and develop the ways to investigate the subject accordingly. According to their analysis, there are two broad sociological dimensions: sociology of regulation, and sociology of radical change. Sociologists from the regulation side view the society as unity and cohesiveness, and they are primarily concerned with the definition of the society, whereas sociology of radical change mainly focuses on the explanation of radical change and views the society as structural conflict, contradiction and a human’s emancipation (Burrell & Morgan, 1979, p.17-18).

Hassard & Cox (2013, p. 1706) also identified that the four paradigms underpinning two sociological dimensions: functionalist, interpretive, radical humanist, and radical structuralist exist exclusively and found out that these paradigms view the organizations or social phenomena from different perspectives. In terms of nature of science, functionalism and radical structuralism stand on the side of objectivism whereas interpretivism and radical humanism stand on the side of subjectivism (Hassard, 1991, p. 277). We can observe that sociologists focus on the understanding of why the society is build up as an entity. In contrast, sociologists under radical change try to escape from the dominant structure of the society. In this research, the authors aim to investigate the impact of residual sustainability upon stock behaviors, and we assume that the phenomena are occurring rationally in our society. Thereby, we aim to explain the findings by using objective approach as a nature of science. As we assume that the society is evolving rationally, and the researchers or theorists always attempt to identify the human needs within our society, we will stand on the regulation side of sociology.

2.3.2. Ontological assumptions – Objectivism
Ontological assumption is concerned with the particular views of what we believe about the nature of reality and how the researchers view the ways the world runs (Saunders et al., 2009, p. 110). According to Burrell and Morgan (1979, p. 1), social science
researchers approach their studies by examining themselves whether the nature of the social world is existed itself, or the reality is generated from individual awareness or own observation. Under ontological dimension, there are two main aspects: objectivism and subjectivism, and both assumptions are accepted and followed accordingly by the business and management researchers from different perspectives. Objectivism believes that social reality exists objectively as an only one reality and it cannot be constructed by the researchers because it is external to the individuals (Collis & Hussey, 2014, p. 47). In addition, it is a paradigm which believes social reality is singular and objective, and its existence cannot be influenced by the investigations of researchers (Collis & Hussey, 2014, p. 43). On the other side, subjectivism argues that the reality of the world is subjective because it is socially constructed by the individual’s own imagination (Collis & Hussey, 2014, p. 47). As the actions of social actors are not consistent and the social actors perceive the different phenomena in varying ways, the nature of reality is needed to revise constantly upon different perceptions and actions of social actors or researchers (Saunders et al., 2009, p. 111). Thus, subjectivists believe that there are multiple realities.

In our business world, organizations are social entities which exist objectively because the essence of the management functions of the organization cannot be influenced by the actions of external social actors (Saunders et al., 2009, p. 110). In this research, the authors aim to investigate the associations between the residual sustainability disclosed in the sustainability reports and the stock prices listed on NASDAQ OMX Stockholm. Most of the entities publish annually the sustainability report which discloses about their CSR initiatives or sustainable practices. Although individual sustainability reports are not uniformed, the report itself is objective and external to the authors. It is because the authors will observe the presented information and our ideas and sense of reality cannot influence the process and structure of the management related to the sustainable performance. Similarly, to find out the stock behaviors against the value of residual sustainability, the authors will analyze the stock prices which exist objectively on the specified financial market. Therefore, the authors assume that the reality of social world is separated from the actions of social actors, and the world operates itself before social actors interact with the phenomena. We, therefore, will stand on the sides of objectivism.

2.3.3. Epistemological assumptions – Positivism
Epistemological assumption is concerned with what individuals constitute as acceptable knowledge in a particular field of study (Saunders et al., 2009, p. 112). It is all about justification of knowledge in which one might try to discover the nature of the world and shares the finding with fellow people in terms of knowledge (Burrell & Morgan, 1979, p. 1). Under epistemological nature, one can find out about which is acceptable or regarded as true or false knowledge under own observations (Burrell & Morgan, 1979, p. 1-2). By examining the association between the researcher and the subject that is analyzed, positivists accept the social phenomena as valid knowledge only if it is observable and measurable and the researchers believe that knowledge is generated from objective evidence (Collis & Hussey, 2014, p. 47). Moreover, positivism claims that this assumption develops a clear and systematic quantitative approach to observe
and measure the numerical data as research resources (Crossan, 2003, p. 46). On the other hand, interpretivism argues that the researcher influences the social phenomena and knowledge is generated from the subjective evidence from the researcher (Collis & Hussey, 2014, p. 46). In addition, interpretivists believe that the nature of knowledge will vary upon the researcher’s experiences and personal nature (Burrell & Morgan, 1979, p. 2).

In this research, the research question involves two main aspects and we aim to test the causal relationship between these two variables by hypothesis testing. Under positivism, the framework allows us to do statistical testing of quantitative data to derive the knowledge through the observations, and guides us how to conduct the phenomena objectively. Moreover, positivism explains how to measure research variables and establish the pattern underpinning the social phenomena (Collis & Hussey, 2014, p. 44). We, therefore, follow positivism and adopt the quantitative approach to quantify research data and verify our research findings scientifically. The research resources that we will investigate are existed independently from us as a form of observable and measurable data, and we cannot interact with the phenomena and external to the data collection process. Since we have chosen objectivism side under ontology for our research, and our identification of knowledge is matched with the beliefs of the positivists, this study will stand on the side of positivism under epistemological assumption.

2.3.4. Axiological assumptions - Value free

Axiological assumption is a branch of philosophy which makes judgement about the value of the research process (Saunders et al., 2009, p. 116). Positivists believe that they conduct the research independently and it is value-free because they are external from what they research and investigate the phenomena objectively. Moreover, positivism claims that the object exists itself before the researchers conduct a study, and the reality, thus, cannot be altered by the research process (Collis & Hussey, 2014, p. 48). In contrast, interpretivism argues that the research process can vary depending on the researcher and the participants in the study. Therefore, interpretivists believe that the research is subjective, and the different interpretations come from the individual researchers and subsequently it is not value free (Collis & Hussey, 2014, p. 48).

In this research, the views of positivism under axiological assumption are highly matched with the nature of our research, because we aim to collect secondary data, authentic information, from published reports and information or objects cannot vary when we do research. Under positivism, our research can be considered as value-free and unbiased because we conduct the research independently and aim to investigate the interrelationship between the impact of residual sustainability and stock behaviors quantitatively. Moreover, we claim that the findings from the research cannot influence the existence or the pattern of the research objects as the research process is highly structured. By rooting objectivism and positivism under ontology and epistemology respectively, the positivism under axiological assumption allows us to collect a large sample of quantitative data which can reflect the credibility of our research (Saunders et al., 2009, p. 118).
2.3.5. Research paradigm - Functionalist

Research paradigm guides the researchers how to explore the issues underlying the research questions and it facilitates the ways of how to approach the analysis of the nature of reality, knowledge and existence (Brand, 2008, p. 447). Saunders et al. (2009, p. 119) illustrated that there are four main paradigms: functionalist, interpretive, radical humanist and radical structuralist. Since the assumptions about the nature of reality and knowledge have changed overtime in order to fill the gaps in previous paradigms, new research paradigms originated from natural sciences were adopted and accepted universally (Collis & Hussey, 2014, p. 43). Among those paradigms, functionalist paradigm is solidly generated from the sociology of regulation and it guides the research to approach its subject matter objectively (Burrell & Morgan, 1979, p. 25). Moreover, this paradigm serves as a strong foundation for conducting sociological concerns and organizational affairs (Burrell & Morgan, 1979, p. 25). Saunders et al. (2009, p. 120) also support that most business and management research adopt this paradigm. It tends to be on the side of realists who are mainly concerned about the ways of generating knowledge which can be applied within the society, and its approach often uses problem-oriented ways in order to generate practical solutions to practical problems (Burrell & Morgan, 1979, p. 26).

In this research, we assume that organizations are rational entities, and we are more concerned with providing rational explanation of whether a residual value-added information of the organization impacts stock behaviors. Functionalist paradigm guides us setting foundations for main studies of organizations (Smirnova & Zavertiaeva, 2017, p. 660). Moreover, it shows that empirical evidence is an effective way to examine the theory. By developing functionalist paradigm, we are able to provide reliable definitions and results for our research question because the paradigm believes that the society is independent from us and we can clarify, examine and measure the social phenomena within natural science (Smirnova & Zavertiaeva, 2017, p. 660). Therefore, this research favors functionalist approach from objectivist point of view because we aim to observe, measure and identify the empirical facts and interrelationships between residual sustainability and stock prices of social entities.

2.4. Research approach - Deductive

By rooting in philosophical assumptions of research, the researchers approach their studies in two different ways or adopt both: deductive and inductive research methods. Deductive approach allows the researchers to interact with the phenomena of social entities, predict the changes and allows them to control the tested variables (Collis & Hussey, 2014, p. 7). The reverse of deductive approach is inductive research approach in which the method allows different explanations from individual observations upon particular research event (Saunders et al., 2009, p. 126). Deductive method moves from general to the particular pattern whereas inductive method defines the changes from particular to generalization (Saunders et al., 2009, p. 127). Through deductive approach, the researchers will develop theoretical framework and test with hypotheses against empirical evidence using statistics (Collis & Hussey, 2014, p. 7). According to Robson
(2002, cited in Saunders et al., 2009, p. 124-125), the process of deductive approach is classified into five steps. First of all, deductive approach develops a conceptual and theoretical framework and formulates a proposed statement which involves two or more testable assumptions or variables in order to deduce hypothesis testing. Secondly, the stage identifies in details how research variables or concepts are investigated to ensure that hypothesis testing is developed into operational methods, and test the variables against empirical evidence as a third step. The fourth stage is evaluating the findings of the research to verify whether the theories or proposed testing are rejected or not. In final stage, tested theories can be revised according to the outcomes of the hypothesis testing, if the action is needed.

From the authors’ perspective, this research will deal with the hypotheses which aim to investigate and verify the extent of the association between two variables: residual sustainability and stock return/volatility, the study will follow deductive approach (Walker, 2006, p. 151). This study will conduct hypothesis testing, which is numerical data testing against empirical evidence, in order to find out the validity of the predicted statement, underpinning research question (Taneja et al., 2011, p. 348). Hypothesis testing allows our study not only to control the research variables but also to measure the facts quantitatively. Brand (2008, p. 433) also claims that positivism is concerned with verification of hypothesis, and the majority of empirical business researches have conducted the studies by collecting specific data and developing hypotheses from the theories. Since this research is stemmed from positivism, it will focus on the deductive approach which is also attached to the philosophical assumptions of positivism. We will write the theoretical framework as a separate section so that the readers can easily identify important aspects of the theories and they can give more attention how the theories related to the study as well (Creswell, 2014, p. 32).

2.5 Research Design
After we have clarified the research paradigm in earlier sections, we formulate our research design which reflects philosophical framework of our paradigm and involves collection and analysis of research data. Saunders et al. (2009, p. 137) claim that research design provides clear objectives of the research question(s), and identifies sources of data collection, time constraint, and ethical and social issues to ensure that it meets the general plan of answering the research question(s) empirically and theoretically. According to the purpose of the research, the research design can be classified into four basic types: exploratory research, descriptive research, analytical or explanatory research, and predictive research (Collis & Hussey, 2014, p. 4-5).

2.5.1. Purpose - Exploratory & Explanatory
Exploratory research is defined as an investigation of ideas and patterns underpinning the research subject, and basically few or no prior studies were conducted before (Collis & Hussey, 2014, p. 4). It is all about seeking and gaining new insights to be familiar with the research area and generating better understanding of phenomena or specific issue (Saunders et al., 2009, p. 139). As an advanced stage, when the research is needed to go further in-depth in examining research gap, descriptive research study is
conducted to describe the characteristics of research problem and to give a clear structure of the phenomena (Saunders et al., 2009, p. 140). The next stage is analytical or explanatory research which aims to study and measure the interrelationship between selected variables (Collis & Hussey, 2014, p. 4). Lastly, the research which forecasts similar events or problems in future on the basis of the research’s answers to current situations, is defined as a predicted research. It assists in addressing the research questions which try to establish the relevant solutions to future issues (Collis & Hussey, 2014, p. 5).

From our perspective, the first part of this research matches with exploratory research because we design our research to address the research question by exploring the composition of monetary value of residual sustainability (Collis & Hussey, 2014, p. 4). Moreover, to our knowledge, there are no prior researches which are similar to our research topic. We will explore what is happening under the phenomenon in order to get new insights (Sachdeva, 2009, p. 12). Therefore, we argue that the preliminary part of our research is designed to be exploratory. By moving to further stage, which can be identified as explanatory research, we are able to access the numerical data to find out what is happening under proposed research questions and to clarify the patterns between research variables. As we primarily aim to discover the relationship between residual value-added amount and the volatility of historical stock prices, and measure the extent of impact between them by using statistical methods, the later parts of the research is an explanatory study (Collis & Hussey, 2014, p. 5). It will explore a cause-effect phenomenon.

2.5.2. Strategy – Archival

There are many research strategies such as experimental study, survey, case study, action research, grounded theory, ethnography and archival research, and researchers adopt the strategy which is suitable for their types of research (Collis & Hussey, 2014, p. 60). Among them, archival research is primarily concerned with the main source of high quality data which can be used in conducting quantitative study, and the relevant data can be collected from the administrative records or documents (Saunders et al., 2009, p. 150). Das et al. (2018, p. 138-139) define that archival data are the data which are collected and integrated into the computerized system, and it aims to provide statistical or non-statistical information for other purposes. Moreover, they clarified that organization’s archives may provide annual report, sustainability report and other data which are collected and stored in the system on a timely basis. Furthermore, they claim that archival research is suitable for generating new information and examining the existing data against the other sources. We can observe that archival data, therefore, can be analyzed quantitatively to address the question upon existing theories and formulate new theoretical framework.

Archival research allows the users to access public data in easy and affordable way. For sensitive data, the public access may be denied. However, the aim of our research is to access secondary data and to figure out the patterns among published information. The restriction of data for public access, therefore, will have no significant effect to our study. The research question will be answered by analyzing the stock movements and
residual sustainability information which are disclosed to the public. As the archival research strategy is matched with our objective of the research, time constraint, available resources for data collection process and philosophical framework that we follow, and this research paper adopts archival research strategy.

2.5.3. Method choice - Quantitative approach

The researchers can adopt qualitative or quantitative research methods, or both methods in order to address their research questions (Taneja et al., 2011, p. 347). Quantitative research is a statistical analysis of collected data for testing theories deductively and objectively. It allows the researchers to analyze the relationship between dependent and independent variables, minimize the bias, control the variables, and it is adopted for the purpose of generalization and replication of research findings (Creswell, 2014, p. 32). In contrast, qualitative approach is based on the non-numerical data such as images, words collected from surveys, questionnaire, in-depth interviews and etc., and it is associated with the interpretivism which explores the research subjectively (Saunders et al., 2009, p. 480 & 482). Taneja et al. (2011, p. 353) discover that 82% of the research primarily use the secondary data as a main source of the information due to the influence of research design which aim to test the cause and effect relationships and to establish the validity of existing theories in social entities. From the authors’ point of view, we have identified earlier that our study stands on the side of positivism and will investigate the existing data from companies’ archives, databases or other reliable sources, searching for a cause-effect relationship.

Quantitative study allows us to analyze highly structured data and present our findings numerically. Moreover, quantifying numerical data is most effective way to answer our research question, started with “What” under given situation. We will able to produce findings statistically such as to what extent or percentage the research variables are related to each other under the phenomena. Therefore, we aim to test the relationship between residual sustainability and stock volatility by focusing on the theories and linking them with the observations from quantitative data. Furthermore, we can highlight or uncover the stock behaviors and the possible trends between two variables through statistical use of datasets (Goertzen, 2017, p. 12). This leads us to conduct quantitative research by collecting large sample sizes and measuring and testing with statistical methods. Thereby, the research findings are able to present the specific population.

As adopting quantitative study allows us to compare, summarize and generalize our findings, our research strategy planned to quantify the data of selected companies from NASDAQ OMX Stockholm, and then examine the relationship sectors wise. Therefore, if there are companies that do not publish value added statement, we will only select the companies which published information about the economic performance in monetary term or disclosed sustainability report so that we can extract out the information of residual sustainability for the year of 2015 and 2016. Thereby, by using regression model, we will observe whether the stock price reacts against the residual sustainability or not. As the authors will collect the secondary-data from Eikon DataStream, the
reliability of the results will be controllable, and it will reduce the bias (Lock & Seele, 2015, p. 28).

2.5.4. Time horizon - Cross-sectional study
Before moving to empirical part, planning and setting the right time frame for collecting research data is one of the main components in developing research design. When the study is conducted over a particular period of time, it is defined as cross-sectional study, whereas when the subject is investigated over a long period of time, it is known as longitudinal study which allows the researchers to observe and measure the phenomena repeatedly within economic and social entities (Saunders et al., 2009, p. 155; Collis & Hussey, 2014, p. 64). Although it is possible to conduct the longitudinal study using secondary data sources, it is time consuming for master students. We aim to investigate the variables in different contexts within a chosen period of time covering fiscal years 2015, 2016 and 2017. The main reason for this time frame is that Sweden has requested mandatory sustainability reporting from 2017. Moreover, the study will focus on specific area, different industries in Sweden, to figure out the similar or different patterns between industries. Therefore, cross-sectional study which is designed to analyze the data under limited resources at a particular time, is suitable for our research (Collis & Hussey, 2014, p. 63).

2.5.5. Research credibility
One of the main issues underpinning the research design is questioning about to what extent the credibility of our research findings is strong enough, and how it is measured in terms of reliability, validity and generalizability. Reliability measures the accuracy and transparency of research findings and examines the replicability of the research results whether it produces same results or not, when the research is repeatedly conducted on other occasions (Collis & Hussey, 2014, p. 52). To ensure that the result outcomes are trustworthy, the findings should be consistent even if an individual replicate the study (Saunders et al., 2009, p. 156). Robson (2002, p. 102) clarifies the causes which create the threats of reliability: actors or participants’ errors, actors or participants’ bias, observer or researcher errors and observer or researcher bias and these issues can be controllable by constructing validity. Since this research design aims to conduct the analysis of the secondary data objectively from reliable data streams, the results will not be influenced by our observations in different occasions and the data integrity is high. Therefore, the reliability of the research is likely to be high in our study.

Validity reflects a test conducted by a researcher and examines whether the results are consistent with the undertaken subject or phenomena, and to what extent the results are valid (Collis & Hussey, 2014, p. 53). However, there might be internal validity threats, generated from data collection process because individual researcher may choose the subject intentionally which has significant scores or may manipulate the data in order to prove the outcomes that they want (Creswell, 2014, p. 223). In order to minimize the occurrence of internal validity threats and ensure that our findings are unbiased, we aim to select large sample size. Another concern is examining the external validity whether the research findings are generalizable to other phenomena or not (Saunders et al., 2009,
Since internal and external validity tend to be inversely related each other, the generalizability of our findings may tend to be low, when the research findings are applied to other countries (Robson, 2002, p. 107). However, archival data of our research are useful in replicating the results for similar research and may enhance the generalizability of our findings (Das et al., 2018, p. 139).

2.5.6. Ethical & Social Considerations
Ethical and social issues are critically needed to take into consideration how the researchers develop the research design. Ethics is defined as moral values and principles which are acts as good foundation for ethical code of conducts for researchers (Collis & Hussey, 2014, p. 30). Ethical guidelines show in what ways research should be conducted ethically and how to present the research findings in proper manner, without harming research participants or researchers (Saunders et al., 2009, p. 160). In this research, archival data is a secondary data set which cannot be manipulated ethically. We will quantify our data using statistical methods and will control and present the research findings without misrepresentation. As the data sets will be collected from reliable sources, there is no harm to participants physically and psychologically and the chances of creating ethical problems are very low (Robson, 2002, p. 68). Since we aim to conduct the analysis solely on the public data and find out the relationships among variables, there is no invasions of privacy to the organizations and we shall refrain from any access which can violate the confidentiality and anonymity of the participants as well (Collis & Hussey, 2014, p. 31).

2.5.7. Choice of Literature & Criticism
For this chapter, our choice of literature is partially influenced by the relevant readings from research methodology courses in our academic studies. In addition, we have extended our literature search to other text books and scientific journals in accounting, business and finance research by searching with the keywords: research methodology in business research, research paradigm, quantitative method. We have followed academic journal guide (2015) and selected high ranking journals from Umea Business School’s online library and google scholars. Although our research is based only on Sweden, but we have examined literatures from other European and South Asian countries as a reference. We have added other reliable sources such as verified websites, publication from European Commission, and DiVa etc. Since there is no doubt about the reputation of hosting university and these academic resources are highly recognized as reliable sources, our choice of research methodology and presented information are reliable and trustworthy.

Regarding CSR issue, there have been different researches on CSR and its socio economical impact over the last decade. In other words, different studies have shown the evidences about how the CSR has an impact on business. The selection of literatures and academic resources play an important role in giving strong arguments and providing valid knowledges. Therefore, as authors of this thesis, we gave more attention during the selecting of information from different sources. We provided our best effort to ensure that the sources are reliable and authentic. For example, in term of selecting articles we always chosen high quality, well cited, peer reviewed journals. In form of
2.5.8. Summary of methodological positions
We have summarized our methodological positions as illustrated below.

Figure 1. Summary of Methodological Positions

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Chapter 3. Theoretical Framework

The third chapter of the thesis describes relevant theories and literatures that will help the readers to understand the topic and develop the framework for hypothesis testing and analysis of the findings. This chapter will start with the introduction of CSR and society, thereafter discusses the relationship between residual sustainability and stock behaviors. Finally, we conclude with the research model describing the importance of research from the decision-making perspective and ethical and social considerations which will help to understand the ethical aspects of doing this research.

3.1. Introduction of corporate social responsibility (CSR) and society

3.1.1. Definition of CSR

The definition of CSR varies among place, situation, relationship and atmosphere. The existing definitions of CSR are divided into three levels such as global, national and corporate level. At global level, CSR is about maintaining the relationship among global corporations, government and citizens. At national level, the role of CSR is extended into the maintaining relationship among corporations, local government, society and citizens. Finally, for the corporate level, CSR concerns all stakeholders and society (Crowther & Guler, 2008, p. 434-438).

In practice, we usually understand the third level of CSR where organizations are concerned about stakeholders and society. The organization’s effort for CSR can be classified into two terms: one is hard effort and another one is soft effort (Sheehy, 2015, p. 625). Under these two circumstances, Swedish government’s ideology and laws are very precise and strict, and therefore, organizations usually go for hard effort. Otherwise, the effort could be soft, and it is most likely to be voluntary (Sheehy, 2015, p. 625). Most of the voluntary effort is likely inconsistence and doesn’t create value to the firm in the long run. Which is widely known as opportunistic CSR activities (Mutiganda et al., 2017, p. 1). On the other hand, hard effort tends to be considered as authentic and have eventual effect on firm’s value (Mutiganda et al., 2017, p. 1).

In Europe, the “Global compact” and “Public transitional hard law initiative” rules make the CSR as mandatory for the organizations. Sweden, known as a pioneer in the CSR activities have imposed law for CSR as an enforcement to ensure that CSR reporting is mandatory, from the year of 2017.

In order to get a better understanding of CSR, Ara & Crowther (2008, p. 438) describe the different levels of CSR in their study which is given below for conceptualization. It is because we believe that conceptualization of CSR activities will help to understand the definition and theoretical point of departure more robustly.
3.1.2. Evolution of Global, Social and Corporate CSR
The concept of global governance has come into the consideration in the nineteenth century as a part of settlement for global trades, precisely to settle the alternative dispute resolution (Calliess et al., 2009, p. 261). The evolution of global CSR is compressed with global trades for maintaining strategic business relationship.

The practices of CSR in modern days are different from the past model of CSR, when the two models have compared each other. According to Friedman (1970), the prior model of CSR was part of socialism, and the primary purpose of the companies were to create shareholder’s wealth at the cost of society. But, current model of CSR concerns about the society from the social and environmental perspectives and demands for good CSR practices for the best interest of stakeholders. Nowadays, social CSR or CSR for stakeholders are key factors in terms of business success. Otherwise, business entities would face a product or service boycott from the stakeholders. The key benefit of social CSR is that it focuses on the best interests of both shareholders and stakeholders. Thus, this form of CSR is popular and widely practiced by the organizations.

Over the last few decades, the sustainability and its contribution towards businesses became a very common phenomenon (Bolis et al., 2013, p. 1080). Although the sustainability movement was evolving as a mean for environmental sustainability, companies have realized the psychodynamics effects of sustainability and used it as a tool to achieve stakeholder’s attractions, and they are focusing on going concern postulate for business movement (Bolis et al., 2013, p. 1080).
3.2. Residual Sustainability and Sustainable Enterprise theory (SET)

The central theme of 2012 RIO 20+ conference was to promote “Green Economy” by motivating legislation because the effort of green economy largely depends on changing legislation by coping with existing framework (UNEP, 2011). The above statement is also supported by Organization for Economic Cooperation and Development (OECD) and suggested strategies for “Green Growth”. In order to establish a green economy, the main theme is, one needs to focus on improvement of human skill, social equity, reduce environmental risk and ecological scarcities. Later, a research conducted by Fagerström et al. (2017) identified that the economy largely depends on the enterprises because “green” contributions from enterprises help to develop green economy. Thus, the concept of sustainability enterprise which is also known as “Green” comes into action and develop sustainable enterprise theory (SET). The SET is a combination of enterprise and sustainability theory to ensure that the organizational sustainability meets with greater deal of responsibility (Fagerström et al., 2017, p. 123). SET theory expects that organizations take full responsibility till end of product life cycle, including products and services disposal and environmental cleanup (Fagerström et al., 2017, p. 124; Parrish, 2007, p. 855). Fagerström et al. (2017) argued that sometimes it may be difficult to incorporate all the products in the recycling process due to the time and the space, but in practice, by doing so, organizations will be more accountable and responsible. The main reason of taking long responsibility is a going concern postulate which comes from traditional continuity or accounting postulates. In other words, SET argues that organizations will continue their activities for foreseeable future, and thereby their responsibilities and sustainable actions will be rolling with other organizational activities.

There are five key dimensions that need to be nourished to make an enterprise as green enterprise. They are: Human/Social, Environmental, Financial, Technological and Residual. For the purpose of nourishment and motivation for being green enterprise, Fagerström et al. (2017) suggest that the main purpose of distributing value added/earnings from the operation in a fiscal year into the five dimensions is to keep every enterprise as sustainable enterprise. Authors in this thesis identify each dimension accordingly: financial sustainability, social sustainability, environmental sustainability, technological sustainability and residual sustainability.

Financial sustainability refers to organization’s financial wellbeing, where organizations are able to meet owners and lenders expectations, in terms of return (Fagerström et al., 2016, p. 39). Without having financial sustainability, organization may have difficulties to satisfy stakeholders’ needs (Damian et al., 2013, p. 696-697; Fagerström et al., 2016, p. 39). Organizations’ caring for the society and social components are part of social sustainability. For example, paying good salary to the employees and taxes to the government are parts of social sustainability (Fagerström et al., 2016, p. 39). If companies are not focusing on the social sustainability, then the underwritten social contract will be broken which may have consequence of boycotting the company or products (Fagerström et al., 2016, p. 39). Environmental sustainability is inevitable for
long term sustainability otherwise company’s survival will be affected (Fagerström et al., 2016, p. 39). For the long run operation, resources need to be devoted for environmental expenses. Technological sustainability refers to the state of arts technology which helps companies to move with the future dimension and not to be obsolete from the market (Fagerström et al., 2016, p. 39). For example, R&D and purchasing of new technological equipment are technological sustainability that will help organization in the future to get the competitive advantage (Fagerström et al., 2016, p. 39). Finally, the last dimension is the residual sustainability or organization’s contribution for future operation (going concern). In other words, after distributing among first four dimensions, whatever is left over is a part of residual sustainability. Authors in this thesis expect that residual sustainability may have a relationship with stock price volatility because company’s present efforts for future determines the market confidence on stock price. But, it could be totally reverse also due to existence of other influential factors. The outcome is highly dependent on statistical result.

In conclusion, Fagerström & Cunningham (2017) describe the importance of the distributions of VA among five dimensions for building a green organization and serving the stakeholders over time. Among the suggested dimensions, residual sustainability is kept for achieving competitive advantage in future.

3.3. CSR and Legitimacy theory
The most appropriate and effective theory regarding CSR and corporate performance is legitimacy theory. The legitimacy theory explains the entity’s behavior within a society and it is widely known as a system-oriented theory which influences the organizations to be involved in CSR where it operates (Hoque, 2006, p. 166). From broader perspective, the term of legitimacy largely depends on time, place and situation because what is legitimate today may not be existed in future due to the change in societal view (Hoque, 2006, p. 162). The same rule can be applied to the change of place. For example, the societal need will change depending on the different place. Hoque (2006) emphasizes in his article that time and place are needed to be focused when explaining about legitimacy. It means that business runs and survives in a nexus of social contracts.

When the organization does not meet its responsibility, then potential problem may arise as a means of product boycotts or other disruptive action by external parties (Neu et al., 1998, p. 265). The threat against the organization also arises when it does not expose the information to the public. There are four phases of organizational legitimacy, namely establishing legitimacy, maintaining legitimacy, extending legitimacy, and defending legitimacy. The established legitimacy represents the beginning stage of firm development and reflects that firms should gain financial competence with socially constructed quality and desirability by complying accepted measure of professionalism (Hearit, 1995, p. 2). For maintaining legitimacy, organizations should operate for ongoing performance and forecast possible challenges for legitimacy (Deegan et al., 2000, p. 319). The extended legitimacy comes into the consideration when organization enters into the new markets with desire to extend the legitimacy (Ashford & Gibbs, 1990, p. 183). Lastly, defending legitimacy is required when organizations are
threatened by any incident and it consequently happens from the movement which tries to defend the threat (Ashford & Gibbs, 1990, p. 183).

Finally, based on previous research, we can conclude that the legitimacy theory has impacts on the society and also influence on the organizations in creating their strategies. In practice, to be legitimate, all the legitimacy actions of the organizations should disclose in annual or CSR report. Otherwise, organizations’ efforts will not be available to the public and considered to be illegitimate. If all the information concerning CSR is published, different stakeholder groups like investors, shareholders and creditors can see the changes and impacts of residual sustainability from the VAS and may be find a relationship which may influence their decisions.

In brief, both of the articles (Deegan et al., 2000; Hearit, 1995) argue that legitimacy theory encourages the organizations to focus on their stakeholders and the society for the long-term benefits, as legitimately companies are following going concern postulate. It is because in order to sustain in the business there are no other options but to care for them. It signifies a responsibility for stakeholders for future which is justifiable through residual sustainability.

3.4. CSR and Shareholder and Stakeholder theories

3.4.1. Shareholder theory
The main interest of shareholder theory is a value creation for shareholders before going to any societal/organizational initiative. The cost benefit analysis (CBA) for shareholder should be higher before managers take any action for societal movement (Frankfurter & Gunay, 1993, p. 34-43). There is numerous research conducted on the relationship between shareholders and the firm. Many researches show the path whether CSR activities offset the shareholders interest or not. And, at the same time shareholders are also interested to see how CSR practices impact on their wealth and organization’s financial position. Together with the support to shareholders, authors’ view is to keep a shareholder interest like stakeholders in the organizations and without being biased, authors also support for shareholder value protection. In contrast to our view, Friedman (1970) argues that managers go for CRS for their own benefits at the expense of shareholders. To check the Friedman’s argument, McWilliams and Siegel (2001) conducted a study in two different companies under the condition with and without CSR and they measured the outcomes of “cost benefit” analysis. The findings of the study suggest that either companies don’t have any difference on their profitability. The explanation of the study described by the authors is that a company that invests in CSR activities gets higher return than a company which operates without CSR. As there is no impact on profitability, shareholders may have no objection to go for CSR and managerial decision.

3.4.2. Stakeholder theory
Stakeholders are considered as interested party, who has stake in the organization (Johnson et al., 2017, p. 134). The major stakeholders are shareholders, employees,
customers, suppliers, government and society. The stakeholder theory suggests that organization should consider all the stakeholders’ needs as the theory is considered moral value in decision making process (Freeman, 2010, p. 4). The theory can be classified into three categories: descriptive, normative and instrumental (Donaldson & Preston, 1995, p. 71). Descriptive part of stakeholder theory explains the distinguishing feature and behavior of the companies (Donaldson & Preston, 1995, p. 70). The second aspect, instrumental type establishes the connection and cause and effect relationship, among stakeholders (Donaldson & Preston, 1995, p. 71), as it explores the connection between stakeholders and managers to achieve corporate goals implicitly. Finally, the normative part flows the last aspect of the theory and suggests the function of the organization to be normal and corrective to the stakeholders which gives a concrete framework for CSR performance under the relationship between social and financial performance.

In conclusion, the studies (Frankfurter & Gunay, 1993; McWilliams & Siegel, 2001) argued in their papers that under the view of cost benefit analysis CSR doesn’t have any negative influence over shareholder’s interest. Therefore, both shareholder and stakeholder theories advocate for residual sustainability because shareholders are also being part of the stakeholder and their concerns are embedded.

3.5. Resource based view on CSR
Resource-based view is widely cited in the theoretical issues of management and other academic disciplines, and it aims to identify the internal sources of the organization which achieve sustained competitive advantage (SCA) (Kraaijenbrink et al., 2010, p. 350). The theory explains that the organization must manage to obtain and control the valuable resources and capabilities, and the organization, itself is able to absorb and apply them efficiently in order to accomplish a state of SCA (Kraaijenbrink et al., 2010, p. 350). Moreover, the theory shows that the growth of the firm depends on how firms keep the bundle of resources (Wan et al., 2011, p. 1336). In short, resource-based view ties the relationship between resources, capabilities and competitive advantage. Heart (1995) argues that valuable corporate resources and capabilities bring competitive advantage to the organization. The foundation of resource-based view explains that companies can distribute its resources for future value creation, which needs strategic planning and it is very hard to imitate for the competitors (Barney, 1991 cited in McWilliams & Siegel 2001, p. 1484). The allocation of resources brings two benefits at the same time. This means that employing CSR practices for the sake of stakeholders while creating value for the future competitive advantage. Resource based view encourages organization to distribute value added and thus Fagerström et al. (2017) introduce VA concept to distribute resources in different dimensions. One of them is residual VA which creates competitive advantage in future for the organizations. Therefore, resource-based view suggests that it would be hard to imitate for the competitors. Although economist suspects that the value distribution strategy hikes the price of goods and service, and organizational behavior could be nefarious. However, authors in the paper disagree with the claim because in order to survive in the competition of 21st century, organization could not do so. Rather, they efficiently distribute resources for gaining competitive advantage. Finally, Kraaijenbrink et al.
(2010) argued in their paper about the significance of distribution of resources to gain the sustainable competitive advantage (SCA) which encourages companies for residual sustainability.

3.6. Stock volatility or stock behavior
There are many empirical studies which measure the association between environmental performance and financial performance. One of them is an empirical evidence which shows that successful achievement in sustainable performance is positively associated with better performances in financial outcomes in terms of profitability, whereas poor rating in CSR activities leads to negative financial results, loss value in revenue (Murphy, 2002, p. 14 cited in Pintea et al., 2014, p. 823). Therefore, analysts claim that there is an established relationship between financial performance and stock volatility (Buse & Stefan, 2014, p. 149). Stock volatility can be defined as a degree of variation or changes of stock price in a particular time period (Banchit et al., 2016, p. 222 & 225). The stock volatility can be measured by two ways. One method is a calculation of standard deviation/variance, and another method is measuring with beta value.

The traditional approach to define the stock volatility is through standard deviation. This approach is also known as self-benchmarking approach which measures the disparity form all its mean value (Bentes & Menezes, 2012, p. 1-3). It has some negativity issue related to the bias of some extreme values as extreme value manipulates the mean (Bentes & Menezes, 2012, p. 1). However, standard deviation tells us how the price of a particular stock ties with mean and moving average. When the prices are tied with mean and moving average, then volatility is very low. Contrarily, when the prices change frequently, then volatility seems to be very high. The standard deviation is scientific, easy and widely used tools in the field of economics and finance to measure disparity because deviation can only be noticed if it deviates from the standards (The economics time, 2018). Therefore, we have chosen the standard deviation to measure stock volatility.

Another option of measuring volatility is beta. Beta represents the systematic risk which shows how the price of a particular stock changes compared with market risk. Therefore, the model that can help us to measure beta is capital asset pricing model (CAPM). CAPM is a popular tool to measure relationship of volatility of the stocks relative to overall market risk.

The formula of CAPM is given below.
If all the variables of CAPM formula are available, then beta can be calculated. From the CAPM formula, we can determine beta through subtracting risk free rate from expected return and then dividing by risk premium, which represent beta is a component of risk and return. Another way to calculate beta is dividing covariance of stock return and market index by dividing variance of stock return (Corporate finance institute, 2018). The standard value of beta is 1. The value 1 represent equally sensitive stock compared to market and value above 1 represent more sensitive and less than 1 represent less sensitive towards market risk. Here, to measure volatility we consider only systematic risk because we assumed unsystematic risk has been omitted through portfolio diversification or through other mechanism by the selected companies. The studies (Grané et al., 2012; Grullon et al., 2012) used CAPM model to measure volatility in their papers. Therefore, the usage of beta is very common to identify stock volatility which we also applied in our paper in terms of measuring stock behaviors.

In connection to our research, we need to examine the standard deviation of stocks whether there is any contribution from residual sustainability to stock performances, creating shareholder wealth or not. In our paper, we aim to measure the beta effect of volatility as beta volatility is compared with market risk. Thereby, after finding the correlation between financial performance and stock volatility, we can compare the findings with the beta and can see how stock of the selected companies behave with having residual sustainability in comparing with market risk/volatility.
3.7. Our research model

As illustrated above, we have developed our research model based on financial theories: legitimacy theory, shareholder theory, stakeholder theory and resource-based view theory, and SET theory. Since there are empirical studies which try to investigate the influences of environmental performance to financial performance, all sustainable and financial theories have been accessed from both perspectives: CSR and financial performance. Therefore, CSR and financial performance are built up as frames of the research.

As explained in earlier sections, CSR is more oriented on stakeholder wealth and we can observe that SET model covers not only financial information but also the allocation of resources to sustainability of the firm through the five dimensions: financial sustainability, social sustainability, environmental sustainability, technological sustainability and residual sustainability. SET model can be divided into two groups:

**Figure 3 Research Model**
CSR: Corporate Social Responsibility
RS: Residual Sustainability
Tech: Technology
distribution of resources to sustainability in which the lower four levels of the pyramid are included and non-distribution of resource which is located at the top of the pyramid. Although the sustainable performance as a whole is positively related to financial performance, the retained value (residual sustainability) leads us to investigate whether it can create shareholder wealth or not. In order to measure shareholder benefits, the research aim to measure the reactions of stock prices against residual sustainability.

To sum up, SET model and financial theories are strong foundation of our research and motivate us to examine the impact of residual sustainability to stock price volatility. Since CSR is sensitive issue and it is also related to the financial performance of the firm in Sweden, the investigation of the relationship between residual sustainability which is retained in the company and stock performance is a key determinant of this research. Authors in the research, therefore, aim to conduct this empirical study and the outcomes of the research will contribute theoretically and practically to those such as analysts and investors who want to examine the future financial benefits of the residual sustainability.

3.8. Ethical and social considerations
Business ethics in operation is highly required by the different stakeholders of the business to save their interest. The interest should be managed in a way that meets the desire of both shareholders and stakeholders. We described both of the theories in our research and showed how it is important for Swedish companies to protect their interest, as morality of Swedish companies are based on trust. When organizations continuously meet the desire of related parties then it became organizational legitimacy which is also discussed in this chapter. There is a proverb that “behavior represents origin”. As we said earlier that, social norm of Sweden is based on “trust” thus it is expected that Swedish companies are involved in ethical practices. If it is, then these organizational behaviors are well predicted and embedded in their stock price. Consequently, these factors may not have any volatility impact. We, therefore, expect that these findings will be interesting and solve many of the burning questions.
Chapter 4. Empirical Method

This chapter describes the empirical method by which we will generate the results. In the beginning of the chapter, we start by describing how we have chosen our target population and set the criteria to choose sample from the population. These sections are followed by describing, collecting, processing, extracting and transforming data from Eikon Datastream to ensure that the dependent, independent and control variables are relevant in addressing our research question. As a final part of this chapter, we have explained and argued the reason of choosing our statistical model based on related theories and numerical equations. Regarding the main part of our analysis, we explain the basis of statistical method of multiple linear regression analysis to give a clear picture of how we will produce our results in following chapter. Finally, we have defined our hypotheses to examine the relationship between residual sustainability and stock behaviors.

4.1. Population
Prior to the collection of data for statistical analysis, the researchers need to identify the target population and database in which they aim to select the sample as a subset of population. A population is defined as a collection of cases or items where the certain number of items can be extracted for further investigation of phenomena underpinning research question (Saunders et al., 2009, p. 212). Depending on the sampling frame, or the size of population, we need to determine whether we should choose whole population or not. If we collect the whole population, the outcomes of the analysis will be generalizable results since they represent whole population. However, if the size of our target population is too large, we will not be able to collect data for the whole population due to time constraints and therefore, we may need to select a sampling technique which avoids bias selection in data collection process (Collis & Hussey, 2014, p. 197). Within limited time frame, we cannot analyze each company individually to examine the relationship pattern between residual sustainability and stock price. However, we have identified in earlier sections that our research follows positivism and we therefore aim to present the findings from the selected sample as soon as it represents the whole population.

Through our initial observations of increasing numbers of CSR reports in Sweden, we have found out that most public listed companies disclose CSR report voluntarily in different formats, and follow GRI guidelines accordingly. These circumstances motivate us to select the public listed companies in Sweden as our target population. Moreover, this research population allows us to analyze numerical data of stock prices in specific region for statistical purposes, and we can extract the other numerical data on different types of industry in which each company belongs to. Thereby, this selected population helps us to analyze and compare the statistical results under each industry. Therefore, the target population for our sampling frame is the publicly listed companies (368) traded on Nasdaq OMX Stockholm in Sweden (See Appendix 1. Companies listed in NASDAQ OMX Stockholm).
4.2. Sampling
After selecting the target population, we need to select an adequate sample in order to address our research question. Determining the sample size of the research data is critical step before moving to step of selecting research variables, because the reliability, validity and generalizability of our findings largely depend on our chosen sample (Collis & Hussey, 2014, p. 198). If the sample size is not enough to test the comparability and associations between research variables, it will affect our analysis and subsequently decrease the generalizability and accuracy of our findings which reflect the whole population. Therefore, the larger the sample size we select, the greater is the generalizability of our result.

Sampling techniques can be divided into two main types: probability sampling and non-probability sampling (Saunders et al., 2009, p. 213). Probability sampling means every item or individual member of the population has an equal chance of being selected to ensure that it represents unbiased subset of the population, whereas non-probability sampling defines a technique which allows us to select a sample size based on our research question and objectives (Saunders et al., 2009, p. 233). Although a high generalizability of research findings can be generated from the selection of whole population, the purpose of our research is to investigate the relationship between variables: stock behaviors and residual sustainability of a specific geographical area within a certain period of time. Moreover, we do not have enough time to examine the relationship pattern under each company since we will need further investigations and more variables to do in depth analysis individually. Therefore, probability sampling method is not suitable for our research, and we select purposive sampling method which is a subcategory of non-probability sampling. Purposive sampling method which is known as judgmental sampling allows us to select the specific number of items in which we aim to answer the research question (Saunders et al., 2009, p. 233).

4.2.1. Criteria in sampling
Since the objective of our research is to find out the relationship pattern between two main variables, we have set the following criteria accordingly.

Criteria 1:
The listed company must publish CSR report in English so that there is a language consistency among the reports and it is easy for us to collect the data.

Criteria 2:
All the financial statements or annual reports must be audited in order to improve the reliability and credibility of the financial data.

Criteria 3:
The disclosed information from listed company must contain the research variables that we aim to analyze, and these data must be available for the specific time period: 2015, 2016 and 2017. It is because unpresented or unmeasured variables that are important for
explanatory research can significantly affect the findings (Saunders et al., 2009, p. 274). Therefore, we have identified that there are 51 companies which are matched with our sampling criteria (see Appendix 2, List of companies with audited sustainability report).

### 4.3. Data Sources & Access

The list of public listed companies in Sweden, traded in Nasdaq OMX Stockholm was retrieved from Eikon Datastream. Before we select the secondary data source, we have examined and made judgments regarding the suitability of the database in order to make sure that the proposed database is relevant and useful to fulfil the objective of our research and able to support the variables in answering the research question (Saunders et al., 2009, p. 272).

Saunders et al. (2009, p. 273) develop three steps to access secondary data. The first step is an overall assessment of whether the data source is able to provide the relevant data in addressing our research question or not. The functions of Datastream allow us to see the in-depth analysis of specific data which compares and demonstrates with the bar charts, graph and etc. Moreover, we can easily identify the trends of research variables underpinning current and historical financial data in nearly 200 countries (Thomson Reuters, 2018). Therefore, it passed the first step. The second step is examining whether the presented data has the criteria: the reliability, validity and free from bias or not. Eikon Datastream is a high reputable and reliable database which provides latest information about the financial data and economic data from the world’s largest financial markets (Thomson Reuters, 2018). The extensive dataset of Thomson Reuters allows us to access the different resources of individual records efficiently and we can retrieve the enough representative sample to improve the credibility of our findings (Robson, 2002, p. 360). Therefore, we can filter our sample by matching with selection criteria, and we are able to retrieve the historical stock prices of traded companies in 2016 and 2017 as well. Since the Eikon Datastream matches with our criteria, it passed the second assessment as well.

The last step is checking whether Eikon Datastream greatly outweighs other data sources when we compare in terms of cost and benefits. This Eikon Datastream provides all the current and historical data without limiting to one purpose and downloaded times, we therefore are able to retrieve and access the data easily and conveniently every time we need. Since the powerful analytical tools allow us to analyze the data systematically under specific categories: CSR reporting, annual report or financial statements, we can easily export the numerical data into Excel sheet. All the variables or statistical data that we aim to analyze are exported or manually added into each Excel sheet and combined as a single file. Thereby, we can import our numerical data into the statistical software for further analysis. Moreover, we are able to utilize our time and concentrate on our further analysis and interpretation on existing dataset due to the well-organized data presentations and different analysis tools from Datastream. Based on this assessment, Eikon Datastream successfully passed the third step of evaluation process and we therefore use Eikon Datastream as our secondary data source.
4.4. Research Variables
Before we perform another step of data collection for hypothesis testing, we have identified our research variables which are directly related to our data collection. Thereby, we can use this empirical data to test our hypothesis to verify the interrelationship between variables (Collis & Hussey, 2014, p. 201). A variable is defined as a feature or attribute of an object or a group that can be examined and it changes upon the situations which have been studied and its variation rate relates to two mutually exclusive types as a minimum (Creswell, 2014, p. 84). In other words, we can consider that a variable is a main theme of research ideas or questions that can be investigated and identified the relationship pattern under the specific phenomena through the statistical analysis. We need to measure statistically to what extent one variable influences another variable in order to clarify the associations between them. Most of the statistical testing need at least two variables to test the relationship pattern between them and they exist as numerical formats (Collis & Hussey, 2014, p. 204). Therefore, we have identified three types of variables: dependent, independent and control variables to answer our research question.

4.4.1. Dependent variable
In order to predict the cause and effect relationship pattern among variables, we figured out first, what might be the possible influences of one variable to another variable in addressing our research question. A variable whose values or patterns are negatively or positively influenced by one variable is called a dependent variable. The dependent variable is classified as a distinguished feature which is associated with independent variable (Creswell, 2014, p. 84). Therefore, the outcomes of the research will change based on the reaction of dependent and independent variables. Through our hypothesis testing, we aim to identify whether there are any changes of stock behaviors due to the influence of residual sustainability, or not. Therefore, we identified total return and systematic risk (beta), stock volatility (Standard Deviation) as our dependent variables. To address stock behaviors within a particular period, we have to measure the value of stock return and price volatility. Therefore, we need to calculate the changes in stock prices and standard deviation of the stock return. The stock prices of the companies will be retrieved from Nasdaq OMX Stockholm stored in Eikon DataStream. The numerical calculation of stock return will follow the formula stated as below.

\[
\text{Total Stock Return} = \frac{[(P1-P0) +D]}{P0}
\]

where,
P1 = Stock price of current year
P0 = Stock price of last year
D = Dividend

The value of stock volatility shows how the stock prices fluctuate under the specific phenomena. Moreover, we have explained earlier in the chapter 3.6 about how we will determine the volatility with the help of beta. To examine whether the stock volatility depend on systematic risk or the influence of residual sustainability, we will measure
the relationship in contrast to the value of Beta in which we can observe the extent of system risk. Therefore, we will use the beta as dependent variable in our regression analysis. The Beta value of 2015 and 2016 are retrieved from Eikon Datastream to measure the possible effect of Residual Sustainability within the same years. The calculation of beta numerically will follow the CAPM formula as given below.

\[
\bar{r}_a = r_f + \beta_a (\bar{r}_m - r_f )
\]

Where:
- \(r_f\) = Risk free rate
- \(\beta_a\) = Beta of the security
- \(\bar{r}_m\) = Expected market return

Source: Corporate finance institute, 2018

4.4.2. Independent variable

Independent variable plays an important role in verifying and measuring the interrelationship among variables underpinning the theoretical framework that we have developed, and it acts as independent feature which can affect another variable, in testing the theories against the empirical evidences. Therefore, independent variable can be defined as a characteristic which can influence and manipulate the results (Creswell, 2014, p. 84). As we aim to measure what might be the possible impact of residual sustainability to stock behaviors, it plays as a main component to perform our hypothesis testing. As explained in previous sections, residual sustainability can be observed and measured in monetary value from the company’s annual report or sustainability report. We assume that the movements of stock prices may react based on the value of residual sustainability. Therefore, we have identified residual sustainability as an independent variable. To measure the residual sustainability which we have explained in beginning of the thesis (section 1.1.3), we have collected the financial data from the financial statements or annual report and used the below formula adopted by GRI Economic performance guideline (GRI 201-1, 2016, p. 6).

**Residual sustainability (Economic value retained) = Revenue (Economic value generated) – Economic value distributed**

In order to make the value of residual satiability comparable to the other dependent variables with the help of STATA, we need to convert residual sustainability into the percentage figure. Therefore, we have divided the calculated amount of residual sustainability by total revenue to get the percentage figure. The following equation has been used in order to get the percentage figure of residual sustainability (RSP).

\[
\% \text{ of Residual sustainability (RSP)} = \frac{\text{Residual sustainability}}{\text{Total revenue of the year}}
\]
There is no guideline or standard which sets the minimum or maximum amount of residual sustainability. Through our observations, we have found out the allocation of firm’s value added to residual sustainability largely depends on the size and type of the industry of the firm and therefore the amount of residual sustainability is always changing. Therefore, the size and sector of the company is needed to be controlled to measure the accurate relationship between dependent and independent variables (Creswell, 2014, p. 85).

4.4.3. Control Variable
Although there are few studies which identify the association between CSR and profitability (Vintila and Duca, 2013, p. 90), there is no study which finds out the correlation between the different types of industries and the amount of residual sustainability. As we aim to analyze and compare the statistical significant level which may change between industries, we have employed eight main sectors: Material, Industrials, Consumer Goods, Consumer Services, Health Care, Telecom, Financials and Petroleum as our control variables. Control variables need to hold as constant because they can influence over dependent variable (Creswell, 2014, p. 85). Therefore, we cannot generate the true relationship between residual sustainability and stock behaviors without controlling these industries variables.

4.5. Data Collection Issues
According to our own observations, most Swedish companies do not publish VAS which shows the allocation of value added to five dimensions of sustainability, and subsequently there is no exact figure or disclosure of each distribution to different dimensions in their sustainability report and annual report. Although we can directly access most research variables through Eikon Datastream, there are other variables which are not reported specifically in the database. It is because not all the data platforms are able to provide the variables which directly address the problem of our research question (Robson, 2002, p. 360). Therefore, we cannot directly retrieve the data of residual sustainability which is identified as independent variable from Eikon Datastream. It is very difficult to extract the exact figure of residual sustainability related information from the company’s financial or CSR report itself as well due to the dissimilarities and unstandardized formats of CSR reporting among companies. It leads us to calculate the residual sustainability manually by extracting and adding the specific financial data from the financial statements, extracted from Eikon Datastream.

4.6. Type of Data & Preparation
We have illustrated the measure of residual sustainability in Table 1 (GRI 201-1, 2016). From this table, we can observe that we have to find out the numerical value of economic value generated (1) and economic value distributed (2). First of all, we have retrieved the revenue of the firms to get the value of economic value generated. Then, we have collected and summed up the distributed amounts of operation costs, employees’ wages and benefits, payments to providers of capital, payment to government by country and community investment to calculate the value of economic
value distributed (2). All the above mentioned amounts are collected from the audited financial statements stored in Eikon Datastream. After these first two steps, we have subtracted the value of economic value distributed (2) from the value of economic value generated (1) to get the value of economic value retained (1-2). In other words, this is the value of residual sustainability, since we identified and explained in earlier sections (1.1.3 and 4.4.2) that the value of economic value retained is same as the value of residual sustainability.

As we have mentioned previously that all our secondary data is collected from Eikon Datastream and it generates the value of our identified dependent variables as percentage figure. In order to have data consistency and to save the time constrain in our analysis, we need to change the amount of residual sustainability to percentage. Therefore, as a final step, we have converted the amount of residual sustainability to the percentage of revenue because it is one of the distributed portions of revenue which is retained in the company.

<table>
<thead>
<tr>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Direct economic value generated (SEK):</td>
</tr>
<tr>
<td>Revenue</td>
</tr>
<tr>
<td>2. Economic value distributed (SEK):</td>
</tr>
<tr>
<td>Operation costs</td>
</tr>
<tr>
<td>Employee wages &amp; Benefits</td>
</tr>
<tr>
<td>Payments to providers of capital</td>
</tr>
<tr>
<td>Payment to government by country</td>
</tr>
<tr>
<td>Community investments</td>
</tr>
<tr>
<td>3. Economic value retained (SEK):</td>
</tr>
<tr>
<td>1 - 2</td>
</tr>
</tbody>
</table>

Table 1. Measure of EVR
Source: GRI 201: Economic performance, 2016, p. 6

4.7. Ordinary Least-Squares Regression
Ordinary least square regression is to be said best linear unbiased estimator to find out the relationship among variables (Watsham & Parramore, 2003, p. 202). This method is also known as best estimator for performing multiple regression analysis, where it is needed for predicting value from one dependent variable from one or more independent variables (including dummy variables). It represents data dispersion to the dependent variable Y based on value of independent variable X with consideration of dummies.
But to get the best result from the OLS estimator, data needs to be passed the test of heteroscedasticity, autocorrelation and multicollinearity. Therefore, we will ensure the data accuracy by performing heteroscedasticity, autocorrelation and multicollinearity test. If we don’t find any outlier in these statistical tests, then we simply will perform multiple regression analysis.

4.8. White test for Homoscedasticity
While performing regression analysis we plan to perform test for heteroscedasticity to be sure, whether variance of residuals is homogeneous or not. In OLS regression, the variance of residual needs to be homoscedasticity. If we accept the null-hypothesis, then it will represent that our data does not have any heteroscedasticity. However, if the variance of error is not constant, then we will fail to reject the null hypothesis. Therefore, we will perform and explain the result of heteroscedasticity in white test and residual testing in chapter five.

4.9. Correlation test
When the correlation between two variable lies between +1 to -1 then it represents level of multicollinearity. If there is any multicollinearity in the data set then the variable needs to be excluded before running multiple regression analysis (Studenmund, 2006, p. 94-95). In our data set, we have to perform two different correlation tests. The first test will be performed to examine the correlation between our independent variable (RS) and dependent variables (Stock Return & Volatility) in particular years. The second test will be performed to observe the correlation pattern between the dependent variables (RS) and control variables (type of industries).

4.10. Statistical Model
In order to quantify our quantitative research data that we have collected and interpret the results, we need to choose the statistical model which is suitable for our research (Collis & Hussey, 2014, p. 226). A simple statistical model will misinterpret or distort the denotation of the data, generating bias findings, whereas a complex model will not be user-friendly and hard to interpret the findings as well (Christie et al., 2011, p. 13). Therefore, it is very important to choose the appropriate statistical model which allows us to perform our hypotheses testing efficiently and accurately and answer our research question effectively. We have examined whether the chosen statistical model provides good descriptions of statistical testing and also generates high reliability and credibility of the findings (Christie et al., 2011, p. 11).

4.10.1. Model Choice
Statistical testing is often viewed as a complex process because of the technical terms and the command of statistical tests in quantitative analysis (Coughlan et al., 2007, p. 662). Based on the motive and purpose of the analysis underpinning research question, the statistical model is needed to be set (Saunders et al., 2009, p. 451). Therefore, we need to clearly define which types of statistical testing model will be used and the reasons why we aim to perform these statistical tests as well. To perform our statistical analysis, we use Stata because it is user friendly software and the powerful functions
allows us to analyze not only larger sample size but also complicated data sets where we can link or attach many data files together (Pevalin & Robson, 2009, p. 1). Moreover, Stata allows us to perform our analysis with different statistical methods.

To find out the association between variables, it will be statistically sound to use multiple linear regression (Yan et al., 2009, p. 58). Multiple linear regression model is clarified as a statistical test which conduct the analysis between a dependent variable and independent variables (Robson, 2002, p. 430). In our analysis, we use one dependent, one independent and eight control variables for statistical purpose. This regression model helps us to identify the pattern and statistically significant evidence in the relationship of the variables. Moreover, it is a flexible statistical model which is widely used by many researchers because the model can be applied into our testing through the excel or Stata (Robson, 2002, p. 430). It presents the results in a view of philosophical stand of generalization (Holden & Lynch, 2004, p. 9) perspective. Therefore, multiple linear regression model is adopted for our data analysis. The model for regression analysis is stated as per below.

\[ Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_n X_n + e \]

\textbf{Equation 1 Regression analysis model}

Where,

- \( Y \) = Dependent variable
- \( \alpha \) = Constant value, when all regression has zero value
- \( \beta_n \) = Coefficient of regression 1 through number n. Denote the strengths of relationship
- \( X_n \) = Regressor variable number 1 through n.
- \( e \) = Error term, the residual error

Source: Yan et al., 2009, p. 58.

With this model we are going to perform ordinary least squares regression (OLS) analysis as the model is well known for linear unbiased estimators (Watsham & Parramore, 2003, p. 190).

\textbf{4.10.2. The complete model}

To address our research question, we have to test the relationship pattern between our independent variable (Residual sustainability) and dependent variables (Total return, Market beta and Stock volatility) to find out whether there is an impact of residual sustainability on stock behaviours. Therefore, we have developed our complete model and replaced the variables with our exact independent, dependent and dummy variables. In the following complete model, \( \beta \) represents the independent variable and \( X \) represents dependent variables: Total return, Market beta and Stock volatility followed by dummy variables: Industrial, Consumer goods, Basic material, Financial, Health care, Consumer services, Telecom and Petroleum.
Since we tested our variables for two consecutive years, we have developed six models and run the six different multiple regression tests of different years to figure out the possible existence of relationship. In other words, these six models are designed to test in multiple linear regression analysis with the help of statistical software, STATA. The detail results and discussion of these regression analysis will be presented in following chapters: chapter five and chapter six.

1. $\hat{\alpha} + \beta_1$(Total return* 2016)+ $\beta_2$ Industrial dummy+ $\beta_3$ Consumer goods dummy+ $\beta_4$ Basic material dummy+ $\beta_5$ Financial dummy+ $\beta_6$ Health care dummy+ $\beta_7$ consumer services dummy+ $\beta_8$ Telecom dummy+ $\beta_9$ petroleum dummy

2. $\hat{\alpha} + \beta_1$ (Total return* 2017) + $\beta_2$ Industrial dummy+ $\beta_3$ Consumer goods dummy+ $\beta_4$ Basic material dummy+ $\beta_5$ Financial dummy+ $\beta_6$ Health care dummy+ $\beta_7$ consumer services dummy+ $\beta_8$ Telecom dummy+ $\beta_9$ petroleum dummy

3. $\hat{\alpha} + \beta_1$ (Market Beta** 2015)+ $\beta_2$ Industrial dummy+ $\beta_3$ Consumer goods dummy+ $\beta_4$ Basic material dummy+ $\beta_5$ Financial dummy+ $\beta_6$ Health care dummy+ $\beta_7$ consumer services dummy+ $\beta_8$ Telecom dummy+ $\beta_9$ petroleum dummy

4. $\hat{\alpha} + \beta_1$ (Market Beta** 2016)+ $\beta_2$ Industrial dummy+ $\beta_3$ Consumer goods dummy+ $\beta_4$ Basic material dummy+ $\beta_5$ Financial dummy+ $\beta_6$ Health care dummy+ $\beta_7$ consumer services dummy+ $\beta_8$ Telecom dummy+ $\beta_9$ petroleum dummy

5. $\hat{\alpha} + \beta_1$ (Stock Volatility/STDV* 2016)+ $\beta_2$ Industrial dummy+ $\beta_3$ Consumer goods dummy+ $\beta_4$ Basic material dummy+ $\beta_5$ Financial dummy+ $\beta_6$ Health care dummy+ $\beta_7$ consumer services dummy+ $\beta_8$ Telecom dummy+ $\beta_9$ petroleum dummy

6. $\hat{\alpha} + \beta_1$ (Stock volatility/STDV* 2017)+ $\beta_2$ Industrial dummy+ $\beta_3$ Consumer goods dummy+ $\beta_4$ Basic material dummy+ $\beta_5$ Financial dummy+ $\beta_6$ Health care dummy+ $\beta_7$ consumer services dummy+ $\beta_8$ Telecom dummy+ $\beta_9$ petroleum dummy

*Year lag between dependent and independent variable.

**Test performed in same year between dependent and independent variable.

Equation 2 The Complete regression model

4.10.3. Denotations & Commands in Stata

For statistical testing of our hypothesis, we have divided our data into dependent, independent and control variable. We have denoted the residual sustainability as independent variable and total return, beta and standard deviation are set as dependent variables while importing the data in Stata. In order to find out the relationship between residual sustainability and stock volatility, we run two statistical tests: multiple linear
regression and logistic regression. The main purpose of running two tests is to show the robustness in our findings.

In the multiple linear regression, we denoted the different types of industries as our control variables. Our control variables are nominal, and we have coded them as dummy variables when we test with regression model. In the dummy coding, we have divided all the companies among eight industries. Among the industries, we code Industry variable as a reference category in the multiple linear regression. Therefore, all the significant or insignificant values related to the dummy variables are generated based on the reference category. For example, let's say, coefficient score of consumer goods is -0.13. This means the score -0.13 differed from its reference category. The same explanation applies to explain other component like standard error and P value.

We recode our numerical data into category type in order to run logistics regression in Stata. Based on the collected data, we defined the range of data of categorical variables accordingly. For example, we denoted Beta as two categorical variables: less volatile and volatile. If the value of Beta is less than 1, we denote it as less volatile, and if the value of the Beta is greater or equal to 1, then we command it as volatile. As for residual sustainability, we categorized the data into three ranges, and denoted as Category 1, 2 and 3. As for standard deviation, we denote it as low and high based on defined data range.

4.11. Outliers & Classifications
To increase the authenticity of the result and to reduce the error from the observations, we agreed to check extreme outliers that may create bias in the test. When a researcher sees that there are extreme outliers in the result then they need to be removed by setting proper regression analysis (Parramore & Watsham, 2003, p. 190). Our plan is to perform the test through 5% significance level and observe the outliers. In addition, to check the situation whether our variables are highly correlated to each other or not, we need to perform multicollinearity test. When correlation between two variables between -1 to +1 then multicollinearity is performed. In our data set, we have two independent and dependent variables and eight dummy (number of industries) variables. Therefore, if we have any situation that detects multicollinearity, then we need to exclude dummy variable before performing regression analysis. To rely on statistical analysis, data needs to be passed through normality test. In chapter five we have statistically and graphically presented data normally issue. With the Shapiro-Wilk test we found our data lies between -.05 to +.05 and passed the criteria.

4.12. Hypotheses
The theoretical framework is related to our research variables and it guides us to the data related to each variable. Through our hypothesis testing, we are able to test our theories and draw a conclusion that will give us a clear picture regarding our notion of research question. Hypothesis is defined as expressing the possible outcomes or statements between two identified variables by a researcher (Creswell, 2014, p. 84). To perform hypothesis testing, we focused on Sustainable Enterprise Theory (SET) where
we argued that sustainability is a vision for long term, and companies therefore need to take responsibility over its products lifecycle and operational activities. Companies should have a vision over short and long term and needs to save the portion of residual sustainability from its current operation to sustain future sustainability. Therefore, organization’s value added in a particular year is divided into five dimensions to achieve aforementioned sustainability for the short and long-term survival. We considered that informing about above statement give a general idea for readers before deriving hypothesis, as our hypotheses are directly connected to SET theory.

However, among the five dimensions, residual sustainability is considered as retained value saving for the future. Therefore, our main argument is that residual sustainability should have a relationship with the stock price, if it contributes to the value of the organization in the future because organization’s future prospects are reflected on the stock price. The aim of testing hypothesis against empirical evidence that we have collected is diagramming the inter year relationship between residual sustainability and stock behaviors. On other words, our research aims to examine the relationship of residual sustainability in one year and its effect on stock price in the following year. We are trying to examine the relationship in one-year lag because yearly audited information about residual sustainability is published in sustainability report after end of each financial year and we are examining value creation effect from the residual on stock price in next year. By conducting the hypothesis testing against the data in two years, we may identify and compare whether the significant changes occur between selective variables or not.

The hypothesis is described as null (H₀) and alternative hypothesis (H₁) by considering inter year time period. The null hypothesis defines that there is no relationship between two variables whereas the alternative hypothesis states that the two variables are dependent of one another (Collis & Hussey, 2014, p. 226). The dependent (Stock return) and independent variable (Residual sustainability) are collected for data analysis in a particular year (2015 and 2016) and the following predictions in consecutive year (2016 and 2017) are developed to perform the first hypothesis test. However, the second hypothesis test will be performed within the same year (2016 and 2017) to examine the impact of residual sustainability on stock volatility, beta. Therefore, we have developed two hypotheses which will be tested in different time frames to address our research question. As a timeframe, we have given 200X as current year and (200X+1) as consecutive year in these testing.

**Hypothesis 1.**

H₀: There is no significant relationship between residual sustainability (200X) and stock return (200X+1).

H₁: There is a significant relationship between residual sustainability (200X) and stock return (200X+1).

\[ H₀: β_{RS} = 0 \]
\[ H₁: β_{RS} \neq 0 \]
Hypothesis 2.
H₀: There is no significant relationship between residual sustainability (200X) and stock volatility (200X+1) and market risk (Beta) (200X).
H₁: There is significant relationship between residual sustainability (200X) and stock volatility (200X+1) and market risk (Beta) (200X).

H₀: βₚₛ = 0
H₁: βₚₛ ≠ 0

Chapter 5. Empirical results

This chapter is designed to provide the summary of our quantitative results in the forms of tables, charts and digital formats before moving to analysis stage. The first part of this chapter will present the descriptive statistics of the target population which we have explored to address our research question. The second part will explain the results of different statistical tests related to our hypotheses to provide in-depth understanding of the empirical data.

5.1. Distribution of companies among industries

<table>
<thead>
<tr>
<th>Variable</th>
<th>No</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>368</td>
<td>100.00%</td>
</tr>
<tr>
<td>Basic Materials</td>
<td>21</td>
<td>5.71%</td>
</tr>
<tr>
<td>Consumer Goods</td>
<td>36</td>
<td>9.78%</td>
</tr>
<tr>
<td>Consumer Services</td>
<td>38</td>
<td>10.33%</td>
</tr>
<tr>
<td>Financials</td>
<td>81</td>
<td>22.01%</td>
</tr>
<tr>
<td>Health Care</td>
<td>51</td>
<td>13.86%</td>
</tr>
<tr>
<td>Industrials</td>
<td>91</td>
<td>24.73%</td>
</tr>
<tr>
<td>Petroleum</td>
<td>6</td>
<td>1.65%</td>
</tr>
<tr>
<td>Technology</td>
<td>34</td>
<td>9.24%</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>8</td>
<td>2.17%</td>
</tr>
<tr>
<td>Utilities</td>
<td>2</td>
<td>0.54%</td>
</tr>
</tbody>
</table>

Table 2. Listed companies on Nasdaq OMX Stockholm
As of March 2018, there are 368 listed companies trading on the Nasdaq OMX Stockholm and the distribution of the companies among the different industries are stated in terms of percentage in Table 2. All the listed companies can be categorized into ten sectors: Basic materials, Consumer goods, consumer service, Financials, Health Care, Industrials, Petroleum, Telecommunications and Utilities. As a whole population, one can observe that the largest portion, 25 percent, of the listed companies belong to Industrials sector whereas the companies which are less than 2 percent belong to Petroleum and Utilities sectors.

From this table, we can conclude that the number of companies are fairly distributed among the industries, except extreme outlier from Utilities.

5.1.1. Numbers of Audited CSR Report

![Proportion of Audited CSR report](image)

Figure 4. Proportion of Audited CSR Report
Among 368 listed companies mentioned previously, only 14 percent of them published audited CSR report which are accessible through the Eikon Datastream whereas 86 percent of all the companies do not audit their CSR activities (see Figure 4). Through this figure, we can observe that three-quarter of the listed companies in Sweden may publish unaudited CSR report or may not report their CSR activities at all. On the other side, we can conclude that we are able to extract our audited data from the one fourth of the public listed companies which disclosed their CSR report. When we extract the number of the companies which disclose audited CSR report, we have found out that Industrials sector discloses the highest number of audited CSR reports and Petroleum sector publishes the lowest number of audited CSR reports (see Figure 5). Therefore, these figures are useful to examine the proportion of research data and variables that we will analyses to address our research question.

<table>
<thead>
<tr>
<th>Variable</th>
<th>No</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>51</td>
<td>100%</td>
</tr>
<tr>
<td>Basic Materials</td>
<td>4</td>
<td>7.84%</td>
</tr>
<tr>
<td>Consumer Goods</td>
<td>6</td>
<td>11.76%</td>
</tr>
<tr>
<td>Consumer Services</td>
<td>6</td>
<td>11.76%</td>
</tr>
<tr>
<td>Financials</td>
<td>13</td>
<td>25.49%</td>
</tr>
<tr>
<td>Health Care</td>
<td>3</td>
<td>5.88%</td>
</tr>
<tr>
<td>Industrials</td>
<td>15</td>
<td>29.41%</td>
</tr>
<tr>
<td>Petroleum</td>
<td>1</td>
<td>1.96%</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>3</td>
<td>5.88%</td>
</tr>
</tbody>
</table>

Table 3. Proportion of audited CSR report among industries

The proportion of audited CSR reports for each industry can been seen in Table (3). This tables allows us to examine how many companies publish audited CSR report in terms of percentage. We have observed that 15 companies from Industrials sector
represent 29.41% of whole population which disclose the audited CSR reports. As a whole distribution, one can identify that one fourth of audited CSR reports were published by the companies in Industrials sector. Petroleum sector which has lowest number of companies shows the least proportion, 1.96% among the industries. From this Table (3), we can observe that the number of audited CSR report in each industry is more likely to change based on the number of listed companies which they belong to.

5.1.2. Comparison between industries with CSR and without CSR Report

![Comparison among industries](image)

Figure 6. Comparison of number of audited CSR reports

When we compare the data between the industries with audited CSR report and the industries without audited CSR report, we can observe that 15 out of 91 companies in Industrials sector disclose audited figures of CSR activities and these observations represent the highest number of audited CSR reports among the industries (see Figure 6). In other words, 16.5 percent of the companies from Industrials sector publish their audited CSR reports. The proportion of the audited CSR report in the Financial sector which represent 16.05 percent is almost the same with the Industrials sector because 13 companies disclosed their CSR activities, out of 81 financial companies.

Moreover, only 3 companies published their audited CSR report in Health care sector which represents third largest industry among the listed industries. This number is insignificant as a whole of Health care sector because it only represents 6 percent. Through (Figure 6.), we have found out that the listed companies from Technology and Utilities sectors did not publish the audited CSR report at all. Therefore, we conclude that eight industries involved in our population to analyze the relationship pattern between our variables. Among these eight industries, the number of audited CSR reports from five industries: Basic material, Consumer goods, Consumer services, Financial and Industrials are fairly distributed among those industries because the proportion of CSR report from each industry represents almost 20 percent.
5.2. Distribution and comparison of companies based on market size

In order to understand and examine the changes of audited CSR reports upon market capitalization, we have categorized the listed companies into three sizes: large, medium and small caps. From Figure 7, we can observe that the companies from large cap published the largest number of audited CSR reports whereas the companies from small cap does not published audited CSR reports. Through this comparison, it shows that only 39% of large cap companies published audited CSR report, and the companies from medium cap published insignificant audit reports which represents 2% as a whole. On the other side, we can argue that the companies without CSR reports from medium and small caps may publish non-audited CSR report. However, we did not concern about this matter because our thesis only focused on the companies which published audited CSR report.

As a whole population, the listed companies which belong to large and medium cap published audited CSR reports. Therefore, we did not account for the company’s cap size as a control variable in our analysis.

![Comparisons among market caps](image)

Figure 7. Comparison of audited CSR report among market caps

5.3. Descriptive Statistics

Descriptive statistics allow us to describe and summaries the basic features of our specific data and variables, before we test the data with regression analysis. It measures the correlations and variability between the variables and identify the value of mean, standard deviations, minimum and maximum value of variables. Through these statistical results, we can examine whether the data set is normally distributed and there is an association between the identified variables or not. Therefore, we aim to provide a general discussion about descriptive statistics to assist the reader in understanding the meaning of research data and the patterns between our variables.
5.3.1. Descriptive statistics for independent and dependent variable

We have presented the descriptive data of our variables as per below.

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Mean</th>
<th>Std. Dev</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total return (TR) 2016</td>
<td>51</td>
<td>0.1</td>
<td>0.23</td>
<td>-0.43</td>
<td>0.7</td>
</tr>
<tr>
<td>Total return (TR) 2017</td>
<td>51</td>
<td>0.1</td>
<td>0.21</td>
<td>-0.5</td>
<td>0.6</td>
</tr>
<tr>
<td>Beta 2015</td>
<td>51</td>
<td>0.99</td>
<td>0.35</td>
<td>0.36</td>
<td>1.74</td>
</tr>
<tr>
<td>Beta 2016</td>
<td>51</td>
<td>0.98</td>
<td>0.28</td>
<td>0.47</td>
<td>1.62</td>
</tr>
<tr>
<td>% of Residual sustainability (RSP) 2015</td>
<td>51</td>
<td>0.1</td>
<td>0.03</td>
<td>-0.45</td>
<td>1.75</td>
</tr>
<tr>
<td>% of Residual sustainability (RSP) 2016</td>
<td>51</td>
<td>0.1</td>
<td>0.03</td>
<td>-3.26</td>
<td>3.47</td>
</tr>
<tr>
<td>Std.dev 2016</td>
<td>50</td>
<td>18.84</td>
<td>12.99</td>
<td>3.35</td>
<td>65.25</td>
</tr>
<tr>
<td>Std.dev 2017</td>
<td>50</td>
<td>10.02</td>
<td>14.24</td>
<td>0.00</td>
<td>73.06</td>
</tr>
</tbody>
</table>

Table 4. Descriptive statistic for independent and dependent variables

In Table 4, the descriptive statistic shows the number of companies that we have observed in our sample. There is a difference between the number of observation (50) for stock volatility (Std.dev) and other variables (51) because one of the companies in our sample did not publish the value Std.dev for the year 2016 and 2017. The table provides the statistics about to what extent the value of variables deviated from its mean value. The last two columns show how the variables are dispersed between its minimum and maximum value. We can observe that all the dependent variables: Total return, Beta and stock volatility are not deviated significantly from its mean value and all the data points tend to close to mean value. Similarly, the independent variable, the amount of residual sustainability (0.03) also deviated insignificantly from its mean value (0.1). When we observe the detail description of the variables, the standard error of each variable is too small. This means that the data are closed to mean value and there are no significant irregularities for the data set. In terms of spread between minimum and maximum observations, there is no wide dispersion for the variables: Total return, Beta and residual sustainability. However, when we examine the volatility, we found out that there is a wide dispersion of data 62 and 73 for the year 2016 and 2017 respectively. In that case, there is some outliers which create the wide spread. Although it reduces the robustness in our population, when we have tested without these outliers, it does not have significant effect to our analysis. Therefore, we did not exclude them from our dataset. Overall, when we compare the descriptive statistics of same variable in different periods (2015 to 2017), we can observe that the data points have not much significant differences.

5.3.2. Descriptive statistics for control variable

In order to be specific and to summarize the descriptive data of control variables, we have separated the control variables, industries, into three categories (see Table 5). The first category (Cat-1) includes the industries: Consumer goods, Consumer services, Health Care and Telecommunication because these industries provide goods and services to the end users. Financial industry is set as category two (Cat-2) because it
provides financial services to the financial and commercial clients. The last category (Cat-3) includes industrials, basic material and petroleum industries because these sectors are related to each other in terms of production, raw materials, machinery and etc. Under each category of control variables (see Table 5), we have calculated the value of our dependent variables: Total return, Market beta, Stock volatility (Standard deviation) and independent variable: Percentage of residual sustainability. Based on the provided descriptive statistics, we can observe that the data points are not much deviated away from the mean except the wide dispersion of stock volatility which was mentioned in above section.

The descriptive statistics for each category of control variables is shown in Table 5.

<table>
<thead>
<tr>
<th>Cat-1</th>
<th>Number</th>
<th>Mean</th>
<th>Std. Dev</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total return (TR) 2016</td>
<td>18</td>
<td>-0.049</td>
<td>0.2</td>
<td>-0.43</td>
<td>0.31</td>
</tr>
<tr>
<td>Total return (TR) 2017</td>
<td>18</td>
<td>0.13</td>
<td>0.24</td>
<td>-0.3</td>
<td>0.62</td>
</tr>
<tr>
<td>Beta 2015</td>
<td>18</td>
<td>0.9</td>
<td>0.4</td>
<td>0.56</td>
<td>1.7</td>
</tr>
<tr>
<td>Beta 2016</td>
<td>18</td>
<td>0.9</td>
<td>0.34</td>
<td>0.48</td>
<td>1.62</td>
</tr>
<tr>
<td>% of Residual sustainability (RSP) 2015</td>
<td>18</td>
<td>0.03</td>
<td>0.05</td>
<td>-0.03</td>
<td>0.21</td>
</tr>
<tr>
<td>% of Residual sustainability (RSP) 2016</td>
<td>18</td>
<td>0.03</td>
<td>0.05</td>
<td>-0.04</td>
<td>0.17</td>
</tr>
<tr>
<td>Std.dev 2016</td>
<td>17</td>
<td>18.56</td>
<td>13.12</td>
<td>3.35</td>
<td>44.44</td>
</tr>
<tr>
<td>Std.dev 2017</td>
<td>17</td>
<td>15.79</td>
<td>10.16</td>
<td>2.25</td>
<td>34.29</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cat-2</th>
<th>Number</th>
<th>Mean</th>
<th>Std. Dev</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total return (TR) 2016</td>
<td>13</td>
<td>0.11</td>
<td>0.11</td>
<td>-0.06</td>
<td>0.26</td>
</tr>
<tr>
<td>Total return (TR) 2017</td>
<td>13</td>
<td>0.045</td>
<td>0.16</td>
<td>-0.27</td>
<td>0.31</td>
</tr>
<tr>
<td>Beta 2015</td>
<td>13</td>
<td>1.02</td>
<td>0.26</td>
<td>0.61</td>
<td>1.56</td>
</tr>
<tr>
<td>Beta 2016</td>
<td>13</td>
<td>1</td>
<td>0.19</td>
<td>0.64</td>
<td>1.31</td>
</tr>
<tr>
<td>% of Residual sustainability (RSP) 2015</td>
<td>13</td>
<td>0.39</td>
<td>0.63</td>
<td>-0.23</td>
<td>1.75</td>
</tr>
<tr>
<td>% of Residual sustainability (RSP) 2016</td>
<td>13</td>
<td>0.4</td>
<td>1.52</td>
<td>-3.25</td>
<td>3.47</td>
</tr>
<tr>
<td>Std.dev 2016</td>
<td>13</td>
<td>15.66</td>
<td>10.12</td>
<td>6.11</td>
<td>39.78</td>
</tr>
<tr>
<td>Std.dev 2017</td>
<td>13</td>
<td>14.09</td>
<td>11.8</td>
<td>2.45</td>
<td>50.19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cat-3</th>
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<th>Mean</th>
<th>Std. Dev</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total return (TR) 2016</td>
<td>20</td>
<td>0.22</td>
<td>0.24</td>
<td>-0.25</td>
<td>0.7</td>
</tr>
<tr>
<td>Total return (TR) 2017</td>
<td>20</td>
<td>0.33</td>
<td>0.2</td>
<td>-0.27</td>
<td>0.47</td>
</tr>
<tr>
<td>Beta 2015</td>
<td>20</td>
<td>1.06</td>
<td>0.34</td>
<td>0.44</td>
<td>1.79</td>
</tr>
<tr>
<td>Beta 2016</td>
<td>20</td>
<td>1.02</td>
<td>0.27</td>
<td>0.47</td>
<td>1.52</td>
</tr>
<tr>
<td>% of Residual sustainability (RSP) 2015</td>
<td>20</td>
<td>0.02</td>
<td>0.11</td>
<td>-0.45</td>
<td>0.08</td>
</tr>
<tr>
<td>% of Residual sustainability (RSP) 2016</td>
<td>20</td>
<td>0.02</td>
<td>0.06</td>
<td>-0.19</td>
<td>0.07</td>
</tr>
<tr>
<td>Std.dev 2016</td>
<td>20</td>
<td>21.14</td>
<td>14.57</td>
<td>6</td>
<td>65.25</td>
</tr>
<tr>
<td>Std.dev 2017</td>
<td>20</td>
<td>24.97</td>
<td>16.88</td>
<td>0</td>
<td>73.06</td>
</tr>
</tbody>
</table>

Table 5. Descriptive statistics for each category of control variable

5.4. Normality test
In this section, we tested the normality of our data by using different statistical models in Stata.
5.4.1 Normality test for dependent variables
Before we analyze the data, it is mandatory to run the statistical test to check whether a particular set of the data is normally distributed or not (Robson, 2002, p. 414). Normality test allows us to measure and observe the distance of data set from the mean value. However, Saunders et al. (2009, p. 449) claimed that even if the data is not normally distributed, it is acceptable to use non-parametric statistical testing which does not consider about the distribution shape of the data. Therefore, we run the Shapiro-Wilk test in Stata to examine and understand the pattern of distribution of our dataset. The following result was generated in Figure 8. The details of normality test are shown in Appendix 5. Normality testing.

![Figure 8 Shapiro-Wilk W test for normal data](image)

The generated value of prob>z is needed to get higher than the probability 0.05 to ensure that the dataset is normally distributed. In our case, all the p values except the stock volatility (STDV2016 and STDV 2017) is higher than 0.05. The data set of stock volatility (STDV) is not normally distributed and data range fluctuates very widely, and therefore, it is pre-assumable that this data will not be normally distributed. We claim that p value for the STDV which is less than .05, because there will be extreme outliers and it may be the nature of stock volatility which is always fluctuating. However, we will examine more about the effects of extreme outliers in coming sections to prove the robustness of normality in our data. Overall, we conclude that our chosen data set for other variables is considered fairly robust and therefore, the distribution of the data is less likely to influence the results of the statistical tests (Robson, 2002, p. 415).

5.4.2. Multicollinearity test and Heteroscedasticity test
Before running the regression analysis, we need to see whether our variables are highly correlate with each other or not. It is because if the test shows that there is a strong correlation among the variables then the multicollinearity exists.
In our correlation matrix (Figure 9), authors got three strong correlations; (.7540) between beta 2017 and beta 2016. It is because both of the beta is part of the market risk and they should have strong relationship due to nature of same variable in different time frame. Another strong correlation (.7416) was found between residual sustainability in 2016 and 2015. Similarly, both of them are residual sustainability which was measured in 2015 and 2016. Finally, with the view of above logic, we got another high correlation (.7795) between STDV 17 and STDV 16. Therefore, three of the variables have strong relationship due to the same kind of variable. However, authors can claim that strong correlation does not have any effect in our regression analysis, because authors did not have any intention or purpose to find out the relationship between beta to beta, STDV to STDV and RS to RS in different time frames.

In order to examine whether they are constant variance or not, we have run the white test to measure the extent of heteroscedasticity (See Appendix 4. White Test). We can observe that Heteroscedasticity occurs in our variable, Beta16. However, since the variance of the error is not significant, and it occurs because of some outliers. Therefore, we argue that our variables are fairly distributed although one can argue that our dataset is lack of robustness in Heteroscedasticity testing. To show the robustness of our dataset, we have run the residual test again in the following section.

5.4.3. Residual test
As we have mentioned before, to show the robustness in our normality and to see how much the observed variables are differed from the predicted variables, authors have run the residual tests. Residual test helps us to identify the extreme outliers by plotting the data on scatter plots and graph. According to the scatter plots and graphs shown in Appendix 3. Scatter Plots, there are some outliers which can create bias to our findings. If authors remove those outliers manually, then it can be argued as subjective research. On the other side, extreme outliers are entitled to remove if it influences to the research findings. This motivates us to test our regression analysis without those outliers. However, there is no significant changes when authors test the data with or without outliers. Therefore, authors decided to run the multi linear regression analysis without removing the outliers and the sample is remained the same, 51 companies.
Since authors aim to highlight the main findings, authors do not provide the testing of the data without outliers in this thesis. However, these testing papers will be available upon request by the reader.

The residual test between our variables are shown in below (Figure 10-15).

```
. regress TR2016 RSP2015

         Source |      SS    df   MS
-------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+------------+---------------------+---------------------+------------+---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5. Regression Analysis

In this section, authors will perform certain number of multiple regressions to answer our research question, described in the chapter four. Each of the hypothesis will help us to observe whether we can reject our null hypothesis or not. As authors have presented three hypotheses which were performed in two different years, thus need to perform
four regression analyses. In order to get true results of our regression analysis, authors have made constant the types of industry as our control variables.

5.5.1. Hypothesis 1

H₀: There is no significant relationship between residual sustainability (201X) and stock return (201X+1).
H₁: There is a significant relationship between residual sustainability (201X) and stock return (201X+1).

H₀: βₐᵣₛ = 0
H₁: βₐᵣₛ ≠ 0

The significance of the result represents the extent of the relationship between aforesaid two variables. In the first regression analysis, authors use dependent variable (total return) and the independent variable (residual sustainability) by denoting the type of industries as control variables.

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>Number of obs = 51</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>1.99468266</td>
<td>8</td>
<td>0.124333333</td>
<td>F( 8, 42) = 3.08</td>
</tr>
<tr>
<td>Residual</td>
<td>1.69597014</td>
<td>42</td>
<td>0.040380432</td>
<td>Prob &gt; F = 0.0080</td>
</tr>
<tr>
<td>Total</td>
<td>2.6906608</td>
<td>50</td>
<td>0.053913216</td>
<td>R-squared = 0.3697</td>
</tr>
</tbody>
</table>

Figure 16. Result of regression analysis of residual sustainability (2015) and total return (2016)

In this figure 18, we can observe that p value exceeds benchmark of .05. Therefore, the result is statistically insignificant, and consequently we fail to reject (accept) the null hypothesis. On other words, there is no significant relationship between residual sustainability (2015) and stock return (2017). Based on the outcomes of the test, we can conclude that the organization’s saving for the future does not affect the stock return.

The second regression was performed to test again the first hypothesis but in different time lag. The purpose is we want to investigate whether the time lag issue has possible effect on the relationship pattern in different year. Therefore, we have used same variables in different time frame.
After conducting the regression analysis for the aforesaid years, we got p value greater than significant level .05 (see Figure 17). Thus, the result is statistically insignificant, and we cannot reject (accept) the null hypothesis and need to reject alternative hypothesis. In concise, there is no significant relationship between residual sustainability in 2016 and stock return in 2017.

After performing two tests with the 95% confidence level for two subsequent years, we have strong evidence to prove that residual sustainability does not have effect on stock return of listed companies in Sweden.

5.5.2. Hypothesis 2

H0: There is no significant relationship between residual sustainability (200X) and stock volatility (200X+1) and market risk (Beta) (200X).

H1: There is significant relationship between residual sustainability (200X) and stock volatility (200X+1) and market risk (Beta) (200X).

H0: $\beta_{RS} = 0$

H1: $\beta_{RS} \neq 0$

Regarding with second hypothesis, we will continue regression analysis to find out the effect of residual sustainability (RS) on stock volatility which is measured against the systematic market risk. The purpose is we want to check whether RS has any influence on beta or not. If there is any relationship pattern, we may conclude that RS has impact on stock volatility against the market risk. However, the details of the test are stated as per below.
In Figure 20, we can observe that dependent variable is beta and independent variable is unchanged, residual sustainability. According to the result, the P value of the test is higher than significance level of .05. Thus, we cannot reject the null hypothesis and need to reject the alternative hypothesis. On other words, no relationship exists between RS and beta.

To compare and increase the accuracy and reliability of our results more on our test result, we run another regression analysis with the same hypothesis in different periods. The result of the test is discussed as per below.

After running the regression analysis for aforesaid years, we got the p value which is higher than significance level of .05 (see Figure 19). Thus, like pervious regression
analysis, we need to accept all null hypothesis and reject the alternative ones. Thereby, we can conclude that the tests with 95% confidence level show that RS does not have any effect on beta.

After testing with market risk (Beta), we measured the possible impact of RS (2015 and 2016) to stock volatility within two consecutive years (2016 and 2017). As show in Figure 22 and 23, the result does not change and conclude that there is no significant relationship and the test was failed to reject the null hypothesis.

Figure 20. Residual sustainability 2015 and Stock volatility 2016

<table>
<thead>
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</thead>
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<tr>
<td>Model</td>
<td>883.369092</td>
<td>8</td>
<td>110.421137</td>
</tr>
<tr>
<td>Residual</td>
<td>7379.06163</td>
<td>41</td>
<td>179.977113</td>
</tr>
<tr>
<td>Total</td>
<td>8262.43072</td>
<td>49</td>
<td>168.621035</td>
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<table>
<thead>
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<th>MS</th>
</tr>
</thead>
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<td>216.023771</td>
</tr>
<tr>
<td>Residual</td>
<td>8208.36115</td>
<td>41</td>
<td>200.203931</td>
</tr>
<tr>
<td>Total</td>
<td>9936.55132</td>
<td>49</td>
<td>202.786762</td>
</tr>
</tbody>
</table>

Figure 21. Residual sustainability 2016 and Stock volatility 2017

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>-5474797</td>
<td>2</td>
<td>679092</td>
</tr>
<tr>
<td>Residual</td>
<td>-10.55468</td>
<td>7</td>
<td>306726</td>
</tr>
<tr>
<td>Total</td>
<td>-15.77506</td>
<td>8</td>
<td>1949389</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>-6.853926</td>
<td>8</td>
<td>635083</td>
</tr>
<tr>
<td>Residual</td>
<td>-17.43401</td>
<td>8</td>
<td>948904</td>
</tr>
<tr>
<td>Total</td>
<td>11.46993</td>
<td>14</td>
<td>62606</td>
</tr>
</tbody>
</table>

Figure 22. Residual sustainability 2017 and Stock volatility 2017
5.6. Logistic Regression

The main purpose of logistic regression is to find out how the presence of independent variable affects to the presence to dependent variable in terms of categories. With multiple linear regression analysis, we have tested our variables to find out the effect of residual sustainability in two consecutive years (2015 and 2016). However, with logistic regression, we aim to find out first whether there are different findings in our analysis if we tested with categorical variables. Therefore, we tested our variables in one single year to figure out how our independent variable: residual sustainability 2015 affects to the dependent variables: Total return 2016, Beta 2015 and Stock volatility 2016.

Before we test our variables with logistic regression, we categorized our numerical data as per below.

For Independent variable: residual sustainability 2015 (r 15), we categorized into three groups which are Cat1, Cat 2 and Cat 3. Cat 1 includes the numbers from -0.5 to 0. Cat 2 includes the numbers from 0.001 to 0.051. Cat 3 includes 0.052 and above.

For dependent variable: total return 2016 (t 16), we categorized into two groups: loss and gain. The values from -0.43 to -0.01 are coded as “loss” and the values from 0.001 to 0.8 are coded as “gain”.

For second dependent variable: beta 2015 (b 15), we categorized into two groups: less volatile and volatile. The values which are lower than or equal to 0.999 is coded as “less volatile” whereas the values which are higher than or equal to 1 is coded as “volatile”.

For the last dependent variable: stock volatility 2016 (t 16), we categorized into two groups: low and high. The values which are lower than or equal to 25.00, we coded as “low” and the values which are higher than or equal to 25.01, we coded as “high”.

After running the categorical data with logistic regression, the following results are generated as per below (see Figure 22 - 24)

```
.logistic t16 i.r15

Logistic regression
Number of obs = 51
LR chi2(2) = 4.53
Prob > chi2 = 0.1037
Pseudo R2 = 0.0696

Log likelihood = -30.195546

|   | Odds Ratio | Std. Err. | z    | P>|z| | [95% Conf. Interval] |
|---|------------|-----------|------|------|----------------------|
| r15|            |           |      |      |                      |
| cat1| 1.545455   | 1.245729  | 0.54 | 0.59 | 0.3183734, 7.501976  |
| cat2| 6.5        | 6.745369  | 1.00 | 0.071| 0.5903149, 49.60740  |
```

Figure 22. Logistics regression TR2016 and RS2015
As shown in Figure 22, the odds ratio of 1.55 and 6.5 suggest that the odds of “gain” in total return 2016 for Cat 2 and Cat 3 of residual sustainability are 1.55 times and 6.5 times higher, compared to Cat 1. It means that the higher the categories of residual sustainability, the higher the odds of gain in total return. However, the association between them is not statistically significant since P-values are more than 0.05 for both Cat 2 and 3.

<table>
<thead>
<tr>
<th>logistic b15 i.r15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logistic regression</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Log likelihood = -32.407904</td>
</tr>
</tbody>
</table>

| b15 | Odds Ratio | Std. Err. | z   | P>|z| | [95% Conf. Interval] |
|-----|------------|-----------|-----|-----|----------------------|
| r15 | 4.166667   | 3.506772  | 1.70| 0.990| 0.8805637 to 21.68611 |
| cat2| 1.458333   | 1.365343  | 0.42| 0.673| 0.2523206 to 8.420705 |
| cat3| 0.430178   | 0.752017  | -0.57| 0.569| 0.1513889 to 1.219412 |

*Figure 23. Logistics regression BETA2015 and RS2015*

As shown in Figure 23, the odds ratio of 4.17 and 1.46 suggest that the odds of “volatile” in beta 2015 for Cat 2 and Cat 3 of residual sustainability are 4.17 times and 1.46 times higher, compared to Cat 1. It means that Cat 2 and Cat 3 have higher odds of volatile in market beta, compared to Cat 1. However, the association between them is not statistically significant since P-values are more than 0.05 for both Cat 2 and 3.
As shown in Figure 24, the odds ratio of 0.58 and 0.26 suggest that the odds of “high” in Stock volatility (Standard Deviation) for Cat 2 and Cat 3 of residual sustainability are 42% (1-0.58/100) and 74% (1-0.26/100) lesser compared to Cat 1. It means that the Cat 2 and Cat 3 of residual sustainability have lesser chance/odds of high in stock volatility, compared with Cat 1. However, the association between them is not statistically significant since P-values are more than 0.05 for both Cat 2 and 3.

Since our initial testing for single year with logistic regression (see Figures 22-24.) did not provide significant results, we, therefore, did not repeat the test in different year.

5.7. Ethical & Social Considerations
We have extracted our data set from Eikon Datstream and exported the data into Excel to ensure that the presented data has high reliability and credibility. Moreover, we have relied solely on data from Eikon Datstream because it is highly reputable as a third-party website and difficult to manipulate. When we run the test with Stata and Excel, we have to make sure that there is no manipulation of data and present the results in digital format without adjustments. We have summarized some of the data and presented in tables, figures and charts so that it is readable and easy to understand by the readers. However, we have paid much attention and checked manually in extracting and importing data to avoid misrepresentation and misinterpretation of our results. Although we do not present the original data set in this thesis paper to avoid the overload presentations of the tables, it will be available upon requests by the readers.

We have taken social considerations in our empirical part because it is equally important like ethical issues is conducting a research. The bias presentation and misinterpretation of data will affect negatively and hinder the social activities taken by business and society as whole. Moreover, the accuracy and reliability of our research data are largely dependent on the way how we have collected the data and how we interpret the outcomes. Therefore, we have made sure that the presented data and descriptions are
fulfilled the conditions of validity and repeatability of the results. Thereby, one can develop further research based on our findings.

Chapter 6. Analysis & Discussion

In this chapter, we first discuss the underlying assumptions associated with our statistical analysis, multilinear regression model. As a second part of chapter, we examine the dataset based on the assumptions and discussed whether the dataset is normally distributed or not. As a third part of chapter, we explain how the identified variables react under different time frames and discussed whether there is statistically significant association between dependent and independent variables. Finally, we discuss our results by relating with our theoretical framework.

6.1. Statistical assumptions and discussion with multiple linear regression

Regression model which analyses the relationship between one dependent variable and more than one independent variables is defined as multilinear regression (Uyanik & Guler, 2013, p. 234). The different variances of the variables can be controlled by Multilinear regression model (Weathington et al., 2012, p. 303). Based on the regression model, we are able to examine the relationship between our independent variable and dependent variables while other variables are commanded as control variables to generate the true association between them (Chatterjee & Simonoff, 2013, p. 4). Thereby, we can perform our tests against the hypothesis. Therefore, we chose multiple linear regression analysis which is most relevant for our phenomena to ensure that it generates accurate forecasts between the identified variables.

There are many statistical assumptions which vary depending on the statistical models and we need to justify the assumptions of multilinear regression model as well to create strong robustness in our findings. Weathington et al. (2012, p. 80) highlighted that another important threat to the validity of our statistical findings is failed to follow the assumptions of statistical model. Moreover, they claim that no matter which statistical method that the individuals use and no matter how it is well-advanced, the research cannot generate the credible research findings if the research designed is poorly developed (Weathington et al., 2012, p. 303). Therefore, we need to follow the basic
rules of our multiple linear regression analysis and to avoid the violation of assumptions which can generate misinterpretation and misleading results.

Multilinear regression mainly concerns about the normality, linearity, missing values and extreme values of the data (Uyanik & Guler, 2013, p. 234). In this section, we mainly focus on the three assumptions which are relevant for our research question, when we do multilinear regression analysis.

Assumption 1: The variance of the errors is constant \(\text{V}(E_i) = \sigma^2\) for all \(i\).

This means that the variance of the error terms around the regression line must be the same and this constant variance is defined as homoscedasticity. On the other side, the size of the error which differs from the value of independent variable is called heteroscedasticity. In other words, the opposite term of homoscedasticity is known as a violation of assumption and it is important to note that heteroscedasticity leads to the poor results in terms of confident level and prediction intervals (Chatterjee & Simonoff, 2013, p. 8).

Assumption 2: The variance errors are unrelated each other.

This means that the covariance between the errors are assumed to be zero or independent each other. A violation of this assumptions is called autocorrelation which means that there is a dependence between residuals. Autocorrelation often occurs when the data is collected in timely basic and it ultimately leads to the variance of errors which are related to each other (Chatterjee & Simonoff, 2013, p. 9). Therefore, the autocorrelation in the residuals will generate untrustworthy tests and confidence intervals in the regression analysis (Chatterjee & Simonoff, 2013, p. 15).

Assumption 3: There is no multiple correlation between the independent variables.

This means that one or more independent variables must not highly correlate each other. It concerns about multicollinearity among the independent variables. The score of coefficients which exceeds the acceptable limit will affect the accuracy of the findings because it reduces the strength of the regression analysis and it is difficult to measure the accurate findings between dependent and independent variable (Uyanik & Guler, 2013, p. 235).

6.2. Statistical violation in our models

Based on above mentioned assumptions, we have controlled our statistic models whether is there any statistical violations or not. First of all, we have performed normality test and residual tests to measure the error variances which identify the different amount between the actual outcome and the score of predicted dependent variable (Martin & Bridgmon, 2012, p. 415). Through the tests, it seems that there is a lack of robustness in our residual models and we have observed that heteroscedasticity occurs to a smaller extent when we access our scatter plots and normal distribution curves. However, heteroscedasticity occurs insignificantly, and the size of error variance
is fairly constant. Therefore, we claim that the error variance in our model is homoscedasticity in which the data are fairly distributed.

The value of coefficient shows the amount of variance between two variables that we measured (Weathington et al., 2012, p. 249). We have set the maximum scores of coefficients (0.8) when we measure the multicollinearity among our variables so that we can run multiple regression with different variables. Therefore, one can argue that increasing the limit of multicollinearity will lead to higher risk of trustworthiness of the results. Since there is no high coefficient value in our multicollinearity test between the variables and therefore it does not have any impact on the results.

We can observe that our statistical models are fulfilling the assumptions of residual and multicollinearity models that we have discussed in prior section. The scores in our coefficient test also show that our multilinear regression model is free from bias and the interpretation, analysis and discussion parts are accurate and reliable for our results. Therefore, we conclude that our results will be generalizable within the scope of our sample size although there is a lack of robustness in our normality test in residuals models.

6.3. Significant results
We have tested our hypotheses against the different dependent variables: Total return, Stock volatility and Beta. To be more specific, we have examined our variables by denoting the industries as control variables and identified the outcomes. As an industrial wise, we have explored the impact of residual sustainability on stock return and volatility from the shareholder perspective. Moreover, in order to identify the possible impact of residual sustainability to market risk(beta) within the same period, we have tested the variables through consecutive period. According to the results of our statistical models, the insignificant level proves that there is no relationship between the identified variables within the chosen period (2015 to 2017). These overall results lead us to accept the null hypothesis that there is no relationship between residual sustainability and stock behaviors through the multilinear regression analysis.

6.3.1. Significant result per variable

Total return
We have discussed earlier that there is no significant impact of residual sustainability (2015 and 2016) to stock return in following periods (2016 and 2017). However, the significant levels of the variable are varied based on types of industries. The results show that there is a strong positive relationship for some industries: health care, consumer service and telecommunication for the year 2016. Interestingly, when we tested the relationship for the year 2017, there is no significant relationship under these industries.

Stock volatility
The results of residual sustainability (2015 and 2016) which measure the impact on stock volatility show insignificant scores for the years (2016 and 2017). When we access the possible changes under each industry, the association between two variables are totally not significant.

**Beta**

The results show that there is no relationship with residual sustainability in accessing market risk (beta) for the years of 2015 and 2016. Regarding with industries, there seems to have a small level of relationship with residual sustainability under telecommunication sector in 2015. However, in the following year (2016), the significant level of association under telecommunication sector is not too high and can conclude that residual sustainability is not completely related to the market risk under all industries.

### 6.3.2. Significant result per period

The results are compared to observe whether there are significant changes or not within the research period (2015 to 2017). We have identified that the results between the identified variables are almost identical with insignificant scores and the insignificant level is too high between the independent and dependent variables through the years. We, therefore conclude that the results are not statistically significant to reject the null-hypothesis within the limited time frame.

### 6.4. Implication of results & General discussion

The overall analysis shows that the monetary value of residual sustainability, retained in the company for future purpose has no effect to the stock behaviours in tested years (2016 and 2017). Although the association between variables is not statistically insignificant, we cannot conclude that residual sustainability does not create wealth for the shareholders. We have discussed in chapter one and three that the empirical evidences from prior studies show that there is a positive relationship between sustainable performance and profitability (Buse & Stefan, 2014, p. 149; Lundgren & Olsson, 2009, p. 19; Murphy, 2002, p. 14 cited in Pintea et al., 2014, p. 823;). Therefore, the value of residual sustainability will likely to create benefits not only for shareholders but also for other stakeholders in the long run of the business, although it does not create any impact in the short term. It is highly unlikely that the investors will let to keep the company’s profit for future purpose without creating benefits for them. It is possible that the other four dimensions, allocated to sustainable activities may attract the stakeholder attention more than the residual sustainability and these dimensions may significantly influence to stock behaviors (Lundgren & Olsson, 2009, p. 19).

### 6.5. Results in connection with theories

A theory is a versatile tool for meticulous classification of knowledge useful for problem solving (Priede, 2014, p. 2), also theory helps us to classify, predict and explain a topic (Bedau & Humphreys, 2008, p. 505-508) with in-depth understanding. Theory explains certain phenomenon in a particular way by addressing the problem. Therefore, the main focus of theory is in its application, and subsequently the relationship between
theory and application is mutual (Priede, 2014, p. 2). Therefore, we understand the value of the contribution of theory in the quantitative research, and developed four contemporary theories in order to guide our research and explain the statistical outcome with lens of SET, shareholder and stakeholder, resource-based view and legitimacy theories.

6.5.1. Result connected with SET theory
The concept of sustainable enterprise comes from SET theory which we described in the theoretical framework as a theory for “green economy” (Fagerström & Cunningham, 2017, p. 123). The SET mainly concern about the impact on society from the lenses of stakeholder’s incitement and aim to undertake CSR for sustainable growth. Therefore, it helps both for corporation and society for foreseeable future through taking ownership in entire product life cycle. Moreover, the theory gives direction to organizations for achieving the business growth in sustainable way. We have made arguments that SET is a guideline for modern enterprises which show how they operate in the society for achieving sustainability with greater deal of responsibility (Fagerström & Cunningham 2017, p. 123). The SET also suggests that organization which save the company profit for future creates long term benefits generated from sustainability.

It is reasonable to understand that sustainable activities are embedded in Swedish organizational culture, and thus it is difficult to distinguish the organization’s sustainable performance from its daily operation (Rachels, 2003). Therefore, when we work with our empirical parts, we tested with different statistical methods in two consecutive years. The main purpose is that we may be able to identify the possible relationship between residual sustainability and stock behaviors by testing in year lag. However, our empirical findings suggest that there is no relationship and we need to accept the null hypothesis. Now, in the Swedish context, our research did not find the existence of the relationship and impact of RS to stock behaviors. Thus, with the same logic we can say, the price volatility of stocks of SET compliant companies and non-SET compliant companies are likely to be the same. If it is the case, then there is a question of why 51 companies follow SET compliance out of 368 listed companies in Sweden. However, we saw from the theoretical aspect that there are a number of fringe benefits to follow SET for both stakeholders and the companies for the long run. This study therefore would like to encourage the rest of the 317 Swedish companies to follow the SET and have good impression from the society and stakeholders without having any consequences on stock price and profitability of the firm. Otherwise, society may boycott non-SET complaint companies in future because more and more countries are urging the companies to follow sustainable ways and it is more likely to affect the non-sustainable companies when the time passed by. In other words, stock prices of non-SET compliant companies would likely underperform than that of compliant companies, according to arguments that we have claimed.

6.5.2. Shareholder & Stakeholder theory
Generally, shareholders frowned to hear about CSR activities as most of them believe that it is unnecessary and reduce their wealth. Most of the shareholders like birds in hand concept which is totally opposite of SET theory. But the shareholder theory and
the concept of maximization of profit mentioned by Friedman (1962 & 1970) is very old, and there was a lot of contemporary theories have developed with having universally positive phenomenon. The new theories even can increase profit for the long term which suggest a step to overcome from shareholder myopic tendencies.

In connection with our thesis, the findings suggest the existence of non-relationship between residual sustainability and stock behaviors. Consequently, advocates of shareholder theory may exult in joy to victory of their notion. Our thesis is conducted only in Swedish context and thus the result should not be compared for generalizability. But, if we only focus the results in Sweden, then we can also argue in terms of Stakeholders point of view. If there is no impact on stock movement, there is a concern from shareholder perspective of why the companies do not undergo CSR. However, Peters and Mullen (2009) empirically proved that there are future cumulative benefits from CSR, as it focuses all stakeholders in the society including shareholders. Therefore, authors in this thesis would like to suggest the same thing that CSR does not decay the shareholders interest which was said by McWilliams and Siegel (2001) in their study.

6.5.3. Resource-based view
To elaborate with the theoretical framework presented in chapter three, we have argued that socially responsible investment is a driver to gain competitiveness in a view of resource-based theory (Hart, 1995, p. 986). The theory suggests that utilizing, distributing the resources and capabilities to gain sustainable competitive advantage. In light of theories put forward to our thesis, companies can distribute its current earnings for current utilization purpose and what is left over can keep for gaining future competitive advantage. Kraaijenbrink et al. (2010) argued in their paper that organizations absorb and apply the resources in order to gain sustainable competitive advantage (SCA).

Our result explains that there is no relationship exist with stock behaviors for keeping residual for the future. Therefore, a question arises what would be the implication of keeping residual sustainability for gaining future SCA, without being associated with the stock behaviors. The most likely explanation could be that organization’s future contribution towards sustainability is well predicted and imbedded in stock price and the volatility can’t be seen separately, because Sweden is seemed to be more orientated on stakeholder interests. But, we believe that resource kept for future purpose in the company creates competitive advantage (Hart, 1995, p. 986) and it ultimately contributes the society as a green economy. In addition, there are some underlying socio-cultural reasons which we did not investigate in our thesis. On the other side, one can observe the continuous effort in Sweden for sustainability which cannot be achieved without resource-based view.

6.5.4. Legitimacy theory
The legitimacy theory is known as positive theory. It is because organization needs to legitimately undergo CSR to ensure that the organization is obeying the rules and playing a legitimacy role for the stakeholder’s satisfaction. Thus, legitimacy role is
important for every organization to survive in modern business world (Aguilera et al., 2007). To play actively in legitimate role it become daily phenomenon for the organization and therefore it does not need to separate or perform additionally.

The reasonable assumption of organizational CSR culture in the Sweden keeps highest standard in the global ranking (RobecoSAM, 2016). Thus, with the practice of several years, it become common for the Swedish companies. Otherwise, as in a sustainable country, a company may face social and legal legitimacy problems without legitimate behaviors or practices.

Regarding our results, no relationship exists between RS and stock volatility. Although the SET, stakeholders and resource-based theory strongly advocate that the current savings of the company for future purpose will definitely create the value for shareholders, the statement is seemed to be not true in Swedish context due to the reasons underlying legitimacy facts. Organizations are so much legitimately conscious that the impacts of CSR cannot be distinguished separately. Thus, we claim that the impact is likely to be embedded in stock price.

6.6. Ethical & Social considerations
The result of this thesis can be well connected with ethical and social considerations from a view of Swedish socio-economic context, but comprehensively we will discuss underlying causes of our result with the recommendation in the next chapter. In terms of the results, concerning our thesis, we can observe that companies are so much legitimate in their behaviors that CSR now becomes their norms and it is also connected to the way of performing daily operation to serve stakeholders. This is because society is very much concerned about the impact on the surroundings of individual and communities. Ultimately, this motivates others to follow the sustainable ways and to take lessons of caring society and environment while doing business.

Although we did not find any relationship between RS and Stock behaviors, it does not mean that their current saving for future do not create any value for the shareholders. We want to argue that the value may be distributed into the society through other social medium rather financial, or the value may be predicted and incorporated well in the stock price. The underlying reason might be different with our observations. However, Swedish companies are legitimately performing their responsibility. Otherwise, they will be omitted from the market through social boycott and government’s legitimate actions.
Chapter 7. Conclusion

In this chapter, we are going to present the overall conclusion based on the analysis and discussion of the results drawn from the previous chapters. This section is followed by the contributions of the research which show how our research contributes theoretically and practically to the academic, business and society as a whole. Thereby, we discuss about the limitation our research and provided further suggestions for future researchers who may conduct similar research. In the final part of the chapter, we discuss final ethical and social considerations, and showed the credibility of our research in terms reliability, validity and generalizability of our research findings.

7.1. General conclusion
The concept of residual sustainability comes to our mind while analyzing organization’s CSR activities. From the stakeholder’s point of view, organization should create wealth for the stakeholders not only in present but also in future. As a human being, we want to care our beloved one for the future and keep some of our asset or savings for their betterment in our personal and social life. Based on that logic, the organization as a smart social legal entity should have same responsibility for its stakeholders for the future benefits. This turns as a means of organizational legitimacy resulting residual sustainability. On the other side, we also wanted to examine the impact of residual sustainability on stock behaviors from the investor’s perspective because one might think that performing sustainability and retaining the present earnings of the company for future purpose may impact on stock prices and create volatility.

Our scope of research was in the context of Sweden because this region is widely known as sustainable country not only in the Scandinavian countries but also in the Europe. Therefore, our study was conducted to explore the impact of one of the drivers of CSR activities namely, residual sustainability on stock price. The research phenomenon bridging CSR and volatility is new in the contemporary field though we found several studies and agenda focusing either CSR or volatility issues separately. We tried to draw a line between the two concepts. By doing so, our purpose of the thesis was to answer below research question:
What is the impact of Residual Sustainability on stock behaviors?

By conducting this research, we did not find any relationship pattern between residual sustainability and stock behaviors which were measured in year lags. As a first hypothesis, we have calculated the value of residual sustainability in 2015 and run multiple regression analysis against the dependent variable: the stock return (2016). The same test has performed in next year to understand effect of residual sustainability (2016) in different year (2017) and to ensure that we have strong confidence upon extracted results. As a second hypothesis, we observed the impact of residual sustainability on market risk in the same year (2015 and 2016) and the stock price volatility in the follow years (2016 and 2017). Therefore, we performed another regression analysis between RS and stock volatility by testing with the value of Beta and standard deviation of stock prices. For the result credibility, we try to measure the relationship with the help of statistical regression analysis with aforesaid three dependent variables: total return, standard deviation of the stock return and beta, against the residual sustainability. While running regression analysis, we set the industries as our control variables because the value of residual sustainability is not fixed, and it was changed based on the industry that the company belongs to.

According to the tests under all assumptions, we have accepted the null hypotheses. Therefore, we can claim that there is no relationship between residual sustainability and stock behaviors and conclude that residual sustainability does not create any impact on stock behaviors with the 95% confidence level.

Based on our understanding and results, there are some issues that we have raised. If the companies keep their earnings for future purpose in terms of residual sustainability, there should be more disclosed information about how the resources are allocated and how it creates value to the shareholders to prove that the retained money creates wealth for the shareholders. Since there is no enough information, there is a question to raise why the shareholders do not concern about the retained money in the company which does not affect to the stock price. Otherwise, they aim for long term benefits in future which cannot prove its value in present. If the shareholders believe long-term benefits, then the next concern is which circumstances motivate them to retain their profits in the company in the present.

To conclude our research question, we found that there is no relationship in the Swedish context might be obvious due to the particular reasons. Firstly, CSR in Sweden is highly embedded in corporate culture thus the future sustainability is well predicted, and price is likely to be well adjusted before creating stock volatility. Secondly, to our investigation, we found that most of the Swedish companies are utilizing the residual fund for innovation, talent retention, research and development and other purposes. Therefore, it creates delay adjustment on price until the investment creates value for the organizations (RobecoSAM, 2013, p. 3). Finally, we would like to say that we just focused on our thesis to find out the impact of RS on stock behaviors. There might be some in depth reasons that may affect individual companies and may varies between
industries, sectors and organizations. Thus, we would like to suggest for the future researchers that the new research should be directed to find reasons and the scope of the research should be broadened in terms of sample size, geographical areas and different research variables.

7.2. Theoretical and Practical Contribution

7.2.1. Theoretical contribution
In our thesis, we have aimed to link the two cross disciplinary subject matters, CSR and stock behaviors together. It is because we have observed that there were minimum prior studies linking with the aforesaid subject matters. Our research examined the impact of RS on stock behaviors is a new in the contemporary field, and we found through our analysis that there is no relationship between RS and stock behaviors in the context of public listed companies in Sweden. Therefore, we claim that the contributions of our research managed to fill this research gap.

By performing this study, we are able to provide a theoretical point of departure to future researchers who are concerned about these subject matters. It may be an improvement of our research when the research is conducted on different dimensions of sustainability and provides more robust analysis finding inherent reasons for having no relationship or it would be a good foundation for a new study underpinning our concept. Since our thesis may provide strong foundation for further researchers, the findings can create a new path in the cross-sectional field and likely to extend longitudinal studies for the practitioners and the academia. We have used a number of theories to interpret our results, and we were able to incorporate sustainable enterprise theory (SET), legitimacy theory, shareholders and stakeholder theory, resource-based view theory. Thereby, we have contributed a foundation of knowledge by showing how RS and stock behaviors existed under the monetary contributions of sustainable activities and how these variables react in the lens of aforementioned theories in the Swedish context.

7.2.2. Practical contribution
Before conducting the research, stakeholder theory and SET theory motivate us to investigate the impact of RS on stock behaviors. It is because, as per resource-based view, company’s present earnings for future purpose should have some impact on stock price, and we guess that Sweden which seems to be more orientated on stakeholders should be a fertile land for our investigation. Throughout our research, we have been able to understand that there are some underlying assumptions and cultural effects of generating no relationship between RS and stock volatility in the Swedish context. However, a new window and direction have opened. It is most likely that there may not have any impact of current savings for future purpose in the stakeholder-oriented country which mainly concern about the sustainability. Therefore, investors who care about sustainable performance could invest in the sustainable stocks, without fearing any volatility consequences. Nonetheless, this study also helps sustainable mutual fund raisers, sustainable portfolio investors and foreign investors for making their investment
decisions. Finally, according to our research findings, we can conclude that, sustainable stocks are equally volatile as non-sustainable stock, especially in Swedish context.

7.3. Limitation and Future research

The notion of CSR is a multidimensional and a raising topic that creates a large scope for the researchers to fill the existing research gaps and aim to contribute to academia at the same time. After doing an in-depth literature review on existing research of two different fields, namely CSR and stock behaviors, we have built a bridge to link between the two fields with the help of our thesis. However, there are some limitations existed in this research when the findings are viewed from various aspects. Therefore, we have discussed the possible issues and suggestions as stated below.

As we claimed previously that this was a new cross-sectional study in the contemporary CSR and stock volatility field. Therefore, we have spent a lot of time for literature reviewing and formulating a research design. Moreover, due to the lack of previous research directly related to our research question and consequently we had to face a lack of directions in the beginning of the research. However, finally we have managed to reach to our destination. When accessing the result of our study, it represents that there is no impact of residual sustainability and stock behaviors. Thus, we can observe that the result is only applicable to the Swedish listed companies and it does not represent a conclusion for a universal outcome.

Addressing the limitation, our recommendation is to conduct further research underpinning our idea into the different geographical areas like capitalist and developing countries and then may compare the outcomes to observe whether is there any other associations between the identified variables. Besides that, we would like to provide our strong recommendation to conduct a longitudinal study. In other words, we want to suggest to extend the investigation period between independent and dependent variables to examine a temporal aspect deeply because we could not be able to do due to the time constraint. Furthermore, it is more likely that the extension of our research may be able to find out the exact reason of why there is non-existence of relationship in the Swedish context. We guess that the result would be same for all the Nordic countries due to having similarities of socio economic factors which indicate behavioral or psychological aspects. Therefore, new researchers can reach to their destinations by interviewing or conducting survey with the organization’s financial managers with the help of the combination of qualitative and quantitative research.

Moreover, our additional plan was to investigate cap wise whether RS has impact on stock behaviors or not, and compare the result among caps. We could not able to test what we planned because we examined till year of 2017 in which the new rules of mandatory CSR reporting in Sweden was not established yet and we have found out that 49 companies of belongs to large cap and only 2 companies come from medium cap. This is a main reason why we dropped the plan of to segregate cap-wise. However, this also implied that investigating the relationship under different caps would be a ready-made recommendation for further research to find out the possible associations between the variables after the implementation of mandatory CSR reporting rules.
Furthermore, this study was conducted only on the impact of one indicator of sustainability, residual sustainability, on stock behaviors. Based on the research findings, we cannot conclude that the other four indicators: financial sustainability, social sustainability, environmental sustainability and social sustainability have no impact to the stock behaviors and does not create benefits to the stakeholders. Therefore, it will be interesting to see if the new research conducts the study of investigating the relationship between these four dimensions (Fagerström et al., 2016, p. 39) and stock behaviors, and the outcomes of the research may change if we investigate the phenomena from different perspectives.

Finally, all of the above mentioned points are the most important and relevant suggestions that we would like to recommend for further researchers. In our cross-sectional study, we did not incorporate the psychological and behavioral issues in the Swedish context. This aspect may assist in solving the research gap of the multi-disciplinary research.

7.4. Ethical & Social Considerations
We have discussed previously about ethical and social considerations in each chapter that are necessarily needed to pay attention when conducting our research paper. In this section, we focus more on the issues of how the companies reacted upon the practices of CSR reporting and how should the government support the companies to disclose their CSR activities. It is interesting that only 14% of public listed companies in Sweden published audited CSR reports. Although the companies in Sweden are well-known as pioneers in sustainability, the number of audited CSR reports are still insignificant when we measure in terms of overall assessment on the listed companies. The ethics and molarity issues of the companies in Sweden are not significant because they are always at top score in CSR rating which has previously discussed in chapter one to three. However, since there is no relationship between residual sustainability and stock behaviors based on provided information, there is lack of support for the companies to prove that the monetary value retained in the company is benefits for the shareholders. It shows that companies are motivated less in CSR reporting and sustainable performance. By enhancing the increasing numbers of CSR reports and disclosing the CSR activities, stakeholders are therefore able to access and measure to what extent CSR performances contribute to the society as whole.

As for the sake of society, government should standardize the CSR reporting format and legislate the environmental and social regulation which should be fulfilled by the companies. Since there is no enough public information on CSR activities of listed companies, it is difficult to measure how the companies perform their activities and how they have allocated their financial resources to the sustainability. By setting the CSR performance level for all major industries and urging the listed companies to disclose the information to the public, the true figures of CSR performances will be accessible by the stakeholders. In addition, investors can observe and make investment decisions based on the disclosed information to ensure that the company has created wealth for the shareholders through the relevant amount of allocation of financial resources.
7.4. Research credibility

We have previously mentioned in chapter 2 that research credibility or trustworthiness of the research is measured by the concerns of reliability, validity and generalizability. However, the quality of the research cannot be judged by one’s own criteria or justification. The credibility of the research depends on the proper justifications which explain whether the detail information is provided thorough out of the research process. In addition, it clarifies how the researchers made judgments for their chosen empirical method and how well they justify and interpret the results (Robson, 2002, p. 171). We, therefore, explain how we follow our research process and paid specific attention to the credibility of our research to control the wrong justification of our findings (Saunders et al., 2009, p.156).

7.4.1. Reliability

To establish whether the research is reliable or not, reliability access the extent of stability or consistency of the research findings because it is important to generate the results which can be replicable by individuals in another study (Collis & Hussey, 2014, p. 52; Saunders et al., 2009, p.156).

We have collected our dependent, independent and control variables from the Eikon Datastream which is recognized as high reputable and reliable data source in business research. Since we measure our dependent variable from that source and the dataset is exported directly from the Eikon Datastream to the Excel without manual works, it is very unlikely to generate typo errors and misleading numbers. Although we have manually calculated the independent variable (residual sustainability), all the numerical data which are needed to measure the independent variable were extracted from the Eikon Datastream as well. Therefore, we have controlled the issues of researchers’ bias and errors which can reduce the level of accuracy of our findings to ensure that there is no misinterpretation and misleading data in our empirical methods and analysis. Therefore, we have confidence that the findings will be the same if the tests are repeated.

We have used statistical software, Stata and Excel to investigate the association among the variables and use the multiple regression analysis to analyze the data. We have double-checked the data in statistical testing against the existing the data to avoid double inputting the numbers accidently into the statistical analysis. Since we have followed proper statistical procedures and analysis tools, and we have made sure that there is no manipulation of the data, it is less likely to affect the significant level of the research outcomes.

We have explained each step how we generate our findings and we can provide our worksheets in detail which is related to the extraction of data and interpretations of the results. Therefore, we argue that our research findings are highly reliable and replicable in terms of accuracy and stability if another study is undertaken.
7.4.2. Validity

We have explained in earlier chapter that validity measures whether the research finding are relevant with the subject that has been conducted by the researcher, and examine the conditions or circumstances in which the findings are valid (Collis & Hussey, 2014, p. 53).

In other words, validity finds out how well the outcomes of the empirical testing match with the undertaken phenomena.

In this thesis paper, we have investigated the relationship pattern between residual sustainability and stock behaviors within the specific time frame. In order to increase the validity of our results, we have controlled internal validity threats by testing against the original dataset without manipulating the data. It is because internal validity threats can be generated from the individual’s unethical behaviors in conducting and analyzing the research (Creswell, 2014, p. 223). This can be happened when the individuals want to play or manipulate the data to get the results which they aim to achieve. Therefore, we have used large sample size (51 companies) which are matched with the criteria to address our research question. We have taken care of this research process to ensure that our research outcomes are free from observer’s bias and errors, and to show that the findings are fit with the subject that we intended to do.

One can argue that the validity of our research does not reflect the current situation because the number of companies with CSR reports in Nasdaq OMX Stockholm will be increasing and the allocation of resources to sustainability will be likely to increase. Thereby, it may affect the value of residual sustainability. However, the aim of the study is to find out the possible effect of residual sustainability to stock movements. We, therefore, have conducted our research through multiple regression analysis, and explained our findings by testing with hypotheses and relating the results with the theories. Since we have followed our validity threats and conduct the analysis statistically and systematically, we claim that the changes in value of our independent variable is less likely to influence the threats of validity of our results (Robson, 2002, p. 102-105).

7.4.3. Generalizability

The last concern is related to the external validity which examine the generalizability of the research findings (Saunders et al., 2009, p.158). Generalizability concerns about what might be happened to the research findings if the research is undertaken under different phenomena and it measures the generalizability of the outcomes of the research (Robson, 2002, p. 107).

In our research, we only used specific sample size from one country, Sweden and extracted the two-year data from one reliable source. Within the scope of limited sample size and theoretical framework that we developed, we have focused our analysis and interpreted the findings. Therefore, the generalizability of our results will be very low if the research is conducted in different geographical regions and use the larger sample size more than we used. Although the generalizability of our research outcomes may not tend to be very high, we argue that our research is still relevant and useful in replicating
and transforming data for the similar research in the Nordic context and thereby it is likely to generalize the outcomes of our research (Das et al., 2018, p. 139).

List of references


**Appendices**

Appendix 1. Companies listed in NASDAQ OMX Stockholm
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### Appendix 2. List of companies with audited sustainability report

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Appendix 3. Scatter Plots

Exhibit 3.1 Scatter plots between RSP2016 and TR2017 (Between independent and dependent variables)

Exhibit 3.2. Distribution curve of RSP2016 and TR2017
Exhibit 3.3 One-way scatter plot of RSP2016 and TR2017

Exhibit 3.4 Scatter plots between RSP2016 and BETA2016 (Between independent and dependent variables)
Exhibit 3.5. Distribution curve of RSP2016 and BETA2016

Exhibit 3.6. One-way scatter plot of RSP2016 and BETA2016
Exhibit 3.7. Scatter plots between RSP2016 and STDV 2017 (Between independent and dependent variables)

Exhibit 3.8. Distribution curve of RSP2016 and STDV 2017
Exhibit 3.9. One-way scatter plot of RSP2016 and STDV 2017

Exhibit 3.10. Scatter plots between RSP2015 and TR2016 (Between independent and dependent variables)
Exhibit 3.11. Distribution curve of RSP2015 and TR2016

Exhibit 3.12. One way scatter plot of RSP2015 and TR2016
Exhibit 3.13. Scatter plots between RSP2015 and BETA2015 (Between independent and dependent variables)

Exhibit 3.15. One-way scatter plot of RSP2015 and BETA2015

Exhibit 3.16. Scatter plots between RSP2015 and STDV 2016 (Between independent and dependent variables)

Exhibit 3.18. One-way scatter plot of RSP2015 and STDV 2016
Appendix 4. White Test

Exhibit 4. 1 White test of TR16 vs RSP15

Exhibit 4. 2. White test of TR17 vs RSP16
Exhibit 4. 3. White test BETA15 vs RSP15

Exhibit 4. 4. White test of BETA 16 vs RSP 16
### Exhibit 4.5. White Test of STDV16 vs RSP15

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### Exhibit 4.6. White test of STDV17 vs RSP16

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Appendix 5. Normality testing

Exhibit 5. 1. Normality test for dependent variable Total return 2016 (51 observations each) for year 2016

Exhibit 5. 2. Normality test for dependent variable, Total return 2017 (51 observations each) for year 2017
Exhibit 5. 3. Normality test for dependent variable Beta 2016 (51 observations each) for year 2017

Exhibit 5. 4. Normality test for dependent variable Beta 2017 (51 observations each) for year 2017

Exhibit 5. 5. Normality test for dependent variable STDV 16 (50 observations each) for year 2017
Exhibit 5. 6. Normality test for dependent variable STDV 17 (50 observations each) for year 2017