GENDER, INDEPENDENCE AND RISK PREFERENCE

A quantitative study of listed Swedish companies

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Abstract

Internal auditing is the auditing performed by companies themselves. Previous research has put forth the idea that female chairmen in audit committees increase the internal auditing. In this study, we examine how levels of risk preference within internal auditing are influenced by the gender of the chairman in an audit committee. We also examine how the independence of a chairman affect internal auditing.

We propose two hypotheses, where the first one considers if the risk preference is affected by the gender of an audit committee chairman. The second hypothesis is stated to further question if the risk preference is affected by the independence of an audit committee chairman. The study is based on 697 observations retrieved from financial reports between the years of 2005-2013. Risk preference is measured as the proportion of audit fees that are under the direct control of an audit committee. Gender is measured through binary variables based on legal gender. Our moderating variable Independence is binary based on full independence. By using regression analysis, we find an association between gender and internal auditing, but we find a weak positive association between lower ratio of non-audit costs and independence. This act as an indication that an independent chairmen lead to an increased internal auditing.

Key Words: Internal auditing, Risk Preference, Audit committee, Chairman, Gender, Independence
Foreword

We would like to address a thank you to Peter Edlund Frii, our supervisor, for valuable support and guidance throughout the thesis process.

Anna Lehtinen

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1. Introduction

In this chapter, the fundamental problem background for the study will be introduced. The aim is to provide the reader with information about the chosen topic, as well as work as a foundation for the whole study in opening up the research questions.

1.1 Problem Background

The board of directors in a company consist of individuals that are elected to represent the interests of the shareholders (Investopedia) where female executives are today more commonplace than ever before, in a society where the gender debate is intense. The board works with establishing policies for corporate management and has an oversight as well as decision making power for major company issues (Investopedia), including those of auditing. The board also have a responsibility of risks within a company (Bender, 2007), which is a factor that companies want to possess clear insights in. In recent years, greater attention has been given to the quality of an audit and the definition of audit quality in the corporate world, after historical accounting failures such as frauds (Imhoff, 2003, p.5). Today, international accounting standard setting boards have made financial reporting comparable cross-country borders. There are still some uncertainty however regarding measurements of the quality, since this depends on both country culture and on individual perceptions, but achieving relevant, timely and reliable information can be accomplished by auditing which is independent and of high-quality (Imhoff, 2003, p.3-5). From a management perspective, audit quality is also associated with greater awareness and identification of risks. (Abate, 2008)

Firm’s have different approaches in achieving this complex nature of audit quality, where one option is establishing an internal control mechanism of an audit committee (Imhoff, 2003, p.5). An audit committee is an internal control function within a company, defined as a an association of selected members of a company’s board of directors (Financial Times Lexicon). The role of an audit committee is fundamental in ensuring the integrity and transparency of corporate reporting as the committee reviews and oversees a company’s reporting systems and enables the auditors to prevail their independence of the management (Financial Times lexicon). An audit committee works with maintaining and measuring the effectiveness of a company, communicating and reporting towards the management, as well as with administrative, compliance and ethical matters. (PWC).

For a member of the audit committee to be able to make judgement calls that are not influenced by own interests, the independence of the member is an important characteristic but is not always in its place. Members of the board can be compensated with stock options that in turn can give a firm incentives to not confess performance setbacks in their financial statements. This lack of audit quality includes firms that do have an existing audit committee. (Imhoff, 2003, p.11). The issues that can arise from influencing manager’s decisions with alignments of incentives can also influence the board members on an individual level. This concern is covered in the Agency Theory which lie as a foundation for this paper. The theory provides a framework for predicting the behavior when a principal delegates work to the agent, with the assumption that both the principal and agent are utility maximizing their own interests and thus creating a conflict of interest. (Jensen and Meckling, 1976, p.308). As the audit committee in a firm often is appointed by the board of directors, this constitutes a principal-agent relationship where the audit committee functions as agents on the behalf of the principals.

As will be presented later in this study, agency costs are one way to reduce the potential conflicts of interest (Jensen and Meckling, 1976, p.308). In practice, these agency costs can
lead to a trade-off for a company regarding how much risk they are willing to take. Higher remuneration is assumed to lead to a higher extent of quality control within a firm, due to the female audit committee members being less dependent on the “assurance provided by external auditor” (Ittonen et al, 2010, p. 129). Previous findings have also shown that women, in general, possess traits which contribute positively to the company in question as well in reducing auditing costs (Ittonen et al, 2010, p. 132-135). This paper thereby aims to contribute with findings whether the risk preference of a firm’s audit committee is affected by female association and furthermore how it is associated to independence.

1.2 Research Questions

RQ 1: Is the risk preference within a corporation’s audit committee affected by female presidency?

RQ 2: Is the risk preference within a corporation’s audit committee affected by a female president’s independence?

1.3 Purpose and Aspiration

The purpose of this dissertation is to investigate if female presidency changes the risk preference in a firm and furthermore the effects of the independence of an individual, by analysing a selected number of firms’ audit committees. Because of the complex nature of audit quality and the lack of a worldwide accepted definition, this dissertation raises the question and aims to contribute with new insights in the connection between audit quality within an audit committee and female leadership.

1.4 Audit Quality Control

The term Audit quality is frequently used among firms, stakeholders and audit setters but still there is no definition that has reached the status of being globally accepted. The term is defined differently across the world, however according to the Business dictionary, audit quality refers to the “Periodic, independent, and documented examination and verification of activities, records, processes, and other elements of a quality system to determine their conformity with the requirements of a quality standard”. (Business Dictionary).

There are several frameworks provided for explaining the elements included in the term audit quality. One is provided by the International Auditing and Assurance Standards Board (IAASB). The purpose of the framework is an attempt to describe the in- and outputs that contribute to audit quality at all levels. (IAASB, 2015, p.4).

The key elements of the framework include:

- Inputs, covering factors such as values, ethics and attitudes as well as a person’s skills, knowledge, experience and allocated time to complete the audit. These could be influenced by the culture of a firm.
- Process, covering audit processes and quality control procedures and their effect on audit quality.
- Outputs, including reports and information that are formally prepared for the purposes of audit.
- Formal and informal communication between stakeholders and the context which may influence the interactions.
- Contextual factors, including a number of environmental factors that might affect audit quality.

There are other accounting standard setters as well that are contributing to improvements of audit quality. Accounting and financial reporting are regulated by the International
Financial Reporting Standards (IFRS), set by the International Accounting Standards Board (IASB). IFRS is used widely across the world and listed firms are required to follow IFRS. Since this study is based on listed companies on the Swedish stock exchange, it can be assumed that these companies benefit from adopting regulations that are in accordance with the IFRS framework since this brings a unified way of working cross country borders and increases the comparability cross borders as well.

1.5 Risk Aversion
The terminology of risk can be defined as “the probability that a return on an investment will be lower than the expected return”. (Business dictionary, n.d). As mentioned earlier, audit quality is connected to a greater awareness and identification of risks and it is thereby important for companies to identify possible risk as well as be able to assess and emerge potential risks when they arise. Here the different functions within a company, constituting of management, audit committees and board of directors, rely on internal audit to serve assessments and assurances regarding the effectiveness of control and company procedures. The internal audit should also provide support in the improvement around the processes in identifying and addressing risks. (EY, n.d).

1.6 The Concept of Audit Committee
As mentioned in the problem background, an audit committee is an internal control mechanism within a company, working with ensuring the integrity and transparency of corporate reporting. In this section, the different elements of an audit committee, as well as the legislation and the reasoning behind establishing an audit committee, will be presented.

1.6.1 Legislation and Establishment
The institution of the 8th EU directive, article 41, as well as the change in the Swedish Companies act made Audit Committees compulsory for listed companies. The institutional changes also made it a requirement for companies to regulate the assignments of an Audit Committee. (PWC, 2009, p.3).

The European Parliament motivate the rationale behind implementing an audit committee with several reasons in the directive. The main motivation for implementing a committee is stated in section 24- (DIRECTIVE 2006/43/EC), which declare that “an effective internal control system help to minimise financial, operational and compliance risks, and enhance the quality of financial reporting”. In the directive, several demands and regulations are further stated that are to be applied by member states. Since the nature of the clause is a directive and not a regulation, member states have influence over some aspects of the directive when instating it into law. The directive also goes into detail on the characteristics of independence and the legal standing regarding independent auditors.

The demands on an audit committee, stated in article 41, include that every company withholding a public interest is required to have an audit committee, with a minimum of one independent member who possesses experience and competence of either accounting or auditing. The audit committee shall be responsible for the monitoring of risk management, audit processes, annual- and consolidated accounts, effectiveness of the internal control, the financial reporting process as well as the independence of related auditors. The supervision of an auditor and related needs is also appointed to the committee, as an auditor shall report to the committee regarding potential flaws in the internal control of financial reporting. The directive gives member states flexibility considering that the states themselves shall determine whether establishing an audit committee regards companies without a public

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interest, or if the tasks otherwise assigned the committee should be handled by another entity within the company.

In Sweden, the role of the audit committee was solidified and clarified when it was submitted to the Swedish Parliament in February 2009, by the current government and under the supervision of Fredrik Reinfeldt. The proposition was based on an auditor directive from 2006, which contained a number of demands placed on companies active on the market and that was traded on a stock exchange. According to the proposition, the committee should consist of board members appointed by the board itself. It also stated that the law should only be applicable by those that are not allowed to be exempt, meaning that the proposal would mostly apply to larger companies with a substantial managerial organisation. Therefore small and middle sized companies would be exempt from the new law and it would also lead to exemptions of many financial companies. The exemption was motivated with the reasoning that the costs were not dismissible, but this was criticised by Finansinspektionen in the proposition with the argumentation that it could damage trust for financial markets. (Prop. 2008/09:135).

Today, the demands of the proposition can be found in the Swedish Companies Act, 49a§, which is the main principle regarding audit committees of a firm. The proposal is naturally rather similar to the EU directive, and state that boards within listed companies shall have an audit committee constituting of members who are not employed by the company itself. The same paragraph further state that at least one of the members should possess accounting or auditing knowledge, and that one member shall be appointed chairman of the committee. An auditor in a company is further required to report to the audit committee about important circumstances originating from the auditing as well as seek counsel from the committee in questions regarding impartiality and independence.

The main rule of having an audit committee within listed companies has an exception, which allows firms to decide not to have an audit committee. This requires that all requirements in the Swedish Companies Act 49b§ are fulfilled and that at least one of the members possess the accounting and auditing knowledge, stipulated in 49a§. If an audit committee is not appointed, it is the board that in regular is assigned the tasks of the committee. Another exception, regulated in 49b§, is that the suggestion of the auditor of the firm can be done by the nominating committee as well, if the shareholders have a considerable influence in the matter. A detailed description of the requirements in 49b§ will be presented in the next section of this study.

The reasoning behind the proposition submitted in 2009 provide an interesting perspective on the reason for the spread of audit committees, as it has been visible in the analyzed companies in this study that establishments became more widespread during the time-period of 2009. The proposal mentions that making audit committees a requirement was proposed previously, but was then not accepted with the reasoning that “there was not enough demand for additional control of the upper management as in other countries”. It still enforced some larger companies, as committees were still required for those following Svensk kod för bolagsstyrning.

1.6.2 Responsibilities
The role of an audit committee is fundamental in ensuring the integrity and transparency of corporate reporting (PWC, 2011, p.13). An audit committee reviews and oversees a

company’s reporting systems and enables the auditors to prevail their independence of the management (Financial Times lexicon). An audit committee also work with maintaining and measuring the effectiveness of a company, communicating and reporting towards the management, as well as with administrative, compliance and ethical matters. (PWC, 2011, p.14).

In the Swedish Companies Act 49b§, the tasks and responsibilities of an audit committee are listed. These should, according to the paragraph, be performed without affecting the responsibilities of the board. The tasks in the paragraph include:

1. Monitoring the financial reporting within a corporation as well as leave suggestions and recommendations to ensure the validity of the reporting,
2. Monitoring the efficiency of the internal control within the company, containing internal auditing and risk management,
3. Being informed regarding the auditing of the annual and consolidated reports as well as regarding the conclusions in the quality control, made by the Swedish Inspectorate of Auditors,
4. Informing the board about the function of the committee and the auditing results as well as the contribution auditing has to the validity of the financial reports,
5. Inspect and monitor the independence of the auditor and in particular pay attention to whether the auditor provides the company other services than auditing, and
6. Assist at the establishment of suggestions to the annual general meeting about the choice of the auditor.

Therefore, the main tasks and responsibilities for an audit committee is to evaluate the control culture set by the management and thus work as a control function towards the management (PWC, 2011, p.27). Therefore, the committee serve a crucial role in communicating the importance of internal controls and management of risks, and the members need to have an understanding of the internal control systems and processes. Another important role is evaluating the overall effectiveness of the internal control risk and management frameworks and consider if the management has implemented the recommendations made by both internal and external auditors. (PWC, 2011, p.27)

The focus areas of an audit committee can be divided into the four categories of financial reporting, risk management and internal control as well as external and internal audit. The financial reporting function consists of an oversight of the appropriateness of accounting policies and disclosure requirements. Risk management and internal control relates to an understanding of a firm’s key risk areas and evaluation of the controls effectiveness and fraud risks. Within external auditing, the committee sees to appointments and remunerations, independence requirements, audit recommendations as well as to the scope of work. The internal audit function includes the committee to ensure audit effectiveness and to response to the internal audit recommendations. (PWC, 2011, p.18).

1.6.3 Composition
All of the previously mentioned focus areas play a crucial role in selecting an audit committee’s members. Since one reason to establish an audit committee is ensuring efficiency, it is also important to ensure that the audit committee is both well prepared and properly set up (PWC, 2011, p.15). The members should therefore possess skills and competence relating to accounting in order for the committee to add value to the business.

In general, the members are appointed by either the board of the company or by an appointed nominations committee. Some of the selection criterias that are taken into consideration are
a person’s mindset, business understanding, advising ability and financial literacy. The selection criteria are based on the judgement whether the considered person will be able to add value to the committee. (PWC, 2011, p.19).

One member should be appointed chairman of the committee. The role and tasks of the chairman in an audit committee is not universally stated though, as having a chairman is not a legal requirement as previously mentioned in the regulations concerning an audit committee. To provide a proper view and understanding of the role of a chairman, descriptions of a job requirement can be utilized.

The following description was used by WSP in March 2015\(^3\), which stated particular companies demands and stipulations for the chairman of an audit committee. Some of the responsibilities for the chairman was stated as ensuring that company procedures are established, performed and as maintaining an efficient relationship between the committee and respective management. The efficiency also consist in providing the audit committee with relevant information and making sure that this information is available to the members of the committee. The chairman works as a link between the committee and the board in being responsible for that the work of the committee is reported to the board, and also making sure that it is communicated to the company’s CEO. The job description in WSP also included administrative tasks, such as determining the number of meetings as well as the time and date for the meetings. Lastly, WSP also stated that making annual assessments of the audit committee and being responsible for answering potential questions from stockholders as well as answering to any special assignments questioned from the board belongs to the chairman.

This is only a description from one company, but it can still provide a good understanding for the role of the chairman in companies as the role is prominent and influential. These requirements are echoed by other companies such as *Horizon North*\(^4\) as well. It is also important to remember that since the role of a chairman is neither stipulated in law or a requirements, it can have large a variation regarding the structure and demands of previously mentioned requirements.

1.7 Female Board Seats and Independence

The debate about gender equality in the boardroom has been frequent in Sweden for a long time. Even though the number of female executives is increasing, women are still a minority in the corporate boardrooms, both considered globally and in Sweden. In a report conducted by Deloitte in 2015, it turned out that from a global perspective only 12% of board seats were held by women and that only 4% of boards were chaired by a woman. Further on the report, by analyzing a total of 45 companies in Sweden, it was shown that women only held approximately 28% of the chair positions and approximately 33% of the membership positions in the country.

For an even longer time than what the gender-debate has been present, researchers have tried to investigate the differences in male and female leadership style, as well as the impacts of appointing a female executive. Research has shown that that boards with women as chairmen have improved financial result and a increase from board in efficiency only increase from independence when the board when the board is gender diverse (Terjesen et

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\(^3\) [http://cdn.wspgroup.com/qf6n89/chairman-of-the-audit-committee.pdf](http://cdn.wspgroup.com/qf6n89/chairman-of-the-audit-committee.pdf)

al, 2015, p. 478). The results of Terjesens’ study will be discussed more thoroughly in the theory chapter.
2. Theoretical Methodology

In this chapter, the theoretical methodology for the study will be described. Initially the potential preconceptions and their effects will be presented, whereafter the perceptions of research and knowledge will be covered along with ethics and source criticism of chosen literature.

2.1 Preconceptions

According to Bryman et al (2011, p.72) it is important to take the authors’ preconceptions and values into consideration since these can have an impact on the conducted study, both consciously and unconsciously. These topics are important to take into consideration in order to accomplish a study as objective as possible by limiting the risks for bias.

The theoretical pre-understanding for the authors is based on the academical education obtained after five semesters at Umeå School of Business and Economics. Both authors are currently on their sixth semester and have both chosen to deepen their studies within the field of accounting. Therefore, the academical background is similar for both Kvist and Lehtinen.

Aside from the academical background, preconceptions can also be generated from previous work experience and country culture. Lehtinen is originated from Finland, where she has worked within the fields of sales and accounting in a couple of industrial corporations. Kvist come from Sweden, with a background in administration in the transport sector. The authors however hope that these differences in experience and aspects will bring an added-value to this research regarding insights, but also believe that there are no preconceptions originating from this that will affect the results in this study.

By conducting a quantitative analysis, other potential preconceptions are hopefully minimized. Since both authors are students, neither Kvist or Lehtinen are in any direct way part of the target population for the research, thus also minimizing the risk of being objective.

2.2 Literature Review

An important aspect of conducting a research is the process of literature review. Our chosen research design requires the implementation of previous research and findings, both to create our hypothesis and support our findings as well as make sure that the dissertation contributes with new aspects on the research subject.

The literature is mainly retrieved from the search engine Google Scholar, where concepts such as Audit Committee and Corporate governance have been looked up. Our research in built on the well established and discussed theory of Agency Theory, which has enabled a stable foundation for this research. The chosen subject is also highly related to legislative decisions, therefore the Swedish laws, EU legislation and international accounting standards have been researched and found on each official electronic databases.

2.3 Source Criticisms

This paper is mainly based on well-accepted and used theories within the field of social sciences. These theories have almost completely been retrieved from primary sources from the academically acknowledged search engine Google Scholar, when designing the theoretical framework and hypotheses. Our selected sources are picked for both their relevance to this study and for their trustworthiness and establishment within social sciences. Even though the theories, such as the Agency Theory, are relatively old, we see
that they still relate to matters that are of relevance today. Therefore we see no harm to the credibility in applying these theories on current matters.

All legislations and directives that are mentioned in this paper are retrieved from the official electronic databases of the European Union and the Swedish Parliament. We see no reason to question the credibility of these sources.

The collected data is completely built on firms’ financial reports, and researchers should be aware of that the information could potentially be angled and that firms’ could be dishonest regarding sensitive information and events. The auditing process the financial reports go through, should however be able to reduce the lack of reliability in a financial report and we have therefore considered these as a trustworthy source to collect data from.

2.4 Ontological considerations
Ontological examination covers the ways in which social entities and its actors relate to one another (Bryman et al, 2011, p.49), containing a objectivistic and a constructivist point of view. Bryman et al (2011, p.64) define an objectivistic angle as how the reality is shaped and imply that the actors within the social entities are not able to affect it by their actions or perceptions.

The constructionist point on the other hand imply that observed events are part of social constructions and that their existence is thus dependent on the humanly interactions and consciousness (Bryman et al, 2011, s.64). This viewpoint is built on understanding the fundamental factors to a greater extent than the in the objectivistic angle.

The chosen approach in this dissertation is the objectivistic approach, since the aim is to observe factors related to the improvement of quality within an audit committee.

2.5 Epistemological Considerations
Collis & Hussey (2014, p. 42-56) present two paradigms that act as frameworks for how research is viewed and performed by the researchers. This acts as base for our assumptions as well as the research view reality.

The two paradigms that exist are Positivism and Interpretivism. Research based on positivism view the world as a single objective whole that is independent from the researcher and the theoretical framework is based on empirical knowledge that itself can be verified from experiments. Interpretivism is the opposite of positivism, as the fundamental assumption is that reality is subjective and therefore dependent and influenced by the researcher.(Collis & Hussey 2014, p. 42-56)

This study takes an positivistic approach, where established theories lie as a foundation for the testing, results and conclusions.

2.6 Research Strategy
Data can be of either quantitative nature or of a qualitative nature, and are separated by the ways in which they are collected as well as by the quantity of collected data. Qualitative data is of a varied nature, but normally a qualitative data collection is built on careful observations by interviewing a small number of subjects with questions that often are more open-ended than in a quantitative study. (Bryman et al, 2011, p.6).

A quantitative study is on the other hand built on a larger number of subjects of numerical nature (Bryman & Bell, 2011, p.104), often collected from secondary data. In order for a
quantitative strategy to be successful, the collected data should be measurable, causable, generalisable and replicable (Bryman et al, 2011, p.82). A potential disadvantage with the quantitative method is that it easily gives a simplified picture of the reality, when drawing conclusions that should be applicable on a whole population.

This dissertation is built on a quantitative study, which fits a deductive approach. Since it has been a requirement for us to be able to collect a large amount of data from the concerned financial reports, the quantitative method has been the natural choice. By basing the study on such a large amount of data, it has also been a requirement for us to be able to draw generic conclusions from our population.

2.7 Research Design
This research will have a deductive approach to data, with the goal to compare and contrast the data with existing theories. The other assumptions are similar, as both ontological, epistemological as well axiological considerations make use of an positivist approach (Bryman et al, 2011, s. 70).

The data gathered will be of quantitative nature and it will be used as the foundation for a correlation and regression analysis with corresponding discussions. The model is constructed with one dependant variable in Fee1, two independent variables with Chair_Sex and Chair_independent, one indicator variable with Inter, as well as with six control variables with Female_ratio, AC_Meetings, Independ_Ratio, Chair_Age, Industry2 and TotAt1. A more detailed description of the chosen variables will be presented in section four.

2.8 Ethics
Diener and Crandall (1978, cited by Bryman et al, 2011, p. 156) breaks down the elements of ethics in business research into the existence of harm to participants, lack of consent, invasion of privacy and involvement of deception. In this part, these elements will be broken down.

2.8.1 Harm to Participants
Researchers need to avoid harm developed from the research process considering both physical and mental welfare for participants and researchers as well as other involved. There are multiple methods to ensure this. One is to not use constraints on the participants regarding involvement, or to not use actions and information that might harm the participants future livelihood and career. A method for preventing harm is anonymity or to limit unwanted information. (Collis & Hussey 2014, p. 31)

Since this study and the following analysis is strictly based on financial reports made officially public, we consider that there is no harm done to involved participants. The information we have retrieved do not include any constraints and we consider that the conclusions presented later on will not have any effect on the participants’ career or livelihood.

2.8.2 Involvement of Deception
Researchers need to be open and honest in their communication when in contact with participants. This includes to be open with any potential affiliations and with any existing conflict of interest that might exist. This also mean that researchers need to avoid deception, such as misleading or any other action that veil the intent of the actor.(Collis & Hussey 2014, p. 32)
To avoid these problems, complete honesty and transparency is required in order for all actors to trust the other (Collis & Hussey 2014, p. 32). Even though we have not been in contact with involved research objects, we consider this requirement fulfilled as well on the basis of financial reports being publicly distributed and in the sense that the included information made public with the knowledge of it potentially being analyzed by stakeholders and other interested parties.

2.8.3 Lack of Consent
The research should have benefits for all parties involved, meaning that the result will be of used for both the researchers and the subjects involved. The benefits are ensured by maintaining a mutually beneficial collaboration with the relevant partners for the subject in question. The information used for research need to have been shared with the full consent of the partners as well as be accessible for all. (Collis & Hussey 2014, p. 32).

To not break any consent, researchers can outside of getting direct consent from partners make use of public information easily accessible for the public, which is the case in this study.

2.8.4 Invasion of Privacy
This element state that by participating in a research gives consent in itself for the researchers to violate a subject privacy or to provide access to private information. Invasion of privacy can also be accessed through different instruments that make the subject give out information unwillingly. This considers information that only has been gained accessible through actions such as coercion, manipulations or similar activities. (Collis & Hussey 2014, p. 31)

The element of invasion of privacy is as well considered eliminated based on the public aspect of financial reports and it being distributed with the insight of that the information will be analyzed.
2.9 Summary Table of the Theoretical Methodology

Figure 1: Summary Table of the Theoretical Methodology
3. Theoretical Frame of Reference

The chosen theories for the study will be presented in this chapter. The main theory for the study is the Agency Theory which will be presented first, followed by other previous research theories relevant to the subject of study.

3.1 The Agency Theory

The fundamental theory for this paper is the Agency Theory, which separates ownership from control within ownership corporations (Jensen and Meckling, 1976, p.305). The theory can be seen as a branch of game theory, since the theory illustrates a strategic situation between two or more participants who are faced with choices of action from which they may gain or lose, depending on the actions of the other participants. A strategic game situation is coloured by an extent of uncertainty, because no participant can be sure about how the others are going to act. (Business dictionary).

Jensen and Meckling (1976, p.308) define an agency relationship as a commitment between one or more principals and an agent, where the principals engage the agent to execute some service on their behalf. The conducted performance involves some kind of delegation of decision making authority, which can cause a conflict if the agent is interested in maximizing his/her own interests and thus not act in the best interests of the principal. The unaligned goals can also lead to a situation where the aversion levels to risk are different, as one of the parties might carry all of the losses (Investopedia, n.d). Jensen and Meckling (1976, p.309) exemplify a typical agency-principal relationship with the relationship between stockholders and managers of a firm. The distinction between these interests can be limited through the principals establishment of incentives for the agent, for example payments, or by incurring monitoring costs arranged to limit actions seen as abnormal of the agent (Jensen and Meckling, 1976, p.308).

To either establish incentives or to generate monitoring costs will in turn generate agency costs. Jensen and Meckling (1976, p.308) further define agency costs as something that can occur from monitoring the management and the potential conflict of interest between the parties. In Jensen and Mecklings paper, the dollar value of agency costs are defined as the sum of the monitoring expenditures, the bonding expenditures and the residual loss. The monitoring expenditures cover costs related to the monitoring of the agent, expenditure costs include costs related to the contracts that are used to motivate the agent and lastly the residual loss specify costs that arise from the divergence between the agent’s decision and those decisions which would maximize the welfare of the principal. An audit committee can serve as an example for agency costs, since this is a cost for increasing the internal control within a firm, withholding a monitoring function. At zero cost, it is viewed impossible by Jensen and Meckling to ensure that the agent will make decisions based on what is seen best from the principal’s point of view. (Jensen and Meckling, 1976, p.308).

3.2 Risk and the Prospect Theory

In this paper, the foundation for actions influenced by risk are derived from the Prospect Theory, which explain the differences in actions of individuals as result of uncertainty (Kahneman & Tversky, 1979). The theory can also be described a “loss-aversion” theory which is built on the foundation of Utility theory, a theory that states that a rational individual will only spend resources on a good if the marginal utility of a good is at least as high as the next, and will not spend more if marginal utility is less than the previous one. (Business dictionary, n.d).

Kahneman & Tversky (1979) present several examples of risk aversion, what risk aversion is influenced by and how risk preferences can be altered as well as influenced. Their paper
contradicts the Utility theory in uncertain situations, where the marginal utility is the same for several options and individuals show preferences for options with less uncertainty (Kahneman & Tversky, 1979, p. 273). The authors come to the conclusion that higher levels of certainty increases an individual's aversion towards losses (Kahneman & Tversky, 1979, p. 268-269).

3.3 Corporate Governance
The concept of Corporate Governance is defined as the system of rules, practices and processes that directs and controls firms. As there are many different interests to take into consideration in the corporate world, one of the reasons for establishing these systems and rules is to balance the interests of a company’s stakeholders. Corporate governance permeates all levels of management, including internal controls. (Investopedia).

Corporate governance is, aside from what was presented in the Agency Theory, another way to reduce the conflict of interest between agents and principals, by having solid corporate governance policies. It serves as a conflict diminishing function, by redirecting the agents actions with incentives to realign these interests with the principals’. The agency theory is here used to design these incentives, by considering the motivations behind an agents’ actions. As a result, businesses are able to develop a more solid corporate policy by understanding the mechanisms that create the problems in the first place. (Investopedia).

3.3.1 The Corporate Governance Structure
The mechanisms within Corporate governance are economic and legal institutions that develop through political processes. Corporate governance deals with the agency problem also concerning the ways in which financiers can assure that they will get a return on their financial investments. (Shleifer and Vishny, 1997, p.737-738). Since corporate governance systems differ around the world, Shleifer and Vishny imply that companies can choose between different corporate governance systems, for e.g. United States, Germany and Japan. A successful corporate governance structure is built on a combination of a significant level of legal protection of investors who has at least some connection to large investors. (Shleifer and Vishny, 1997, p. 769).

The board in a firm possess a monitoring role and there are several ways to monitor managers. One efficient way is to appoint specific committees, such as an audit committee, in order to get a clearer insight into the auditing process. Figure 2 illustrates a firm’s governance structure that includes an audit committee.
As previously mentioned, corporate governance consists of institutions that are developed through political processes. (Jonnergård and Larsson-Olaison, 2016, p. 13-19) divide institutional thinking into four characteristics when defining a corporate governance model. The first characteristic is natural order that is interpreted as the period when institutions and organizations are stable, which then creates an understanding of how the world works by influencing the way new methods are viewed. Scheme of classification regards the ways in which natural order is derived and interpreted. Answers from scheme is the stated reasons for the current natural order and benefits that this state of order create. Life important decision is how the structure reaction on a crisis.

The authors present the main differences between Anglo-American- and Swedish corporate governance as that the Anglo-American has a greater reliance on market forces as well as on mechanisms for the previous mentioned characteristics. The Swedish corporate governance on the other hand, make use of more consolidated ownership with dominant actors in order to ensure stability (Jonnergård & Larsson-Olaison, 2016, p.15-18) The history for this development originates in the Great Depression and its resulting recession, as banks lost the rights to own shares in private companies which in turn resulted in that shares were owned by large investment funds. These were then split according to the owners (Jonnergård & Larsson-Olaison, 2016, p.17) with resulting in that the majority of the largest companies on the market was controlled by relatively few influential owners. This system was further entrenched by the post-war reconstruction of Europe and political dominance of Socialdemokraterna. The party favored large companies and used to help in negotiation with the growing and influential unions, a proceed that was simplified by larger companies as it made negotiating wages easier. Over the following decades, with opening of markets greater flow of capital, the situation remain largely the same as companies still tended to be dominated by large controlling shareholders. What did happen was that in times crisis,
demands for the presence of “real owners” arose and enactment of social risk preference (Jonnergård & Larsson-Olaison, 2016, p.17).

3.3.2 EU and Corporate Governance
Sweden’s entry into the European Union has served a great deal of impact for the country, especially within corporate law. The EU Corporate Governance pursues a policy of strengthening company boards, increasing information flows and encourages an oversight of institutional investors. The logic for implementing a unified corporate governance within the European countries is, that the countries should ideally have an identical structure of company law in order to operate one single capital market. (CFA Institute, 2016, p.1).

As mentioned earlier, the European Corporate Governance Code include a directive which states that there should be a focus on auditor quality as well as on the auditing process. This directive includes both auditor appointments and audit committees within a firm, but the relatively generic description in the directive allow countries to establish own codes for corporate government systems. The 8th EU directive, article 41, also regulate that reports about corporate governance should be added to the annual reports of a company, and that specifications regarding the work of an audit committee shall be presented to the stockholders during their annual meeting. (Official Journal of the European Union).

3.3.3 Swedish Corporate Governance
The Swedish Corporate Governance Board defines a successful corporate governance system with the trait that companies can be run as efficiently as possible in the interests of their shareholders. This shall in return create a better situation for the supply of risk capital and promote a greater confidence in the companies, which should be seen on the capital markets. The board has a mission to work with the promotion of managing and administrating the Swedish Corporate Governance Code for listed companies in Sweden. The Code consist of guidelines that are mandatory to follow for listed companies on the market, enabling good corporate governance. As of 2016, these markets include Nasdaq Stockholm and NGM Equity. (Swedish Corporate Governance Board).

All companies included in this paper are listed on the market and therefore obliged to follow the code set by the Swedish Corporate Governance Board. Regarding audit committees, the code includes a constitution that if a such committee is nominated, this should be described in the rules of the company's procedures and that the decision making of the audit committee shouldn’t be disclaimed by the board if the committee is delegated such power.

For a more detailed description of Swedish corporate governance, (Carlsson, 2007, p. 1050)\(^5\) provide a comprehensive overview for both more specific details the design of corporate governance models. Carlsson describe what he considers are the four main features for Swedish Corporate Governance, as the existing of:

- Governance by real owner
- Clear division of responsibility
- Business sector dominated by large corporations
- High transparency

Ownership by real owner is defined as an owner or sphere of interest with a large ownership in a company that retains this role for long period of time. The best example of this is the Wallenberg-sphere, which is led by the Wallenberg family and has exhibited large influence

over Swedish companies through different kinds of ownership for decades. A similar sphere is Industrivärlden, which for a long time was led by Sverker Martin-Löf who is featured prominently in our own data.

*Clear division of responsibility*, points to the presence of a nominations committee, or similar made up of owners of a company that are instituted to act independently from the current management. This feature has been prominently observed in our own data as well.

*Business sector dominated by large corporations* is related to the feature of prominent owners, similarly to whether companies tend be dominated by a few influential owners, the sector itself is dominated by a few companies. This can be seen throughout the Swedish economy within every sector, for example long-term private companies such as Volvo, private family companies like IKEA and newer tech companies like Spotify. This domination of large companies with the presence of business spheres further clarify the domination of a few owners in the Swedish stock market.

*Transparency* is an important element to consider regarding annual reports and financial information, since they should be freely available and easily accessible to the public. The annual reports are continuously updated and contain varied information on subjects such as compensation and incentives for the board and upper management, all in detail and presumably of high quality.

### 3.4 Previous Research on Female Executives and Independence

As stated in the first section, it is of high-relevance to this paper whether female presidency has an impact on different decision-making situations as well as the independence of a board member. In this section, previous research within these areas will be presented along with the potential impacts of affirmative actions.

#### 3.4.1 Effects of Female Leadership

Whether female representation affect audit fees and other similar metrics has been brought to question in a study conducted by Ittonen et al. (2010, p. 128-136). One interpretation is that as a result of greater energy spent on gathering information and greater attendance on meetings, female chairmen are less dependent on quality assurance from external auditors, a trait that lead to the expectation from upper management that women will reduce dependence on external audits.

The authors Ittonen et al (2010) compare their findings and intuition to earlier studies regarding the inclusion of women and their effects. Previous sources and the authors agree that size and activity of an audit committee increase audit costs. With this assumption, Ittonen et al (2010 p,135) conclude that female participation makes committees less efficient in terms of coverage and of quality. Based on previous data however, it has been shown that women increase overall efficiency, and as result Ittonen et al (2010) come to assume in the final analysis that the effect is positive, despite their previous assumption. The influence of women in the auditing process are discussed in another paper by (Ittonen et al, 2013, p. 224-225) as well, where the authors find differences in accruals for client to female auditors and observe that women seem to have limiting influence on income-accrual.

Further evidence for gender influence on quality are supported by Solakoglu and Demir (2016) who examines boards of management in Turkey, described as an emerging market, and measures the relation between female membership in boards compared with different metrics such as ROA and ROE. This study discovered that boards with women had better metrics overall and that boards with women as directors further increase this effect on
performance. In addition to this, the study brings up previous sources that suggest further improvements to less tangible parts of the company, such as company structure and customer relations. The reason why the improvements are speculated to be a result from female board members is assumed to be connected with the potential to introduce new views and approaches. (Solakoglu & Demir 2016, p. 1412-1416).

As our conducted research aim to highlight the effect female leadership has within the body of an audit committee, Thiruvadi (2012) conducted a study that can provide contribution to our research. The study investigates the differences in total number of meetings an accounting committee perform compared to if the director is either male of female in the US at the end of the fiscal year of 2003. Thiruvadi argue that audit committees with a female director tend to have more meetings over a year compared to a committee with male directors. The author contributes this difference to communication and a difference in leadership based on the gender of the director. Furthermore, Thiruvadi go on to claim that having women in the audit committee affect corporate decision-making positively. (Thiruvadi, 2012, p. 372-376)

3.4.2 Independence of Female Board Members

In a study by Terjesen et al (2015), the authors examine how gender diversity affects the independence and efficiency of a board of directors. The authors discover that more diversity as well as an increasing number of women in a board and as directors, increase both the efficiency of the board as well as how many of its members are independent. Terjesen et al further discover a negative influence on a firms’ performance anchored in the number of board meetings, board size and that CEO duality is diminished and counteracted by higher levels of gender diversity. (Terjesen et al, 205, p. 476-478).

The authors motivate the result of such significance with that gender diversity should be provided the importance as independence and that independence should be ranking secondary compared to a lack of gender diversity in boards. (Terjesen et al, 205, p. 478)

3.4.3 Impact of Affirmative Actions

Corporations may be forced to carry out affirmative actions, where a certain percent of the positions in a board are assigned to members of a certain group, for example women. Quotations can have an impact on a company if this shift of leadership is perceived sudden or unforeseen, as researched by Ahern and Dittmar (2012). The authors performed an analysis on the effect of forced quotation of female participation within corporate boards. The analyzed quotas demanded that 40% of the board members should be reserved to women and enacted in a market where the participation at the moment was at 9%. (Ahern and Dittmar, 2012, p. 139)

The authors discovered a general decrease in stock value for companies, with substantial differences depending on if a company already had a female within the board. If the chairman was already a woman (-0,02%) compared to those without female representation (-3,54%) (Ahern and Dittmar, 2012, p. 139). The authors speculate that this is a result of constraining the choice of directors and not as a result of gender specific traits. It also results in degradation of the general quality of the upper management, as it affects which persons can be recruited as well as limits the recruitment poll of possible managers. A company might also suffer from not always having sufficient access to people of adequate skill of the correct gender because the pool have differences. (Ahern and Dittmar, 2012, p. 169)

http://web.a.ebscohost.com.proxy.ub.umu.se/ehost/pdfviewer/pdfviewer?vid=1&sid=a6865cd8-572b-426b-a3e7-8952fde50d5%40sessionmgr4007
Lending & Vähämaa (2017)² published a similar study in 2017, but in contrast to the previous one that only focused on Norway, this one takes a European perspective and use the Nordic countries in particular as a contrast to Southern Europe when comparing different result of quotas and the possible implications this can have when applying theories for different cultures.

The study by Lending and Vähämaa (2017, p. 496) showed that the result for the Nordic countries differed from those of Southern Europe. In the Nordic countries, female participation had a positive relationship with both the expertise of the board and female members had in general higher levels of independence. Even though quotas led to a general decrease in expertise as result of a decreasing recruitment pool, its effect was nonexistent for independence, indicating that women in the Nordics are generally more independent despite the limitations created by quotas. Another point of interest is that independence was affected by “pending quotas”, which are quotas that are not completely enforced. This relationship disappeared after the initial phase until quotas and independence became completely unrelated. This also led to that the negative effect from women on expertise disappeared in the long term and when the country already had large female participation the negative was diminished the greater the previous participation before quotas were enacted.

Regarding boards from countries in the Southern Europe (Lending and Vähämaa, 2017, p. 499-500), the result was quite different. Similar to the Nordics quotas they had a noticeable effect on both expertise and independence but with reversed results. In Southern-Europe, the greater inclusion of women in boards lead to a decrease of both expertise and of independence. Another difference consists in that women was generally assigned to boards that were less independent.

As a conclusion from these differences, Lending and Vähämaa state that in the Nordic countries female members have no negative effect on the quality of a board and as a result, board members are to a greater extent recruited based on qualifications and on independence. This is in contrast with Southern-Europe, where the short-term costs to expertise are greater as a result of stronger negative effect of pending quotas. (Lending and Vähämaa, 2017, p. 500)

As the previous study presented female representation as negative in the short run, as it created limitations on the recruitment pool and forced boards to hire new members with less experience, this do not mean that female inclusion is limited to negative effects. Another study by (Morteno-Gomez et al, 2018, p. 110-112)⁸ examined the effect of women in upper management positions by creating variables for different levels positions during a period that observed a slight in increase in the number of higher ranking women. These was then measured against a number of control variables such as board characteristics and economic measurements.

The final results indicated that greater number of women in upper management have a positive impact on Return on Equity, but lacked significant results for other financial measurements. In contrast, more variables was significant for the top management for CEO’s and similar. The authors credited the positive effect to a different leadership style, but the pattern of the results indicate that these positive effects depend on the position of an

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individual for gender specific characteristics to have an impact on overall performance. (Morteno-Gomez et al, 2018, p. 113-118)
4. Practical Method
This chapter describes the methods that have been used when conducting this study. The working method of data collection as well as a sample description will be discussed whereafter the empirical design will be presented along with a description of all variables included in the study.

4.1 Hypotheses
The aim of this paper is to examine if there is an improvement of quality in the internal control with female presidency and, in extension, also to examine whether this control is affected by the independence of an audit committee. To examine this relationship, following hypotheses are set:

Ha1: The presence of a female chairman, influence the control a company has over their audit committee.

Ha2: The control a company has over their auditing is affected by the independence of their chairman.

The common denominator for these hypotheses is the term “control”, which can be interpreted and calculated in many different ways. We have chosen to calculate control as whether a big proportion of the auditing costs in a company consist of internal auditing compared to the portion that is paid for consulting. In this hypothesis, full control would indicate that in a company an audit committee have full responsibility for all audit costs. The opposite to this would be that audit costs are viewed such that it is the responsibility other part of the organisation, such as upper management.

Ha1: The presence of a female chairman, influence the control a company has over their audit committee.

Previous research indicates that there is an existing relationship between female participation and a change in result (Ittonen et al, 2010). Based on this research, female members reduce costs of auditing and have an overall positive effect on the company. To provide a more comprehensive answer, another hypothesis was set.

Ha2: The control a company has over their auditing is affected by the independence of their chairman.

So far, we have not discovered research that provide a concrete answer if independence has a relationship with the degree to which a company exerts control over auditing. This hypothesis also provide another dimension to our main research question on the influence of a female chairman. The hypotheses are tested with a regression analysis that make use of two independent variables, one indicator variable and six control variables.

4.2 Data Collection
The quantitative data in this study is collected from the financial reports (2005-2013) for companies listed on Stockholm Stock Exchange, provided both by our supervisor and retrieved from the firm’s official websites. From the reports, we started with identifying whether the companies had a constituted audit committee and from there we continued with identifying its members as well as examining the number of women in an existing audit committee. The analysis was further extended with examining whether the members were independent or not, where independence was determined as a members’ independence from both the company and from other influential owners. Information regarding number of
meetings, birth-year and commission for being in the audit committee was also retrieved from the annual reports.

When all of the wanted data was collected, the whole set of tests were merged together and run in the statistical software STATA.

4.3 Data Description
The original dataset, without adjustments, consist of 1765 variables from the time period of 2005-2013 fiscal year reports, where one observation is equal to one firm year. When adjusting the data, shortfall is expected due to various reasons. In this case one of the reasons for the shortfall was the fact that not all companies had a clearly defined audit committee, either by choice or because they viewed their entire board of directors as responsible for the tasks a committee usually perform. Further data was excluded as not all companies that had an audit committee had a chairman, but instead consisted of ordinary members and were therefore excluded from the study as well.

After these adjustments, the final sample used for our model consist of 697 observations, and similar to the full sample based on annual reports from 2005-2013. When considering the data, it is also worth mentioning that not all companies were active between the time period of 2005-2013. The reasons for this could be many, but for example bankruptcy and deregulation could be a couple of explanations.

Table 1 illustrates an overview over the descriptive statistics, below a closer description of the variables will follow.

**Descriptive Statistics**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs.</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fee_1</td>
<td>1763</td>
<td>.691</td>
<td>.1646</td>
<td>.1248</td>
<td>1</td>
</tr>
<tr>
<td>Inter</td>
<td>732</td>
<td>.210</td>
<td>.4078</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Chair_Sex</td>
<td>810</td>
<td>.232</td>
<td>.4224</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Chair_Independ</td>
<td>732</td>
<td>.717</td>
<td>.4506</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>AC_Meetings</td>
<td>892</td>
<td>4.05</td>
<td>1.91</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Independence</td>
<td>904</td>
<td>.653</td>
<td>.3866</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Chair_Age</td>
<td>797</td>
<td>57.11</td>
<td>8.61</td>
<td>17</td>
<td>75</td>
</tr>
<tr>
<td>Industry2</td>
<td>1765</td>
<td>20.38</td>
<td>9.01</td>
<td>10</td>
<td>42</td>
</tr>
<tr>
<td>TotAt1</td>
<td>1758</td>
<td>11998</td>
<td>38226</td>
<td>0</td>
<td>386607</td>
</tr>
</tbody>
</table>

*Table 1: Descriptive Statistics*

**Fee_1:**
Fee_1 is a measure of risk, based on 1763 observations measured as the proportion of audit fees that are under the direct control of an audit committee. The variable shows the amount of total audit cost that a firm valuing as audit costs and non-audit costs. Audit costs are under the control and responsibility of an audit committee and will need to be approved by the board and reported to the shareholders. Non-audit cost are costs related to auditing that are not controlled by an auditing committee, and are instead decided by upper management acting outside the oversight of an audit committee as it is remunerated an external audit firm. In this study, observations have a value between 0,124 and 1, indicating that an audit committee have oversight over between 12,4% and 100% out of the total audit costs. We assume that a higher value of Fee_1 leads to a higher levels of risk aversion within a firm,
as the stockholders and audit committees will have a greater control and oversight over auditing costs.

**Chair Sex**
Chair Sex is based on 810 observations with a mean of 0.232. In this variable, women are assigned a value of 1 and men are assigned a value of 0. The mean of 0.232 indicates that 23.2% of all chairmen in the data are women.

**Chair Independ**
Chair Independ is based on 732 observations with a mean of 0.717. An independent chairman is assigned a value of 1 and a dependent chairman is assigned a value of 0. With a mean of 0.717, it would indicate that 71.7% of all chairmen are independent from upper management and influential owners.

**AC Meetings**
AC Meetings consist of 892 observations with a mean of 4.05, a minimum of 0 and maximum of 13. With a standard deviation, this indicate that a majority of observations held between 2-6 meetings during a fiscal year.

**Independ Ratio**
Independ Ratio contain 904 observations with a mean of 0.6533. The variable has a minimum value of 0 and a maximum value of 4. Since this variable is a ratio, which highest possible value can only be 1, a maximum of 4 should be impossible. We therefore attribute this as result as an error in the underlying data. What is more interesting is the mean of 0.653, that indicate that 65.3% of members in an audit committee are independent. This value can be compared to the mean of Chair Independ of the value 0.717. This indicate that, in general, a larger ratio of chairmen is independent when compared to regular members of accounting committees.

**Chair Age**
Chair Age is viewed equally to a member’s experience, containing 797 observations with a mean of 57.1.

**Inter** is a function of Chair Sex and Chair Independ and should therefore be viewed in conjunction with these variables to provide a relevant result.

**Industry2** is based on values used to signify and differentiate different industries on the Stockholm stock exchange, where each of the observed 1765 industries are assigned a specific value.

**TotAt1** is the total revenue for an observation during a calendar year, and is based of 1758 observations from sample in this case.

**4.3.1 Panel Data**
A commonly used type of data structure used in applied econometrics is panel data, also called longitudinal data. The structure enables researchers to collect data sets consisting of a time series for each cross-sectional member in the particular data set. The key feature with this kind of analysis is, that since it contains both a cross-sectional and a time series dimension, researchers are able to collect data and follow for example one particular firm over a set amount of years. (Wooldridge, 2012, p.10).
The panel is in our case set on both year and on company, where the latter one is identified by corporate identity number. Through conducting a panel data analysis, we have been able to analyse data of sets of firms over the chosen time period of 2005-2013. By having multiple observations on one particular firm, we have been able to control the individual firms’ certain characteristics. Another reason for choosing panel data is that it enables researchers to study the concerns of lags in behavior as well as the results of decision making (Wooldridge, 2012, p.11). For this paper, the results of decision making is highly related to the behaviors of nominating an audit committee and the audit committee’s actions.

4.3.2 Unbalanced Panel Data
Unbalanced panel data is a panel that lack data for at least one-time entry and for at least one unit. This can be because of missing data or because there is no data for that entry. This has been the case of firms that some years operated with an existing audit committee, but in following years decided to assign the whole board the tasks of an audit committee and thus dissolve the committee. The contrary has also been current, where some firms choose to establish an audit committee after having operated without one. In both of these cases, there has been a temporary shortfall since units were excluded from the research sample during the years they operated without an audit committee. (Stock & Watson, 2015, p. 397)

4.4 Multivariate Model
Figure 3 illustrates the multivariate model that is empirically tested in this study. The variable of independence has been selected as a moderator variable because of the assumption of having a strengthening impact on the connection between the independent variable of gender and the dependent variable audit fee.

![Figure 3: Multivariate Model](image-url)
4.5 Included Variables
The data analysis of this research is based on the variables seen in Table 1. Below, all of the included variables and their values in the study will be presented one by one.

Variable Summary

<table>
<thead>
<tr>
<th>Variable Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fee_1</td>
</tr>
<tr>
<td>Chair_Sex</td>
</tr>
<tr>
<td>Chair_Independ</td>
</tr>
<tr>
<td>Female_Ratio</td>
</tr>
<tr>
<td>Interm</td>
</tr>
<tr>
<td>AC_Meetings</td>
</tr>
<tr>
<td>Chair_Age</td>
</tr>
<tr>
<td>Industry2</td>
</tr>
<tr>
<td>TotAt2</td>
</tr>
</tbody>
</table>

| Value between 1 or 0                                  |
| Value either 1 or 0                                   |
| Value either 1 or 0                                   |
| Value between 1 or 0                                  |
| Indicator for Chair_Sex and Chair_Independ            |
| Total number for meetings for an AC                   |
| Age/Experience of the chairman                        |
| Value indicating the industry of a company            |
| Total revenue for a company                           |

Table 2: Variable Summary

4.5.1 Dependent Variables

Fee_1
This variable is calculated as the amount of non-audit cost to total auditing costs. This can take a value between 1 and 0, with 1 meaning that the total costs for auditing is under the control of the audit committee. In contrast, a value of 0 shows a company that values all costs for auditing as non-audit costs. This variable can also be interpreted as a measure of risk for a company, where a value of 1 signifies no risk as the audit committee are in full control of the audit costs and not exposed to the risks a lack of control can potentially lead to. 0 is the opposite, as only not giving the audit committee any responsibility can be interpreted as high risk, since the board and committee do not have any insight in the audit decision-making of the company.

4.5.2 Independent Variables

Chair_Sex
This independent variable is based on the legal gender of the chairman of the audit committee, based on how we perceived presentations of the individuals in the annual reports. The variable is valued either as 1 (Woman) or 0 (Man). Since this study only evaluates the difference between legal genders, we view the use of two binary values as acceptable.

Chair_Independent
This variable acts as a measurement of the independence of a chairman of an audit committee. The variable is assigned with the values 1 or 0. 1 equals a fully independent individual, whereas 0 constitutes a dependent individual. The criteria for a chairman to be viewed as independent, is for the actor to be clearly stated in the annual report to be fully independent from the company, upper management and also independent from influential owners. Should a individual not fulfill all of these three criteria, they are considered as dependent in the data.

4.5.3 Control Variables

Female_Ratio
This variable has a value between or equal to 0 and 1, and acts as proxy of the ratio of women
in an audit committee. The number 0 indicate a committee without any female members and 1 is a committee without any male members. This value is calculated by dividing the number of female members by the total numbers of members, to get an approximately correct ratio. This is relevant as we want to examine overall influence of female participation and because the variable act as an overall measurement of female influence.

*Inter*
Inter act as an indicator variable, and is a function of \( \text{Chair\_Sex} \times \text{Chair\_Independ} \). This variable was created in order to add accuracy to the model and since it has a connection with other variables it will be visible in the data and other analyses. As a result of its inherent characteristics derived from its function, the variable contains values between 1 and 0. A value of 1 indicate a chairman that is both a female and independent and a value of 0 indicate a dependent, male chairman.

The benefit of this is that it provides insights in to what degree gender and dependence interact with each other, and it will provide answer to whether there are any interplay between these variables.

*AC\_Meetings*
This variable is the total number of meetings an audit committee conduct during a fiscal year. The variable is highly relevant as, depending on the company, the compensation of an audit committee can be dependent on the number of meetings the members attend. It is also of interest as it can have an influence of costs as the payment a member receive is either of a fixed value for the fiscal year or dependent of the number of meetings they attend.

*Independ\_ratio*
This variable is the ratio of independent committee members compared to the total amount of members. The variable is assigned a value between 1 and 0, depending on the number of independent members, where an audit committee with a ratio of 1 consist of fully independent members. In contrast, a value of 0 indicate an audit committee that is completely dependent. This variable is of interest since there exists a possibility that the degree of independence in an audit committee might have an effect on the final results.

*Chair\_age*
This variable shows the age of the chairman of an audit committee member and is interpreted as a proxy to the level of experience that a chairman has, where older individuals are assumed to be more experienced compared to younger chairmen.

*Industry2*
This variable act as a proxy for what kind of industry the company in question operates in and is based on a definition used on the Stockholm stock exchange that divides different companies into the different industries they act in. This is of importance, as there might exist some hidden effects as a result of limitations and factors specific or more pronounced for different industries.

*TotAt1*
The variable TotAt1 act as a measurement on the size of the company in terms of revenue and employees and is relevant, since we noticed during the research that companies tended to motivate a smaller audit committee even though the number of members was below the legally stated. A state that was motivated by the size of the company. The variable is calculated as the total revenue for a company during a calendar year. This is made in order
to eliminate the possible risk that differences in costs is simply a result of size, a factor which can have an effect on other factors, such as the size and costs of a committee.

4.6 Regression Analysis
One benefit of Ordinary Least Squares (OLS) is that it is the most frequently used method for regression analysis in the field of economics, which thereby simplifies the process of understanding different researches as a substantial amount of the conducted studies have the foundation for their analyses in common. OLS also has a good response to a number of properties that tests need to fulfill in order to be considered as accurately measuring the dependent variable and under the correct assumptions the resulting estimator is both unbiased and consistent. (Stock & Watson, 2015, p. 162-167).

This analysis makes use of cross-sectional data, which is a data-set consisting of different entities and allow compilation of the different variables in a consistent way without interference, despite different values between the different variables. The main benefit of using cross-sectional data is that it provides more information about the relationship between the different variables during a selected time-period. (Stock & Watson, 2015, p. 54-55).

As the model consist of multiple different variables, the test carries the risk of being afflicted by Omitted Variable Bias (OVB). This is an occurrence where regression of a variable has a correlation with a variable that is omitted in the model and corresponding tests have a substantial influence of the dependent variable. (Stock & Watson, 2015, p. 228-233). We have addressed this in our data by making the variables independent from each other, aside of those variables where this dependence is acceptable and expected. We also addressed this problem by stratifying the data such that each sample for each period have high independence from other strata’s. Example of these actions are the addition of the variables Industry2 and TotAt1, that we consider enough to address the problem with OVB.

In order to provide a consistent and reliable result, we make use of a multiple regression model where the multiple regression is made with several independent variables and act as a method to isolate the influence from a single variable from the other.
5. Results
The results gained from the previous chapter will be presented here, by displaying, interpreting and discussing the test-results.

5.1 Variable Correlations
We have performed a correlation test in order to view and test the relationship between the different variables. An important aspect with correlation is that it is preferred that variables have a low correlation, since high correlation can indicate that they are not independent from each other.

As can be seen in Table 3, the variables in general have low correlation with other variables, for example the dependent variable Fee_1 has the overall weakest correlation and in addition it has one of the two weakest correlations in the model. As correlation is the weakest between Fee_1-Chair_age and Chair_Age-AC_Meetings, with a correlation of only -0.0274.

We also discovered that some variables have a relatively high correlation, but are in the context with the data fully understandable. The variable with the highest correlation is Chair_Sex-Inter, with a value of 0.9483. As described in the variables description, Inter is a function such that Chair_Sex is an obligatory part of the equation and therefore the high correlation is impossible to avoid. Another constellation with high correlation is Independence_Ratio-Chair_Independence with a value 0.65 and similarly to the previous high value, this originates from the fact the variables are expected to have high correlation from their relationship in the data and are therefore acceptable as a result.

Correlation Table

<table>
<thead>
<tr>
<th></th>
<th>fee_1</th>
<th>Inter</th>
<th>Chair_Sex</th>
<th>Chair_Age</th>
<th>AC_Meet</th>
<th>Indep</th>
<th>Chair_Indep</th>
<th>Indust</th>
<th>TotAt1</th>
</tr>
</thead>
<tbody>
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<td>fee_1</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inter</td>
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<td>1.0000</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chair_Sex</td>
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<td>0.9483</td>
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</tr>
<tr>
<td>Chair_Age</td>
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<td>0.3080</td>
<td>0.2311</td>
<td>1.0000</td>
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<td></td>
</tr>
<tr>
<td>AC_Meet</td>
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<td>0.1615</td>
<td>0.1708</td>
<td>0.1742</td>
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<tr>
<td>Indep</td>
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<td>0.2743</td>
<td>0.1807</td>
<td>0.6568</td>
<td>0.1379</td>
<td>1.0000</td>
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</tr>
<tr>
<td>Chair_Indep</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Indust</td>
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<td>0.1606</td>
<td>0.1256</td>
<td>0.2196</td>
<td>0.0429</td>
<td>0.2714</td>
<td>-0.0755</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>TotAt1</td>
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<td>-0.0432</td>
<td>-0.0229</td>
<td>-0.0104</td>
<td>0.3009</td>
<td>-0.0229</td>
<td>0.1326</td>
<td>-0.1544</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

Table 3: Correlation Table
5.2 Regression Results
Table 4 visualizes the results provided by the regression analysis. Following, is an in-depth explanation of the results for the included variables, based on the values in the table.

Regression Results

|                    | Coef. | Std. Err. | z     | P>|z| | [95% Conf. Interval] |
|--------------------|-------|-----------|-------|------|----------------------|
| Chair_Sex          | -.0403429 | .0745012 | -0.54 | 0.588 | -.1863625 to .1056767 |
| Chair_independ     | .0324458  | .0195989  | 1.66  | 0.098 | -.0059646 to .0708582 |
| Inter              | .0193931  | .0755434  | 0.26  | 0.797 | -.1286692 to .1674553 |
| Female_Ratio       | -.0498634 | .0329294  | -1.51 | 0.130 | -.1144039 to .0146771 |
| AC_Meetings        | .0039421  | .0038901  | 1.01  | 0.311 | -.0036823 to .0115655 |
| Independ_Ratio     | -.0395834 | .0282236  | -1.40 | 0.161 | -.0849808 to .0157339 |
| Chair_Age          | .0001792  | .0006729  | 0.20  | 0.838 | -.0015325 to .001889  |
| Industry2          | -.0000965 | .0021588  | -0.08 | 0.939 | -.0025638 to .0023707 |
| TotalAll           | 4.56e-08  | 2.00e-07  | 0.23  | 0.820 | -3.47e-07 to 4.38e-07 |
| _cons              | .6651714  | .0594369  | 11.19 | 0.000 | .5466773 to .7816556 |

\[ \text{outreg2 using AC.doc. append cttitle(Model 2) addtext(Year FE, Yes)} \]

Table 4: Regression Results

5.2.1 Observations
When conducting the analysis, we have a total of 697 observations divided into 137 units. Taking the original matched sample that consisted of 1765 observation, this would mean that 39.5% of the total observations do not fulfill the basic requirement for our model to be taken into consideration. These requirements are that the company in question have an expressed audit committee appointed, that is clearly separated from the board and that the company also has a chairman appointed for the audit committee in question. When taken into context, this would mean that approximately 60% of the companies in our sample fail to fulfill these requirements.

The 137 groups that the 697 observations were divided into, was based on the number of years that a company had acted with an active audit committee that included a chairman. This show, that a company on average has a clearly assigned chairman for 5,1 years, during the period of 2005-2013.
5.2.2 R-Square
The regression analysis for the sample, after shortfall, provided us with a R-square value of 0.0011. This value can be considered low as it indicates that the model provides a very limited explanation for the difference in Fee1. This is understandable, as the model is not meant to examine the relationship of Fee1, but use it as a proxy for measuring the influence of other variables. We therefore find the low R-Square acceptable.

5.2.3 Independent Variables
Chair_Sex is as previously stated one of the independent variables in the model and the result is therefore of greater importance for the analysis overall. As can be seen in Table 4, this variable has a coefficient of -0.04, a standard error of 0.074 and a P-value of 0.588. This indicates that should we accept the hypothesis of gender having an impact, it would mean that gender would have a negative effect on Fee1, and indicate that women are more prone to risks.

These possibilities are negated by the quite P-value of 0.588, which is considered high. The high P-value is large enough so that we can, with reasonable certainty, come to the conclusion that Chair_Sex have no effect based on the strong evidence that is provided. This result contradicts some of the earlier studies we examined in previous chapters, which repercussions and possibilities will be discussed later.

The contradiction of the results in relation to previous studies is of particular interest as a majority of our sources suggest that gender should have some effect on the behavior of a managerial body. This is of even greater interest considering that the leadership of women is assigned traits that suggest a higher risk aversion compared to men and how this influence is compounded by the rank of the position. Itonen et al. (2010, p. 129) also suggested that a committee with female presidency would be less dependent on external auditors, which directly contradict our result as we have evidence against this relationship existing in the first place.

Chair_independ is the second of our independent variables as well as the main proxy for which we examine the second hypothesis. The variable has a coefficient of 0.032, which indicates that independence of a chairman increases Fee1 by 3.2% and by proxy this means that a committee with an independent chairman is more risk averse, compared to a committee with a dependent chairman.

The variable Chair_independ has a P-value of 0.098. This result is robust through multiple regression and provide a significant result within a 90% confidence interval. The result provided is of significant importance, as this variable is the primary variable for evaluating the hypothesis Ha2. The result from the regression analysis show whether the independence of a chairman is significant, since the P-value is below 0.1. Therefore, when using 90% significance level, this indicates that audit committees with an independent chairman have more control than a committee with a dependent chairman and can therefore be deemed to be comparatively more risk averse.

5.2.4 Control Variables
The variables Inter, AC_Meetings, Independ_ratio, Chair_Age, Industry2 and TotAt1 all lack significance on a 90% significance level and we are therefore unable to accept that the variables have any impact on Fee1.
*AC_meetings* is brought up as a task that the chairman is responsible for and is a variable we failed to find support for. This, in combination with the lack of support for this variable, make us able to reject that this variable has an influence over the risk behavior.

*Inter* is a bit more interesting. As mentioned previously in section 4.4.3, Inter is the result of Chair_Sex and Chair_Independ. For these variables, one is lacking evidence and the other one is significant. The reason that this variable is still rejected can be found when comparing the different correlations. Inter have a stronger correlation with Chair_sex than with Chair_independ and could be the main reason why this variable is rejected. This also means that the result contradicts some of the statements made by Ittonen et al (2010), as the result again reject the possibility that women reduce reliance on external audits.

*Independ_ratio* is used as proxy for how the prevalence of independence among committee members might affect distribution of audit costs. Based on the result from regression analysis, Independence ratio lack evidence to show a relationship with *Fee_1* and can be compared to effect of Chair_Independ. The lack of support for Independ_ratio seem to support the claim that the chairman is the determining factor when influencing the prevalence of non-audit costs.

*Chair_Age*, *Industry2* and *TotAt1* are used to control for influence. They are not supported by theory.

### 5.3 Multicollinearity
Since the analysis is based on unbalanced panel data, every series of data is independent from other series and have no relationship or pattern that can be reliably examined as it has a risk of producing a skewed result. We therefore do not produce any VIF-values to test for multicollinearity.
6. Analysis and Discussion
Continuing from the previous chapter, this section will follow-up with an analysis and discussion of our results. We will here connect our findings with the theories and research questions alongside with the hypotheses presented earlier in the study.

6.1 Rejecting the Hypothesis of Female Influence

RQ 1: Is the risk preference within a corporation’s audit committee affected by female presidency?

Ha1: The presence of a female chairman influences the control a company has over their audit committee.

The first research question was followed up with the hypothesis of a female chairman influencing the control a company has over their audit committee. Based on a P-value of 0.58 we reject Ha1, with the motivation that we lack sufficient evidence to support the claim that the control mechanism in an audit committee is affected by the gender of a president.

6.2 Accepting the Hypothesis of Independence Influence

RQ 2: Is the risk preference within a corporation’s audit committee affected by a female president’s independence?

Ha2: The control a company has over their auditing is affected by the independence of their audit committee president.

Our second research question was followed with the hypothesis of independence influencing the control a company has over their auditing. Based on a P-value of 0.098 we accept Ha2 within a 90% confidence interval.

6.3 Reflections on Variables
In this section, the variables from the analysis will be reflected upon in relation to previous findings.

6.3.1 Independent Variables
Gender of chairman
In our analysis we rejected the female gender having an influence on the control mechanism. This was based on the levels of risk that an audit committee presents and in that the gender of the chairman is not influential whether a company use internal or external auditing.

The results in the regression and correlation analysis did not provide evidence to prove an association between non-audit cost and gender. We therefore reject the alternative hypothesis that there exist and relationship between these variables. The result is quite interesting as is contradicts the idea of female chairmen affecting the extent of internal auditing from a number of previous findings. (Terjesen et al, 2015; Ittonen et al, 2010; Solakoglu & Demir, 2016; Thiruavadi, 2012). Comparing the result to Terjesen et al (2015), who do not promote gender as an influential factor but value it to such a degree that they value gender above independence, our analysis provided completely opposite result. One reason for this contradiction could be that our model is significantly more simplified and contains less variables compared to the research of Terjesen et al. Another potential reason is that our study is strictly focused on examining the relationship between gender and non-audit cost while Terjesen et al (2015) examine a range of variables and relationships.
Another study which is in contradiction to ours, is the one conducted by Ittonen et al. (2010), as Ittonen put forth the idea that women tend to have traits that lead upper management to expect that a committee under the leadership of a woman will lead to less external auditing. Ittonen indicate that female chairmen lower fees paid to external auditors and reduce control risks for a company. This directly contradict our results, as our study do not support a relationship between gender and levels of non-audit cost ratio and neither show an indication that women would be more risk-averse than men. One reason for these differences in results could be that Ittonen et al. (2010) make a more indepth economic based research on a large number and varied set of variables. In contrast, this study directly links non-audit cost with gender and includes a few control variables without the support of the same economic measurements.

Solakoglu & Demir (2016) speculate that women have an effect on financial metrics as a result of providing alternative views to existing methods and in presenting new approaches. Based on these statements, we would expect to find gender having some effect on the actions of a committee. A possible reason for this could be one provided by Lending and Vähämää (2017). Lending and Vähämää (2017) present how changes are affected by pre-existing conditions and characteristics that can affect different studies. Solakoglu and Demir (2016) described their own market as emerging and with few female participants withholding board positions. The difference in findings could be a result of different conditions pre-existing that could influence the different regions such that it creates different outcomes.

One reason behind the difference on the influence of female chairmen between the result of this study and other studies can be found in the conjunction with agency theory. Jensen and Meckling (1976) defined an agency relationship as the commitment between one or more principals and an agent. This relationship between are upheld by incentives, and a difference in actions between gender be could be explained by a difference in incentives between genders leading to a difference in actions. Our result suggest that this is not the case, as we find the difference in our study to be able to be explained by agency theory.

**Independence of chairman**

The regression analysis provided support that independence decrease non-audit cost ratio and as proxy is interpreted to decrease risks. It is reasonable to assume that independence is an influential factor, as it carries enough weight to be a legal requirement worldwide. From a historical perspective, it is interesting that the legal requirement for an independent audit committee was enforced in the wake of the 2008 financial crisis.

What concerns independence, the Agency Theory provides a reasonable explanation to why independence decrease the non-audit cost ratio, as the Agency Theory separates ownership from control with the example used being the relationship between management and stockholders. The problem with a chairman within one of the parties being dependent, is that it carries the risk to skew the relationship in favor of one over the other with resulting in costs. Especially considering the divergence that results from the chairman's incentive and principal benefactor, in this case the company in question. For an independent chairman, the principal benefactor is the only actor who can provide incentives to the independent agent. Therefore, an agent has incentives to think in risk-minimizing terms with greater control in order to retain this incentive, as higher risks to the company also is a risk towards the agents’ incentive.

When chairmen have more than one benefactor, they are not as dependent on the principal benefactor as they are not the only benefactor the agent have access to. Therefore, a conflict
of interest arise as the actions of the chairman carry the risk to be affected or influenced by another actor as they are now less dependent on the welfare of the company when expecting future welfare. The chairman also then has less motivation to prioritize the welfare of the company. This is reflected in our results, as it shows sufficient evidence to support the claim that a chairman who do not carry the risk of a conflict of interest use less non-audit costs. This also means that dependent chairmen, who are more exposed to this conflict of interest between the company and their dependent, are less risk averse when it comes to the welfare of the company as they are less dependent on the welfare of the company for their own gains.

6.3.2 Control Variables

Established AC

It has been shown that smaller companies in particular are hesitant towards establishing a committee due to a fear of added costs or a fear of added bureaucracy. This is something that we have noticed conducting our analysis and is also a factor that was taken into consideration when the role of the audit committee was regulated in Sweden, as smaller companies are given more flexibility regarding the establishment of an audit committee.

Composition of AC

When deciding upon the size of the committee, the member’s relevance to the committee and their potential added-value should once again be taken into consideration. The committee should be large enough to represent a balance of views and experience but at the same time be small enough to operate efficiently. (PWC, 2011, p. 17-18). It is normally thought that a committee consisting of three to six members is ideal. The nature of the company and the extent of the committee’s responsibilities is important to consider. (PWC, 2011, p. 21). Even though this is described as an ideal number of members by PWC, there is a considerable variation between companies in how many members are appointed to the audit committee. In our analysis we noticed that the audit committees consisted of two to five members in general, which is slightly below the “ideal”. An interesting view on this is the fact that a committee consisting of only two members is in contrary to the legislation. The main argument for companies operating with such a small committee, was derived to the size of the company and to that the board considered that they did not need more members.

Independence Ratio

One important aspect to take into consideration is a person’s independence from the management. As previously mentioned, the advisory role is an important function of the committee, and therefore the members can sometimes be put into a situation where they are disagreeing with the management and prioritizing the company’s interests first. But as can be seen in the data, numerous companies of different size have members that in some way or another is dependent on either the upper management or on prominent owners of the company in question. The reason for the prevalence of dependent members is outside the scope of this study, but it can be mentioned that this is based on the laws of the nation, since only one member in the audit committee is required to be independent in Sweden.

Age/Experience

This variable is included to limit possible uncertainty or unforeseen impact on results which could possibly be derived from either the age of a chairman or form the years the chairman has served an audit committee. One thing conducting this study that we have noticed is that the years a member of an audit committee serves his/her tasks vary. Some members are only on board of the committee for one year and others keep their position for even more than five years. Generally, it is considered that a member serves an audit committee for a term
of three years (PWC, n.d., p.21). Here the board or a nomination committee can evaluate if continuity or freshness should be of higher importance. A member with several years of experience might possess a key knowledge serving in the role, whereas a new member might bring forward a fresh perspective on things. It is debatable which of the two contribute with the most value, since it likely is situation dependable.

Audit Fee
Some key-traits for the person in the position of a chairman is proactivity, flexibility and to be able to communicate both towards the audit committee, management board and the external auditor (PWC, n.d., p.21). This could be a few of the reasons a chairman in our data tend to have considerably higher commission than other members of the audit committee. Whether it is because chairmen possess traits that are more desirable, or if it is because they are assigned more responsibility remains unclear.

Further on the role of a chairman, it can be seen in the regression analysis that the independence ratio is insignificant while the independence of the chairman is significant. This could indicate that the traits of the chairman are of even greater importance since the the chairman have influence on the risk taking for the committee in contrast to overall members, which do not affect risk. This could as well be used as an argument for the higher commission that a chairman receives.

Number of Meetings
The number of meetings vary as well as shown through our analysis, the amount depends on factors such as the nature and size of the companies. If meetings are held regularly, it contributes with an opportunity to discuss and review information on a timely basis which as previously mentioned is an important aspect in audit quality. Since meetings are in general held in conjunction with major phases of the financial reporting the minimum number of meetings should be around four meetings per year. (PWC, n.d., p.21)
7. Conclusion
In this section, the research questions and hypotheses will be re-established and provided with an answer. Limitations with the study as well as the social contribution and improvement ideas for conducting further research will also be discussed. Lastly, truth criterias will be reflected upon as well in terms of reliability, replicability and validity.

7.1 Answering the Research Questions
The purpose of this study was to investigate whether female presidency affect the risk preference of an audit committee in a firm, and furthermore investigate if it is affected by the individuals’ independence. To give answer to the chosen subject, two research questions were established:

RQ 1: Is the risk preference within a corporation’s audit committee affected by female presidency?

RQ 2: Is the risk preference within a corporation’s audit committee affected by a female presidents’ independence?

Literature that was used to provide underlying theory was focused on different aspects of board influence and the conflicts of interest that may arise between corporation functions. The literature that was used as a foundation for the study also consisted of topics within board independence, influence of gender and legal frameworks. In order to conduct the analysis, the two hypotheses in the study were stated as:

Ha1: The presence of a female chairman, influence the control a company has over their audit committee.

Ha2: The control a company has over their auditing is affected by the independence of their chairman.

The model for the analysis was constructed with the dependent variable Fee1, the two independent variables Chair_Sex and Chair_independence, one indicator variable Inter, as well as with the six control variables Female_ratio, AC_Meetings, Independ_Ratio, Chair_Age, Industry2 and TotAt1.

To answer the research questions, a quantitative study was conducted with data collected from the financial reports of firms that were included in the study. The analysed data was later adjusted and merged before run in the statistical software STATA. After shortfall from the initial number of observations of 1765, the sample consisted of 697 observations, divided into 137 units. The research questions were analyzed by measuring the effect of variables on Fee_1, where Fee_1 measure the amount of a company's audit costs that is measured as non_audit costs compared to total audit costs. This was then interpreted as a measurement of risk preference, where a higher ratio of non-audit costs is an indication of lower levels of risk aversion.

As for the results, previous scholars and research pointed towards an effect depending on gender, which could not be accepted as a hypothesis in this dissertation. Independence on the other hand showed a positive association in accordance with previous findings and the second hypotheses was thereby accepted.
7.2 Contribution
Considering that we could not, with empirical support, accept the hypothesis of female gender influence on the quality of the work in an audit committee, the results in this study are not revolutionary. The social contribution however lie within insights regarding that the gender of a person withholding a leading position probably has no particular positive or negative effects, to a world where female presidency has been intensively debated for a long time. With this study we can conclude that gender has no impact on the risk aversion of a company and as a result, companies lack reasons to potentially discriminate depending on gender. As we have shown that independence is the decisive in affecting risk aversion, this study can help stockholders and organization with insights to help mold and shape the actions of an entity to a desired state.

Furthermore, the results contribute with further evidence on the positive impact of the independence of a board member and thus also the independence of the chairman. As this is in accordance with previous theories and investigations used as a foundation for this study, we see that our research strengthens this assumption. The contribution also lie within the findings regarding risk preference (Feel) viewed separately, in that it can be used to describe and show the extent that an audit committee actually can overview the costs of auditing, and also contribute to insights of the influence audit committees have on the internal risk.

7.3 Research Boundaries
Conducting this study, some limitations have been relevant to take note to. The analyzed companies constitute only a fraction of all possible companies potentially relevant for this study. With the stated time-frame in mind, the analysis is limited to 1765 observation from companies listed on the Swedish stock exchange that were initially included. Further limitations with the analyzed companies are that the research is only based on those companies which explicitly stated that there was an existing audit committee within the firm, thus excluding the ones who didn’t.

7.4 Improvement Ideas for the Future
As mentioned, the analysis in this study is narrowed down to consisting of only a limited number of companies listed on the Swedish stock exchange and to only firm’s operating within that market. A further mitigation was done when excluding companies from the analysis that didn’t state that they had an audit committee and with conducting a quantitative study regarding gender, generalizations must be taken into consideration.

With this in mind, if someone were interested in conducting a similar study or to do further research, would be to include other companies listed on the Swedish stock exchange or to further extend the study to contain also other markets in other countries. The research could also be extended to contain firms that do not have an operating audit committee. This would enable a broader view on the topic and international comparisons.

7.5 Truth Criteria
In the field of social sciences, there are three fundamental truth criteria to take into consideration according to Bryman et al (2011., p.90-91).

Reliability hints at how authentic the conducted study is. This can be tested with questioning if the result would be the same if it was conducted again with the same measurements and with the same data(Bryman et al 2011., p.90). We argue that this criterion is met. If someone were to conduct a study exactly like this one, the results would probably be the same as presented in this study due to low personal bias.
The criteria of replicability aim for that it should be possible to repeat a research. A repetition of a research can be done with a reason to confirm its validity or to achieve a higher reliability (Bryman et al 2011, p.90). The aim has throughout the study been to keep a high replicability by explaining our working methods and proxies, thus enabling the study to be conducted again. We therefore argue that this criterion is met as well.

Validity regards the connection between collected data and drawn conclusions. In order for a research to be considered valid, the drawn conclusions should be in correspondence to the chosen data that is collected. Bryman et al (2011, p.90-91) separate the forms of validity, including external validity that should be taken into consideration. The external validity refers to the extent in which research results can be generalised (Bryman et al 2011, p.90), where the sample chosen to play a crucial role. The sample should be chosen in order to get a result that is representative for the whole population, which we are not able to say for sure that the sample chosen in this dissertation is. We however argue that the validity criteria is met, considering that the results are comparable to previous studies.
Reference list


Bender, R (2007). The Role of the Audit Committee in Risk Management. In: Cranfield School of Management, Audit Committee Chair Forum. UK, July 10


WSP Global(2015, March). Position description: chairman of the audit committee
## Appendix

### Table 1: Descriptive statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs.</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fee_1</td>
<td>1763</td>
<td>0.6911032</td>
<td>0.1646006</td>
<td>0.1247956</td>
<td>1</td>
</tr>
<tr>
<td>Inter</td>
<td>732</td>
<td>0.2103825</td>
<td>0.407859</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Chair_Sex</td>
<td>810</td>
<td>0.2320988</td>
<td>0.4224325</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Chair_Independ</td>
<td>732</td>
<td>0.7172131</td>
<td>0.4506616</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>AC_Meetings</td>
<td>892</td>
<td>4.056054</td>
<td>1.91784</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Independence</td>
<td>904</td>
<td>0.6533818</td>
<td>0.3866387</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Chair_Age</td>
<td>797</td>
<td>57.11292</td>
<td>8.61253</td>
<td>17</td>
<td>75</td>
</tr>
<tr>
<td>Industry2</td>
<td>1765</td>
<td>20.37904</td>
<td>9.014269</td>
<td>10</td>
<td>42</td>
</tr>
<tr>
<td>TotAt1</td>
<td>1758</td>
<td>11998.03</td>
<td>38226.06</td>
<td>0</td>
<td>386607</td>
</tr>
</tbody>
</table>
Table 2: Variable Summary

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fee_1</td>
<td>Value between 1 or 0</td>
</tr>
<tr>
<td>Chair_Sex</td>
<td>Value either 1 or 0</td>
</tr>
<tr>
<td>Chair_Independent</td>
<td>Value either 1 or 0</td>
</tr>
<tr>
<td>Female_Ratio</td>
<td>Value between 1 or 0</td>
</tr>
<tr>
<td>Inter</td>
<td>Indicator for Chair_Sex and Chair_Independent</td>
</tr>
<tr>
<td>AC_Meetings</td>
<td>Total number for meetings for an AC</td>
</tr>
<tr>
<td>Chair_Age</td>
<td>Age/Experience of the chairman</td>
</tr>
<tr>
<td>Industry2</td>
<td>Value indicating the industry of a company</td>
</tr>
<tr>
<td>TotAt2</td>
<td>Total revenue for a company</td>
</tr>
</tbody>
</table>
Table 3: Correlation Table

<table>
<thead>
<tr>
<th></th>
<th>fee_1</th>
<th>Inter</th>
<th>Chair*_x</th>
<th>Chair*_d</th>
<th>AC_Mee*_s</th>
<th>Indepo</th>
<th>Chair*ge</th>
<th>Indust*2</th>
<th>TotAt1</th>
</tr>
</thead>
<tbody>
<tr>
<td>fee_1</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inter</td>
<td>0.0286</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chair _Sex</td>
<td>0.0369</td>
<td>0.9483</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chair*_ind</td>
<td>-0.0344</td>
<td>0.3080</td>
<td>0.2311</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC_Meetings</td>
<td>0.0350</td>
<td>0.1615</td>
<td>0.1708</td>
<td>0.1742</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indepo</td>
<td>-0.0770</td>
<td>0.2743</td>
<td>0.1807</td>
<td>0.6568</td>
<td>0.1379</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chair*Age</td>
<td>-0.0274</td>
<td>-0.2518</td>
<td>-0.2884</td>
<td>0.0841</td>
<td>-0.0274</td>
<td>-0.0288</td>
<td>1.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry2</td>
<td>-0.0388</td>
<td>0.1606</td>
<td>0.1256</td>
<td>0.2196</td>
<td>0.0429</td>
<td>0.2714</td>
<td>-0.0755</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>TotAt1</td>
<td>0.0493</td>
<td>-0.0432</td>
<td>-0.0229</td>
<td>-0.0104</td>
<td>0.3009</td>
<td>-0.0229</td>
<td>0.1335</td>
<td>-0.1544</td>
<td>1.0000</td>
</tr>
</tbody>
</table>
Table 4: Regression Results

Random-effects GLS regression

<table>
<thead>
<tr>
<th>Group variable: MSHo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of obs = 697</td>
</tr>
<tr>
<td>Number of groups = 137</td>
</tr>
<tr>
<td>Obs per group: min = 1</td>
</tr>
<tr>
<td>avg = 5.1</td>
</tr>
<tr>
<td>max = 9</td>
</tr>
</tbody>
</table>

R-sq: within = 0.0359
between = 0.0011
overall = 0.0004
Wald ch2(9) = 10.44
Prob > ch2 = 0.3162
corr(u_i, X) = 0 (assumed)

| Fixed effects | Coef. | Std. Err. | z     | P>|z| | 95% Conf. Interval |
|---------------|-------|-----------|-------|------|---------------------|
| Chair_Sex     | -0.403429 | 0.0745812 | -0.54 | 0.588 | -0.5363625 , 0.1056767 |
| Chair_independ| 0.324468 | 0.019598  | 1.66  | 0.098 | -0.0059646 , 0.0708562 |
| Inter         | 0.0193931 | 0.0755434 | 0.26  | 0.797 | -0.1286692 , 0.1574553 |
| Female_Ratio  | -0.0498634 | 0.0329294 | -1.51 | 0.130 | -0.1144039 , 0.0146771 |
| AC_Meetings   | 0.0039421 | 0.0039901 | 1.01  | 0.311 | -0.0036823 , 0.0115655 |
| Independ_Ratio| -0.0395834 | 0.0282236 | -1.40 | 0.161 | -0.0449880 , 0.0157339 |
| Chair_Age     | 0.0001782 | 0.0008729 | 0.20  | 0.838 | -0.0015325 , 0.001889 |
| Industry2     | -0.0009655 | 0.012588  | -0.08 | 0.939 | -0.025354 , 0.003707 |
| Total         | 4.56e-08 | 2.00e-07  | 0.23  | 0.820 | -3.47e-07 , 4.38e-07 |
| _cons         | 0.6551714 | 0.0594369 | 11.19 | 0.000 | .5486773 , 0.7616656 |

sigma_u = 0.1104229
sigma_e = 0.1120842
rho = 0.46651823 (fraction of variance due to u_i)

.outreg2 using AC.doc, append ctitle(Model 2) addtext(Year FE, Yes)
Simplified Regression Results and Commands

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair_Sex</td>
<td>-0.0403</td>
<td>(0.0745)</td>
</tr>
<tr>
<td>Inter</td>
<td>0.0194</td>
<td>(0.0755)</td>
</tr>
<tr>
<td>Chair_Independ</td>
<td>0.0324*</td>
<td>(0.0196)</td>
</tr>
<tr>
<td>Female_Ratio</td>
<td>-0.0499</td>
<td>(0.0329)</td>
</tr>
<tr>
<td>AC_Meetings</td>
<td>0.00394</td>
<td>(0.00389)</td>
</tr>
<tr>
<td>Independent_Ratio</td>
<td>-0.0396</td>
<td>(0.0282)</td>
</tr>
<tr>
<td>Chair_Age</td>
<td>0.000178</td>
<td>(0.000873)</td>
</tr>
<tr>
<td>Industry2</td>
<td>-9.65e-05</td>
<td>(0.00126)</td>
</tr>
<tr>
<td>TotAt1</td>
<td>4.56e-0.8</td>
<td>(2.00e-0.7)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.665***</td>
<td>(0.0594)</td>
</tr>
<tr>
<td>Observations</td>
<td>697</td>
<td></td>
</tr>
<tr>
<td>Number of MSNo</td>
<td>137</td>
<td></td>
</tr>
<tr>
<td>Year FE</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

Standard errors in parentheses
***p<0.01, **p<0.05, *p<0.1
Simplified with significance

Commands:

```
order MSNo Firm Year Firm_Year AC AC_Meetings Whole_Board AC_Members fee_1 fee_2 Female_Ratio Independ_Ratio Chair_ID Chair_Sex Chair_Presence Chair_independ Chair_Fee Chair_Age Industry1 Industry2 TotAt1
sort MSNo Year
gen Inter = Chair_Sex * Chair_independ
xtreg fee_1 Chair_Sex Chair_independ Inter Female_Ratio AC_Meetings Independ_Ratio Chair_Age Industry2 TotAt1 // The model
outreg2 using AC.doc, append ctitle(Model 2) addtext(Year FE, Yes)
```