



**LUND UNIVERSITY**  
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## **Board diversity and its effects on corporate acquisitions**

A quantitative study on the Swedish Large Cap

**Author: Marcus Wallin**

**Author: Andrea Holmberg**

**Supervisor: Claes Svensson**

## **Abstract**

- Title:* Board diversity and its effects on corporate acquisitions
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- Authors:* Andrea Holmberg & Marcus Wallin
- Supervisor:* Claes Svensson
- Key words:* Board diversity, age diversity, nationality diversity, gender diversity, acquisition attempts, board of directors, multiple regressions.
- Purpose:* The aim of the study is to determine how diversification on the board of directors, in terms of gender, nationality and age, affects the acquisition intensity of listed firms on the Swedish Large Cap.
- Theoretical framework:* The theoretical framework is based on Social identity theory, Agency theory and similar previous studies on the impact of board diversity.
- Methodology:* The study is based on secondary data, is quantitative and derives from a deductive approach. The results of the multiple regressions have been analyzed together with theories and compared to previous similar research.
- Empirical foundation:* The empirical foundation is based on data gathered from 334 cross-sectional observations on the Swedish Large Cap between 2011 and 2015. Three independent variables together with three control variables have been tested.
- Conclusion:* The study finds statistical significance, on the 10% level, of a negative relationship between age diversity and acquisition attempts. This variable was divided into four generations and the result shows that for every new generation introduced to the board the firm performs 0.346 less acquisition attempts. The authors found no significance in the relation between acquisition attempts and gender- and nationality diversity.

## **Preface**

*This study has been written as a thesis project at master's level at Lund University. The study has developed both our knowledge and interest of the role of diversification at a board level. We would like to thank our supervisor Claes Svensson for his dedication, advice and support along the way. We hope you find the read interesting!*

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# 1.Introduction

*Chapter one presents a background to the problem of the study, followed by a discussion of the problem, the purpose of the study and the research question. Chapter one ends with a definition of the target group.*

## 1.1 Background

The performance and effectiveness of the board of directors in general, and in the firm overall in particular, is a popular discussion topic. One common recommendation for improvement on board effectiveness concerns the diversity (European Commission, 2010). The European Commission argues that diversity on the board of directors broadens the debate and therefore helps avoiding the dangers associated with narrow groupthink (European Commission, 2010). Heterogeneity in the board composition is seen as enhancing the analytical quality of decision-making, due to a higher level of openness, which will lead to better decisions (Ben-Amar, Francoeur, Hafsy & Labelle, 2013). Overconfidence of the board of directors can lead to hasty decisions where firm's strategic decisions, such as acquisitions, are made without enough consideration. Overconfidence results in an overrating of the value of the acquisition by the homogeneity of the decision-making (Levi, Li & Zhang, 2014). The term acquisition is defined as when a firm takes over another firm through a buyout or when a firm is the more dominant part post-merger. Here acquisitions refer to both mergers and acquisitions since it is hard to differentiate them, even in mergers one part is usually the dominating part, i.e. the acquirer (Kim, Nofsinger & Mohr, 2010). Diversity is an important question for shareholders regarding how it affects corporate performance. There are many different variables for measuring diversity, e.g. nationality, age, independence, and the most commonly measured one: gender. The term diversity is defined as the condition of a group being composed of people characterized by different elements and attributes (Nielsen, 2010). In this study, when talking about diversity, the authors refer to the relations oriented elements gender, age and nationality.

In 2015, female representation on the board of 3,000 of the world's largest companies were 14.7% (Dawson, Natella & Kersley., 2014). This is a relatively small number, if assuming that 50% gender diversity is desirable, but what is worth noting is that it is a 54% increase since 2010 (Dawson et al., 2014). Europe stands for the largest part of this growth with the inclusion of different quotas and targets. The European Commission even proposed a legislation with the aim to achieve 40% female representation on the board of directors



(European Commission, 2012). Even though this legislation fell through in the EU, Norway decided to institute its own legislation on the same proposal (Grosvold, Brammer, & Rayton, 2007). Sweden is one of the global leaders in gender diversity progress, and during 2016 Sweden had 34% female representation on their board of directors of listed companies (Swedish corporate governance board, 2016a).

With the current ongoing progress, slow as it may be, towards a well-diversified boardroom one question that is of growing importance is how the board diversity affects the firm's strategic behavior. Since acquisitions are a major strategic decision, they are an action that are under thorough scrutiny from the board of directors, and therefore the effects of the board's composition should be visible in the context of corporate acquisitions (Redor, 2016).

Previous research provide evidence that board diversity, in terms of gender diversity, will influence the number of acquisitions made by the firm, as well as the bid premium and the acquisition size (Levi et al, 2014; Chen, Crossland & Huang, 2014; Huang & Kisgen, 2013). Levi et al. (2014) found that by each female director on the board, the acquisition attempts lowers, as well as the bid premium paid. Fattobene and Caiffa (2016) focus on how a less diversified board of directors tend to be more overconfident, this due to the effectiveness of the decision-making being influenced by intergroup behavior, social identification and group effectiveness (Hogg, 2006; Tricker, 2012; Yukl, 2002).

Even though the variable of gender diversity usually provides greater significance on acquisition behavior than nationality or age diversity (Chen et al., 2014; Ben-Amar et al., 2013), the variables of age and nationality still show tendencies for affecting the firm's acquisition behavior (Chen et al., 2014; Ferrero-Ferrero, Fernández-izquierdo & Muñoz-Torres, 2015). Age diversity enhances the decision-making since different generations provide different insights; the older generation can provide experience and wisdom to the board, the middle generation can bring active responsibility and the younger generation brings the energy and future plans. Diversity in the form of nationality enhances the board composition since it results in a more complex member interaction on the board (Ruigrok, Peck & Tacheva, 2007). Literature focusing on group effectiveness means that diversity in terms of different aspects will have positive effect on decision-making processes which indicates a need for studying both gender diversity and other variables such as age and nationality diversity (Tricker, 2012; Ferrero-Ferrero et al., 2015). Hence, a further focus on

investigating the variables of age and nationality provides an interesting field of study for researchers. Likewise, psychology researchers (e.g. Yukl, 2002) conclude different types of diversity as positively related to group efficiency and decision-making, which indicates the importance of studying various diversity variables.

## **1.2 Discussion of problem**

In order to examine how board diversity affects strategic decision-making regarding acquisitions, the role of the board of directors is discussed below. As this study focuses on the Swedish context, whereas many previous researchers have focused on foreign contexts (e.g. Levi et al., 2014; Chen et al., 2014), a review of the characteristics of the Swedish contexts and different governance systems is further discussed. In order to understand how the relationship between the board of directors and the shareholders affects the decision-making on acquisitions, the subject of agency problems follows the discussion of the problem.

### **1.2.1 The role of the board of directors in strategic decision-making**

In this study, the unit of analysis is the board of directors, as the board of directors is ultimately responsible for the performance of the firm's activities and its success (Bhagat & Bolton 2008). Moreover, the boards of directors act as a principal gatekeeper, by being responsible for the firm strategic decisions in terms of acquisitions conducted by the firm (Tricker, 2012). The board of directors likewise plays an important role whilst being responsible for setting the strategy for the firm as well as evaluating strategic decisions, such as proposed acquisitions to make sure these fulfill the overall strategy set up (Jeffrey, Phillips & Levitin, 2010). Furthermore, shareholders approval is generally not required when deciding on acquisitions deals (Lewkow & Austin, 2011). Hence the board should assess proposed acquisitions to what extent it can be considered the best use of the firm's resources.

The strategic evaluation of proposed acquisitions conducted by the board will likewise include avoidance of overpaying of bid premium. Deriving from the mere existence of the board of directors, being a governing organ intended to oversee shareholder value, acquisitions should be evaluated as either value creating or value destroying for the shareholders and therefore conducted in the interest of the shareholders (Tricker, 2012). However, the board of directors can act overconfident, or even opportunistic, ignoring shareholder value when assessing proposed acquisitions (Tricker, 2012). The decision-making process of the board of directors, therefore, provides an interesting subject of research.

As acquisitions often result in failure (Sevenius, 2011; Schoenberg, 2006) the decisions on proposed acquisitions should be evaluated with a great deal of carefulness and be perceived as strategic decisions of utmost importance. Hence the group evaluating these needs to be as efficient as possible. Literature suggests that decision-making will be more effectively conducted in groups (Yukl, 2002) and that group decision-making benefit from diversity (Yukl 2002; Tricker, 2012). The board compositions will, therefore, play a significant role in firm's strategic decisions on acquisitions.

### **1.2.2 The Swedish context**

Earlier research has mainly focused on the subject of the effects of gender diversity in the U.S. context (Chen et al., 2014; Levi et al., 2014). The Swedish context is almost left untouched regarding research in how the board composition affects the strategic behavior of the firm. Since the U.S. context, where most research has been done, and the Swedish context differ in many ways (e.g. owner concentration, size, tax-effects) the question remains how board composition effects differs in the Swedish context in comparison to the earlier research done in the U.S. context. As stated by the Swedish corporate governance board (2016b) in the Swedish corporate governance code: "The board is to have a composition appropriate to the company's operations, phase of development and other relevant circumstances. The board members elected by the shareholders' meeting are collective to exhibit diversity and breadth of qualifications, experience, and background. The company is to strive for gender balance on the board." (p.17). The section referred to as "The company is to strive for gender balance on the board" provides an interesting distinction, since no U.S. equivalent exists. (Foley, 2017).

In order to understand the differences of governance systems in different nationality contexts, the national culture plays an important role. Hofstede, Hofstede & Minkov (2010) conducts a comprehensive study of how the culture influences the values in the workplace. The national culture is divided into six dimensions; Power distance, individualism, masculinity, uncertainty avoidance, long term orientation and indulgence. Power distance measure to what extent less powerful members accepts that power is unequally distributed. Individualism addresses to what extent individuals maintain their independence, and has to do with "I" and "We". Masculinity measure to what extent the society is driven by competition, success and achievements. Uncertainty avoidance measure to what extent members of a society feel incommodious with uncertainty. Long term orientation measure to what extent members in a

society keeps links with the past while dealing with present and future problems. Indulgence measure to what extent a society tries to control impulses and desires (Hofstede et al., 2010). These dimensions are given a score that is meant to describe how the culture of the country affects the society. Sweden receives low scores on power distance, masculinity and uncertainty avoidance. This score means that Sweden is characterized by decentralized power and independence, work/life balance, involvement of everyone, a relaxed attitude towards uncertainty and that there should not be more rules that necessary. Sweden receives high scores on individualism and indulgence. This score means that Sweden is also characterized by individuals taking care of themselves and close ones only, a willingness to go with impulses and a positive attitude. In the long term orientation dimension Sweden receives an intermediate score, and is therefore seen as not having a distinct preference between maintaining links to the past and dealing with the present and future (Hofstede et al., 2010).

### **1.2.3 Differences in governance systems**

When comparing the U.S. governance system, in which most previous research is conducted, to the European governance systems in general; the ownership concentration can be concluded as a main difference. The U.S. is characterized by dispersed ownership, whereas European governance systems, except the UK, are characterized by concentrated ownership (Coffee, 2005). Coffee (2005) means that the ownership concentration influences the flaws of the governance systems, and therefore the way agency problems or other governance-based frauds might arise. In the U.S. and the UK, the dispersed ownership results in high market transparency; where market ultimately constitutes the disciplinary mechanisms, strong securities markets, and rigorous disclosure standards. A governance system based on dispersed ownership will furthermore be vulnerable for situations of gatekeepers not detecting inflated earnings, but can likewise recover from a crisis faster than a system characterized by concentrated ownership (Coffee, 2005). On the contrary, a governance system characterized by concentrated ownership fail in the sense that gatekeepers tend to miss the risk of expropriation of private benefits by major shareholders. Looking at the different governance systems through the lens of opportunistic behavior would mean that in concentrated ownership systems the controlling shareholders are the villains and the minority shareholders are the victims. Whereas, in dispersed ownership systems, the managers overreach the shareholders (Coffee, 2005). High ownership concentration also results in more active shareholders, where the shareholders take a more active monitoring role (Ben-Amar et al., 2013).

Even though the U.S. and the European governance system differ a lot, differences within the European systems can also be identified. Sweden generally identifies as rather alike the Germanic system, characterized by rather high ownership concentration, long-termism and low degree of performance-based compensation (Denis & McConnell, 2003). However, Sweden differs from Germany in some senses, such as the importance of industrial banks as main stakeholder whereas the Swedish system is categorized as market-based. Germany also has two board levels whereas Sweden only has one. Furthermore, the Latin governance system such as in Italy, differs from the Swedish in sense of ownership structure, whereas the family ownership defines the Latin governance system, generally providing an even higher ownership concentration (Denis & McConnell, 2003).. Both market and banks figures as less important stakeholders. Instead financial holding, government and families are of great importance, exerting influence on management decisions (Denis & McConnell, 2003). As the differences of the governance systems affects the strategic decision-making and the prioritized stakeholders, the results proven in studies conducted in the U.S. or elsewhere in Europe, could or could not be applicable in the Swedish context. Hence examining these in the Swedish context will be of great importance to further drive the governance research.

#### **1.2.4 Acquisitions as firm strategic decisions**

To understand the nature of acquisitions as firm strategic decisions and how the board of directors can act overconfident in a decision-making process regarding acquisitions, a review of its nature will follow.

Acquisitions are generally conducted to achieve synergy effects. According to a lot of previous research, the most common motive for pursuing acquisitions is to improve the operational and financial conditions (Haleblian, Devers, McNamara, Carpenter & Davison, 2009; Kim et al., 2010). However, a clear link between acquisitions and reduced firm value for the acquiring firm have previously been proven (Sevenius, 2011; Levi et al., 2014), which further highlights the importance of studying the relation between board diversity and the firm's acquisition attempts in the Swedish context. Hence the risk of overconfidence derived from a non-diversified board, provides an important foundation both for internal governance restrictions as well as a basis for investment strategies for potential shareholders (Levi et al., 2014).

Levi et al. (2014) state that an overconfident board of directors is less likely to detect opportunistic behavior by the executives, as well as empire building by the CEO. However, empire building does not only appear in terms of the CEO-empire building, but can also occur on the board of directors, as the incentives of the directors can be to gain power (Tricker, 2012). Empire building by executives or directors can therefore be defined as activities or decisions intended to expand the power or serve the interest of an individual, rather than keeping the focus of the shareholders interests (Kim et al., 2010). Empire building results in the firm pursuing in more acquisitions than what the firm value would benefit from. This results in an agency problem for the shareholders, as the shareholders typically see profit maximizing as the primary purpose for the organization. As the board of directors provides a monitoring and supervising instrument for the organization to make sure the organization meets the objectives of the owners (Tricker, 2012), the overconfidence on the board of directors' decision-making can result in a risky situation for the owners.

### **1.3 Purpose**

The study aims to examine the relationship between board diversity and the acquisition attempts conducted by Swedish large cap firms over a five years time period. Many previous studies focus on the U.S., Canadian or Latin context (e. g. Levi et al., 2014; Chen et al. 2014; Ben-Amar et al., 2013; Fattobene & Caiffa, 2016), whereas this study focuses on providing an understanding of the Swedish context. The study focuses on the importance of diversity on strategic decision-making by the board of directors, and derives from the understanding that board diversity enhances the decision-making processes by decreasing conformity and groupthink (Yukl, 2002; Tricker, 2012). Hence, the purpose derives from the hypothesizes stating that board diversity should lead to a decrease in the number of acquisition attempts firm's make, since diversity enhances the decision-making process. The authors seek to provide an understanding of the effects of board diversity on firm strategic decision-making. The aim of the study is to determine how board diversity, in terms of gender, nationality and age, affects the acquisition attempts of listed firms.

#### **1.3.1 Main question**

*1. How does board diversity, in terms of age, gender and nationality, affect the firm's acquisition attempts?*

## **1.4 Target Group**

The target group of the study is students at a university level. With this target group the authors assume the reader to have some previous knowledge of the theories and methods mentioned.

## **2. Theoretical framework**

*Chapter two focuses on providing a theoretical framework. The chapter starts with a review of the literature on board of directors. Moreover are the two major theories are presented; Agency theory and Social identity theory, and the chapter moves on to a review of acquisitions. The chapter then provides a walkthrough of similar studies on the subject and ends with a review of the variables used in the study, resulting in three hypotheses.*

### **2.1 Board of directors**

The board of directors is a body of the organization, appointed or elected to represent the shareholder's interest and oversee the activities of the organization. The board responsibilities focus on directing the company, i.e. steering the decision-making in the right direction by monitoring the management and setting the strategy (Kose & Senbet, 1998). Tricker (2012) conclude the responsibilities of the board of directors into four basic elements; Strategy formulation, policymaking, providing accountability and lastly monitoring and supervising. These four elements face both past, present and future scopes. Strategy formulation refers to future-focused and outward-looking activities, such as all firm-strategic decisions. Policymaking also applies to future-focused activities, but instead inward-looking. Providing accountability refers to outwards, past/present-focused activities and monitoring and supervising applies to inward-looking, past/present-focused activities (Tricker, 2012).

However, all board work is moreover highly characterized by the work of the CEO. Depending on the focus of the CEOs work, the board of directors will steer their work based on the need of support or supervision (Tricker, 2012). Supervising and monitoring activities involves overseeing the decisions and actions taken by the management, to make sure these follows the objectives of the owners (Kose & Senbet, 1998). Accountability focuses on the outward looking activities where the board of directors make sure the company is following regulations by presenting and reflecting corporate activities to shareholders to submit legitimate claims to accountability (Tricker, 2012). Both policymaking and strategy formulation refers to decisions on the organization's future focus and by determining these the board of directors make an important aspect of the ground laid for the organization's, and the shareholders, future (Tricker, 2012). The strategy proclaims what the company will focus on achieving, and identifies the core purpose of the organization (Tricker, 2012). This can, therefore, be concluded as highly significant for the firm.



### **2.1.1 The effectiveness of the board**

Tricker (2012) define board meetings as an important aspect of the firm's future and conclude the firm-environment of today as complex and fast-pacing, which lead to a greater need for productive discussions and decisions. Tricker (2012) identifies two essential components for the board effectiveness as an appropriate leadership style and a well-balanced board team. Tricker (2012), furthermore, defines six components for the balanced board team; commitment, i.e. each member of the council must be committed; character, meaning that strong companies have strong character; competence, i.e. that members have appropriate experience, knowledge, and skills; creativity, which is a component referring to the ability of questioning conventional wisdom and facilitating change; contribution, i.e. a goal oriented focus striving to fulfill the full potential of the company; and lastly the component of collaboration, which refers to the team-interplay. Important aspects are defined as trust, reliance on others and respect.

Tricker (2012) also stresses the importance of challenging groupthink with tough-minded discussions, and openness to new points of view and questioning of decisions. For the board to work effectively Tricker (2012) states that all six components, mentioned above, are necessary. Furthermore does Tricker (2012) mean that independence of each director is important since the discussions of the board of directors need to be characterized by challenging and debating decisions and opinion. Tricker (2012) concludes effectiveness of the board as strongly avoiding the culture of groupthink.

## **2.2 Effective decision-making in groups**

To complement the understanding of the interplay between the directors of the board, an additional theoretical examination of the relations and the decision-making processes will be reviewed with psychological and corporate governance literature below.

Yukl (2002) states that decisions made in groups are usually better than decisions made by an individual. However, the decision-making process does take longer in a group. Yukl (2002) states that the decision-making process is of vast importance of whether the decision will be done effectively or if the process instead will hinder the group from reaching its full potential. The quality of the groups' decision-making process depends on information flow, group members, discussion climate, manners and focus on the problem. However, problems in the decision-making process result in reduced decision quality and include factors that an non-

functional group can end up in, such as groupthink, false consensus, hasty decisions, lack of action planning and implementation, and polarization (Yukl, 2002).

For decision-making processes within a group, one of the biggest threats to quality is groupthink (Janis, 1972). Groupthink refers to a stage where group members firstly seek harmony and conformity, rather than reaching the right decision. Therefore group members tend to take decisions based on the group rather than their own beliefs, and the ability to see different aspects is reduced (Janis, 1972). Yukl (2002) identify necessary components for the effectiveness of the decision-making process for the group. The efficiency will benefit from status differences, when significant differences in the status of members of the group can constrain the information exchange and evaluation of ideas. Thus group members identifying themselves as low status usually act reluctant to criticizing (Yukl, 2002). Moreover does Yukl (2002) identify that a cohesive group of people, having similar attitudes and values, will be more likely to agree on decisions too quickly without evaluating the alternatives enough. On the other hand, a less cohesive group results in the group members being more willing to present a dissenting opinion or to risk social rejection if questioning the viewpoint of the majority. This, in turn, can reduce groupthink (Yukl, 2002). Furthermore does Hogg (2006) stress that member diversity influence the group's processes and outcome positively, since member diversity within a group makes the group less likely to be cohesive. Yukl (2002) mean that member diversity results in a wider range of experiences, perspectives, and knowledge, which tend to result in more creative and efficient problem solving. On the other hand, member diversity can also imply communication problems within the group.

### **2.3 Agency Theory**

The mere existence of the board of directors occur due to the separation of ownership and control, hence the board of directors function as a monitoring and controlling division results in principal-agent problems for the firm (Fama & Jensen, 1983). The principals, the shareholders, perceive acquisition deals as favorable only if it adds shareholder value, but as acquisition deals tend to be unsuccessful (Sevenius, 2011), an agency problem occurs. Agency theory will be reviewed in order to provide an understanding regarding the role the board of directors play in the decision-making process of acquisitions, and the possible risk for the shareholders.

Agency theory focuses on effects of incompleteness in contracts in the relationship between a principal and an agent. The agent is contracted by the principal to perform actions on the principal's behalf. However, the theory assumes the human of nature to be opportunistic; hence, the agent will not always act in the interest of the principal (Besanko, Dranove, Shanley & Schaefer, 2013). If the objectives and incentives of the agent and the principal are misaligned, the agent will act opportunistically and see to his/her interests before the principals (Eisenhardt, 1989). The principal will, therefore, monitor the agent to make sure the agent sees to the principal's interest foremost (Jensen & Meckling, 1976). Contract-incompleteness occurs due to information asymmetry since the agent performs actions hidden for the principal or have information that the principal does not have, i.e. hidden action and hidden knowledge occurs (Eisenhardt, 1989).

Opportunistic behavior results in the need of monitoring actions and incentives by the principal to reduce the divergence. Therefore, agency costs arise in the form of monitoring costs, residual loss and bonding costs (Jensen & Meckling, 1976). Hence, Agency theory stresses on the ex-ante incentive alignment (Williamson, 1988). To align the interest of the agent and the principal, the principal will contract for a reward for the agent. To conduct the alignment of interest of the principals and the agent's objectives, the reward must be higher than the effort for the agent (Williamson, 1988).

The separation of ownership and control provides a focus of Agency theory (Jensen & Meckling, 1976). The decision-making is left to the agent, i.e. the control, whereas the owners possess the ownership and residual claims. Therefore, when a contract is set up for the company's performance and activities assigned to the agents, an agency dilemma arises.

The principal-agent relationship can occur at different levels of an organization. A typical example of agency-principal relationship refers to the executive managers as agent and the shareholders as principals (Besanko et al., 2013). The executive managers carries out day-to-day decisions and actions on the shareholder's behalf. However, the shareholders do not hold the control as they only monitor the actions on a regular basis i.e. annually or, for active shareholders, monthly or even daily. The relationship is thereby characterized by hidden actions for the agent and hidden knowledge for the principals. The agency-principal relationship can moreover arise between the board of directors and the shareholders. The board of directors is appointed to minimize the agency costs between the managers and the

shareholders and to increase the monitoring actions (Besanko et al., 2013). However, the board of directors act to make sure the organization meet the objectives of the shareholders but conduct the task without needing the owner's approval for their decision-making. Hidden knowledge and hidden action therefore characterize the relationship, which makes the agency costs occur when the objectives of the board of directors and the shareholders are misaligned. The board of directors can for example value power a lot higher than the wage they receive, whereas the shareholders need the directors to ignore the power-situation and only act in the interest of the shareholders since the directors are the shareholders' organ for supervising the executive managers. This results in a dual-agency situation, where the shareholders need to monitor both executives and board of directors to make sure decisions are taken to favor the shareholder's goals (Besanko et al., 2013).

Agency theory suggests that the interest of the shareholders and the managers often misaligns (Besanko et al., 2013). Whereas the shareholders usually seek to maximize their invested capital, the managers could hold incentives for increasing their wage to gain reputation or power or to shed light on further career options. Moreover, the attitude towards risk usually differs between managers and shareholders due to the possibility of diversifying. A manager typically does not hold several managerial positions and can therefore not hedge his or her risk, whereas the shareholders usually do (Besanko et al., 2013). This risk balance does, however, differ when the agency relationship referred to is one amongst the board of directors as agents and shareholders as principals. The directors can hedge their risk by serving several board positions, but as time will be limited for the directors, the possibility to diversify the risk is limited by time constraint (Bonazzi & Islam, 2007). The possibility for shareholders to hedge their risk is, in contrast, usually not as constrained by time. The agent might, therefore, avoid certain risky strategic actions to limit their risk, despite the fact that shareholders would have perceived these as reasonable or desirable (Besanko et al., 2013).

Agency theory suggests that the board composition is important in the sense that the role of monitoring and controlling better can be conducted by the board if the composition allows the directors to handle its tasks as efficient as possible, and thereby achieve a higher quality of the supervising role (Fama & Jensen, 1983; Jensen & Meckling, 1976). The board of directors plays an important role of monitoring and controlling acquisitions in order to minimize the agency costs that could occur if executives decide on acquisition deals unfavorable for the shareholders, but favorable for them.

## **2.4 Social identity theory**

To further understand how board diversity can increase the quality of decision-making regarding acquisition deals, an examination of the relationship between directors in a group will be conducted below through Social identity theory. Social identity theory explains the relations and motivations of the members of a group, and how a more diverse composition affects the decision-making process. Social Identity theory describes how members of a group can be divided into in-groups and out-groups. For decision-making in need of a higher quality or a slower decision-making process, an in-group and out-group composition of the governing organ could be favorable (Yukl, 2002). The Social identity theory is therefore reviewed below, to help understand the incentives of board diversity.

Social identity theory is defined as a social psychology theory about the self-identification in groups. This includes group membership, group processes and relations between different groups. In psychology, a group exists if three or more people define themselves as alike in terms of shared attributes and consider these attributes to distinguish them from other people, outside the group (Hogg, 2006). Social identity theory includes multiple phenomena such as discrimination, prejudice, ethnocentrism, stereotyping, conformity, intergroup conflict, normative behavior, group polarization, crowd behavior, organizational behavior, leadership, deviance and group cohesiveness (Hogg, 2006). Henry Tajfel (1972) was first with defining the Social identity theory, and he defined social identity as “the individual’s knowledge that he belongs to certain social groups together with some emotional and value significance to him of this group membership” (p.292). The Social identity theory refers to the relationship between the individual and the group. The groups, consisting of individuals of three or more whom identify themselves as the same social group, compete with other groups for status and prestige (Hogg, 2006). The social identity approach consists of several different components that explain different parts of group membership and group life (Hogg, 2006). Together these components provide a theory of the relation between self-conception and group processes. This is reviewed below.

### **2.4.1 Personal identity versus Social identity**

A shared social identity between three or more people leads to the formation of a social group. The group share the same beliefs and share how they see themselves in form of attributes, how they evaluate themselves, how they define who they are, and how they relate to people outside the group (Hogg, 2006). The people outside the group can be alone or be in,

so-called, out-groups and the group membership leads to “us-” versus “them” thinking. Personal identity on the other hand is personality attributes that are not shared with others, or relationships with another specific person (e.g. marriage). Personal identity is seen to have little to do with group processes, but the social group life often affects the development of one's personal identity and personal friends and foes (Hogg, 2006).

As mentioned earlier a group needs to consist of at least three members. The reason for this is that interpersonal processes influence a duality, where you need at least three members to signify group behavior from the behavior of others, and many of the group processes can't occur in a duality (e.g. majority social pressure, coalition formation). The critical factor that creates a group from a gathering of three or more people is that they identify with the group (Hogg, 2006).

#### **2.4.2 Social Identity Motivations**

The two major processes that motivate social identity are self-enhancement and uncertainty reduction. These two processes cause groups to both separate themselves from other groups but also motivate groups to become better than others. Besides these two processes, optimal distinctiveness also play an important role in group motivation (Hogg, 2006).

*Self-enhancement* - One of the most outstanding features of group life is the belief that the group is better than others, in all ways possible. The status and prestige of the group reflects on oneself. This positive distinctiveness may be motivated by self-esteem with the implication that group identification elevates self-esteem (Turner 1982).

*Uncertainty reduction* - People strive to reduce the uncertainty about their place in the world. They prefer to know who they, and others, are and how to behave around others. Social categorization is closely associated with uncertainty reduction since it creates groups that describe how people will and should behave. Social categorization makes it predictable how other people will behave and therefore allows one to know how to behave. The more uncertain someone is about their self-concept, the more that someone will strive to be a part of a group which results in reducing that uncertainty (Hogg, 2006).

*Optimal distinctiveness* - People strike a balance between inclusion, which can be satisfied by group membership, and distinctiveness, which can be satisfied by strong individuality

(Brewer 1991). This balance is met to achieve optimal distinctiveness. Larger groups over satisfy the need for inclusiveness while smaller group over satisfy the need for distinctiveness. Therefore people should be the most satisfied by being a member of midsize groups (Hogg, 2006).

### **2.4.3 Intergroup relations**

The social identity process includes social comparisons among people. Intergroup social comparisons are oriented towards similarity and uniformity. Intergroup comparisons on the other hand are oriented differently - “social comparisons between groups are focused on the establishment of distinctiveness between one’s own and other groups” (Tajfel, 1972:p.296). The intergroup relations are focused on the establishment of this distinctiveness and on accentuating this distinctiveness (Turner, 1975; Hogg, 2000a). Social identity both describes, and evaluates, who one is. Therefore the intergroup comparisons strive towards evaluating the in-group distinctiveness as positive. The comparisons strive towards similarity within the group and differentiation between the groups. This explains why intergroup relations are ethnocentric and in-group favoring (Brewer & Campbell, 1976). It also explains why groups usually fight to become both different and superior from other groups.

The self-categorization process creates conformity to the in-group normative behavior since it allows oneself to act more alike the in-group prototype (Abrams & Hogg, 1990; Turner, 1985). Since groups are likely to share behavior and beliefs, the members tend to support the opinions of other in-group members and allocate more resources to in-group members. They even tend to feel uncomfortable around out-group members (Yzerbet & Demoulin, 2010). As a response to this, out-group members feel that their identity is threatened, which leads to them becoming more motivated to show their distinctiveness and more motivated to take a stand against the group in interactions with the in-group. This identity threat is particularly clear when the out-group represent a minority category (Hogg, 2006).

## **2.5 Acquisitions**

In order to understand the nature of acquisition deals and how these could lead to agency-problems, the authors will furthermore review literature on acquisitions, the reasons behind acquisitions and the risks with acquisition-deals.

Acquisitions occur when a firm takes over another through a buyout, or when a firm is the dominant part after a merger between two firms. The acquisition can take shape in three different forms: Vertical, horizontal and conglomerate (Berk, DeMarzo, Harford, Ford, Mollica & Finch, 2012).

*Vertical* - The most common form of acquisition. Vertical acquisition is when a firm acquires another firm in the same processing chain. An example of this is when the target firm is a supplier to the acquiring firm (Berk et al., 2012).

*Horizontal* - Horizontal acquisitions occur when the target firm is in the same industry, or closely tied industry, as the target firm (Berk et al., 2012).

*Conglomerate* - Conglomerate acquisitions occur when the acquisition is neither vertical nor horizontal. In these cases, the acquiring firm acquires a firm that is from a completely different industry than them and therefore a more diversified firm is formed (Berk et al., 2012).

Many studies argue that acquisitions occur in waves (Berk et al, 2012; Rhodes-Kropf & Viswanathan, 2004). This means that there are periods with a lot of acquisitions and these are followed by periods with few acquisitions, and the drivers are often economic expansion, regulatory changes and new technology. From the end of the 19th century there has been six takeover waves. These waves were active between 1897-1904, 1916-1934, 1955-1975, 1981-1991, 1992-2002 and the last one occurred between 2003 and 2008 and ended following the financial crisis and world recession. The world is currently seen as being in the seventh takeover wave, which started in 2013 (Dieudonné, Cretin & Bouacha., 2014).

### **2.5.1 Reasons behind acquisitions**

Acquisitions are often of strategic character; hence the motives behind them are complex (Trautwein, 1990). Because of this complex nature of motives, it is hard to give a clear and complete picture of what the motives are. According to previous research the most common reason for doing an acquisition is to improve the financial and operational conditions. In other words the most common reason is to achieve synergy effects (Haleblian et al., 2009; Kim et al., 2010).



The synergies sought are meant to enable streamlining of the firm's operations, which can lead to increased value (Kim et al., 2010). The financial synergies include diversification, higher debt capacity, tax-benefits and improved use of excess cash. The financial synergies can lead to higher cash flows, lower cost of capital or both. The operational synergies include growth potential, economies of scale, greater pricing power and combinations of different functional strengths. The operational synergies allow the firm to increase growth, increase operating income from existing assets or both (Damodaran, 2005).

The principal-agent problem can lead to a conflict where managers and directors go through with acquisitions to increase their own utility instead of maximizing the value of their shareholders (Kim et al., 2010). Directors of the board determine their own compensation and this is important to note (Certo, Dalton, Dalton & Lester, 2008). This situation is commonly known as empire building. Empire building often shows itself when managers get involved with high-priced acquisitions with low economic potential (Ogden, Jen & O'Connor, 2003). Empire building is most commonly tied to managers' compensation, but there is a positive correlation both between director and manager compensation and firm size (Ryan & Wiggins, 2004; Brick, Palmon & Wald, 2006). Therefore it can be argued that director's decision-making also can be affected by empire building, since his or her own compensation increases post-acquisition. Harford and Li (2007) note in their research that the compensation for the directors increases post acquisition even if the acquisition result is poor.

The hubris hypothesis states that executives who are overconfident exhibit hubris. The hubris makes the executives overconfident, believing that they can extract more value from the synergies than possible (Shefrin, 2007). This leads to the directors overpaying for acquisitions and then experience winner's curse (Shefrin, 2007). Winner's curse refer to a situation where the acquirer wins the auction with an overpriced price, which means that the bid premium paid for the won auction is higher than the true market value (Shefrin, 2007).

### **2.5.2 Risks with acquisitions**

According to Sevenius (2011) 50% to 66% of all acquisitions fail. These high amounts are strengthened by Schoenberg (2006) who states that 44% to 56% fail. They categorize a fail as when the acquisition does not reach the goals put up by the firm.

A failed acquisition can affect the firm negatively in the following six ways (Bruner, 2005):

1. Value destroying in form of decrease in stock value.
2. Financial instability due to costly acquisition.
3. Weakened strategic position.
4. Organizational weakness.
5. Firm reputation.
6. Violation of rules and ethical standards.

## **2.6 Walkthrough of similar studies**

To broaden the understanding of how the theoretical framework about the board of directors, acquisitions and the theories (Social identity theory and Agency theory) relate, the study will go through some of the similar studies performed on the subject. The following studies examine gender-, age- and nationality- diversity of the board, as well as the impact of board diversity on decision-making regarding acquisitions.

### **2.6.1 The relation between board diversity and acquisitions**

#### ***Sitting on the board, or sitting on the throne? (Fattobene & Caiffa, 2016)***

Fattobene and Caiffa (2016) examine the relationship of overconfidence and mergers and acquisitions. The authors derive from the perception of the heuristic of overconfidence, meaning that people tend to think they know more than they actually do. The aim of the study is to examine the proxy of the influence of interlocking directorship to the overconfidence in terms of M&A deals. To observe this Fattobene and Caiffa (2016) have focused in the Italian context, at 296 M&A deals between the years of 2000-2013. The study applies an event study methodology, where they measure the stock market reaction after the announcement of an M&A deal. An important aspect of the study is the finding of M&A deals being value destroying in the short term, compared to cumulative abnormal returns, which is proved by Fattobene and Caiffa (2016) on the 1% significance level. As Fattobene and Caiffa (2016) conclude, the main focus of previous research is focused to the Anglo-Saxon context, whereas Fattobene and Caiffa (2016) present a deeper understanding of the subject as they examine the Italian family-centered context.

The study mainly focuses on the interlocking directorship and its effect on overconfidence, where the authors (Fattobene & Caiffa, 2016) can conclude that the variable of interlocking

directorship has a statistically significant negative impact on the cumulative abnormal returns of the acquiring firm. The authors mean that the overconfidence can explain the value destruction of M&A's in the Italian context. Fattobene and Caiffa (2016) identify that interlocking directorship results in a situation for the director of having access to more information and having more control, compared to directors only serving one board at a time. This results in the illusion of knowledge and the illusion of control, which will lead to overconfidence.

Fattobene and Caiffa (2016) conclude previous research of psychological literature to the following factors identified to foster overconfidence: the illusion of control, the illusion of knowledge, the hard-easy effect, the self-attribution bias and the gender differences. The illusion of knowledge and the illusion of control refers to that directors who have access to more information will perceive themselves as in control and as having more knowledge than they really do. This heuristic occurs no matter if the information is relevant or not. People tend to overestimate their ability to control events and to think that all information is relevant knowledge. The hard-easy effect derives from the bias of a given task's success rate. This bias refers to people overestimating the success rate of a difficult task and underestimating the probability of success in an easy task. The self-attribution bias refers to the tendency of attributing success to their own doing, and unsuccessful outcomes to bad luck. The gender differences in term of overconfidence refer to men being more overconfident than women (Fattobene & Caiffa, 2016). Furthermore Fattobene and Caiffa (2016) conclude that overconfidence can take form in both too many M&A bids, as well as paying too high acquisition premium. The study finds evidence of the phenomena of the board as a group fostering biased decisions in terms of M&A's, leading to an indication of the importance of the board of directors when it comes to decisions regarding M&A's, which shed light on the importance of further research.

Fattobene and Caiffa (2016) conclude their research with the finding that all five psychological factors presented; the illusion of control, the illusion of knowledge, the hard-easy effect, the self-attribution bias and the gender differences, have a link to directorship. The paper focuses on the overconfidence of appearing from interlocking directorship. The authors also identify the possible influence of the M&A decision in terms of empire building. This trait is identified as a possible important aspect for the decision-making process but is however not examined further. Another vital aspect is the underpinning of the negative

contribution to the acquiring firm's performance as a result of M&A deals. Regardless of the roles of overconfidence or empire building as driving factors for M&A bids, this result presents the importance of the examination of firms M&A bids (Fattobene & Caiffa, 2016), since the increasing numbers of M&A bids are value destroying for the owners.

## **2.6.2 Gender diversity**

### ***Female board representation and corporate acquisition intensity (Chen, Crossland & Huang, 2014)***

Chen et al., (2014) examine what impact female board representation has on the firm's strategic behavior regarding mergers and acquisitions in the U.S. context. First the study examines the acquisition intensity of S&P 1,500 firms between 1998 and 2010, resulting in 14,220 total firm-year observations. During this period they observed 2,998 acquisitions undertaken. After adjustments for missing data for some control variables, their study ends up with 13,248 observations and 2,825 acquisitions. The study also examines the size of the acquisitions undertaken to be able to conclude not only if female board representation affects the intensity of mergers and acquisitions but also the deal size (Chen, et al., 2014).

The study builds its research on Social identity theory to predict a negative relationship between female board representation and both intensity and size of M&A's. The study focuses on the relationship between in-group and out-groups and how this relationship causes the out-group to become more competitive in their interactions with the in-group. The study motivates the choice of focusing on M&A strategic behavior with earlier research that suggest that acquisitions are value destroying for the acquiring firm (Chen et al., 2014).

Chen et al. (2014) uses regression analysis to perform hypothesis testing. To test their first hypothesis, "Greater female board representation will be associated with fewer acquisitions" (Chen et al., 2014:p.306), they use Poisson regression models since their dependent variable is a count. Dependent variable for hypothesis one was the number of acquisitions in one year. For their second hypothesis, "Greater female board representation will be associated with smaller acquisitions" (Chen et al., 2014:p.306), they use linear regression models since their dependent variable is continuous. Dependent variable for hypothesis two was the total value of all acquisitions in one year. Their independent variable is number of female directors in one year divided by total board size. They also include a thorough list of control variables including firm size, firm performance, free cash flow and leverage ratio. Other control

variables included are board independence, board size, director ownership, busy board, interlocking firms activities, average age of the board and CEO duality. Chen et al. (2014) also include ethnic diversity and age diversity. To do this they divide ethnic diversity and age diversity into six groups and then uses Blau's index, which measures proportion of directors of a particular category (Chen et al., 2014).

The study's result show that U.S. female board representation is negatively related with acquisitiveness on a 99% significance level and negatively related with acquisition size on a 95% significance level. The study also notes that one of their control variables, ethnic diversity, consistently was a significant predictor of the two dependent variables. The study points out that a more gender diverse board leads to more comprehensive decision-making at board level. This in turn leads to a more thoroughly due diligence regarding major strategic decisions (Chen et al., 2014).

#### ***Director gender and merger and acquisitions (Levi, Li, & Zhang, 2014)***

Levi et al., (2014) studies the relationship between gender diversity on the board of directors and the likeliness of the board to go through with acquisitions, as well as the risk of paying a higher bid premium for the acquisition. The paper takes origins from the variable of overconfidence, and how the proportion of overconfidence differs amongst the genders. Levi et al. (2014) states that female directors show better attendance record and that previous literature defines women as more effective monitors. The article derives the less probability of women being overconfidence to these characteristics. Furthermore, Levi et al. (2014) refers to a similar study conducted by Adams and Ferreira (2009). Adams and Ferreira (2009) study the boards of 1,024 publicly traded firms in the US, and conclude the same results: women are less likely to have attendance problems at meetings, and are more likely to attend in a committee working with monitoring (Adams & Ferreira, 2009).

Levi et al. (2014) studies merger and acquisition decisions empirically, using a sample of almost 20,000 firm-year observations in the U.S. context, from the S&P 1,500, during the period of 1997-2009. Their study show statistical significance of a negative relation between the number of female directors on the board and the number of acquisition bids. Furthermore, do Levi et al. (2014) find that female directors on a bidder's board are negatively associated with the size of the bid premium, i.e. the female directors are less likely to pay an overprice premium for the acquisition. The empirical findings conclude that each 10% of female

directors on the acquiring board will lower the bid premium by 15.4%. The authors identify possible causes for the statistically negative relationship as female directors being a better monitor, which results in fewer deals to a lower premium. Furthermore do Levi et al. (2014) identify another possible cause for their results as diversified boards taking a longer time to reach a decision on the M&A bid, which could lead to fewer deals at a lower premium (Levi et al., 2014).

Levi et al. (2014) state that the previous literature differs in the results of whether female directors of the board influences the firm results or share price. However, Levi et al. (2014) can conclude different aspects of the female directorship that they state will influence the board performance in terms of M&A bids. The empirical results show that for each 10% of female directors on the corporate board, the number of bids will reduce by 7.6%. Furthermore, the study measures the fraction of female directors and find a negative significant relation with the size of the bid premium. The empirical results show that for approximately each female director, the bid premium is reduced by 15.4%. Thus to conclude Levi et al. (2014) state that the number of M&A deals, and the following bid premium, will be reduced if the acquiring board is more diversified (Levi et al., 2014).

***Gender and corporate finance: Are male executives overconfident relative to female executives (Huang & Kisgen, 2013)***

Huang and Kisgen (2013) study the difference in corporate financial and investment decisions made by female and male executives in the U.S. context. The authors also study the difference in the amount of debt male and female executives undertake. They start by examining whether the gender impacts corporate decision-making, and then move on to examine if the impact observed has a positive or negative impact on shareholder value. The study retrieves CEO and CFO gender in 26,668 firm-year observations between 1993 and 2005. Their executive transition sample is constructed from this sample and gives 1,750 male-to-male transitions and 116 male-to-female transitions.

Huang and Kisgen (2013) use a difference-in-differences framework for their empirical tests. They compare activity before and after transitions from a male to a female executive with a sample of male-to-male transitions. They also conduct panel data regressions with firm fixed effects for robustness. To rule out that their findings could be explained by a change in

discriminatory orientation of the firm coincides with the decision to hire a woman, Huang and Kisgen (2013) also conduct one more set of tests using an instrumental variable approach.

In their research Huang and Kisgen (2013) find that firms with female executives are less likely to make acquisitions and less likely to issue debt. Acquisitions made by female executives also have higher announcement returns for shareholders. All this states that men are more risk taking than women, and that the market perceives an acquisition made by male executives as being more risky. Huang and Kisgen (2013) perform a number of tests to distinguish the overconfidence factor from other explanations that could be consistent with their results. These test show that male executives have narrower forecasts, are more likely to be replaced and less likely to early exercise deep-in-the-money options. All these results support their main hypothesis that male executives are more overconfident in corporate financial decisions compared to women (Huang & Kisgen, 2013).

### **2.6.3 Nationality diversity**

*What Makes Better Boards? A Closer Look at Diversity and Ownership (Ben-Amar, Francoeur, Hafsi, & Labelle, 2013)*

Ben-Amar et al., (2013) study the relationship between board composition and mergers and acquisitions on the Canadian market. The study was conducted between 2000 and 2007, studying 206 acquiring firms and a sample of 289 deals. The study focuses on the relationship between board diversity and the M&A performance, measured in terms of Cumulative Abnormal Return around the announcement date of the M&A. The study uses both multiple regression analysis and comparison of means, in order to find results on which effect board diversity has on the results of the M&A's (Ben-Amar et al., 2013).

Ben-Amar et al. (2013) mean that as board diversity has been studied in earlier research, the diversity concept has been perceived too narrow: mostly focusing on independence vs. non-independence or a single diversity variable. Ben-Amar et al. (2013) instead distinguish the difference of diversity in terms of demographic diversity, referring to gender diversity, cultural or national diversity and director's tenure, and statutory diversity, referring to independence of the directors. The study results in no significance on the statutory diversity, meaning that the independence of the directors could not show to enhance performance in terms of Canadian M&A's. Furthermore, the article concludes the importance of studying the

ownership when looking at board diversity and M&A's. The results of the data analysis show that depending on the ownership, the board diversity will be more or less important (Ben-Amar et al., 2013).

Board diversity can not be considered as statically good or bad, but must instead be considered depending on contextual factors, and especially shifting depending on the ownership structure (Ben-Amar et al., 2013). When studying the ownership variable of statutory diversity, a more concentrated ownership results in less need of statutory diversity (Ben-Amar et al., 2013). However, Ben-Amar et al. (2013) can only conclude these findings as tendencies and not statistically significant. Furthermore do Ben-Amar et al. (2013) find that the more concentrated ownership, the less importance of independent directors, i.e. statutory diversity. Ben-Amar et al. (2013) argue this to be a result of the owners being more active in monitoring actions; hence the need of independence of the board decreases.

Regarding the variable of demographic diversity, the study shows statistical significance. The study finds that the effect of demographic diversity does not have a linear effect on M&A performance, but instead shifting from lower to higher levels. The non-linear relationship indicates, according to Ben-Amar et al. (2013), that regulating a diversity balance by rules applied to all firms will have little, or no, positive effect. Instead they argue to strive for recommendations on implementing diversity to the governance practice of the firm depending on the stage, i.e. the principle-based approach to governance systems.

Regarding demographic diversity, the study results in a non-linear relationship illustrated by a U-shaped curve. The curve represent that as demographic diversity is introduced to the board of directors, the effect on M&A performance will be slightly negative. Ben-Amar et al. (2013) deduce this to problems related to integration difficulties that could counterbalance the positive effects of demographic diversity. However, as the demographic diversity increases and the relationship move along the u-shaped curve, the demographic diversity starts enhancing the M&A performance. Hence the demographic diversity is then seen to be "enhancing the board's knowledge base and ability to deal with complex strategic decisions" (Ben-Amar et al., 2013:p.95).



Notable regarding the ownership variable in the context of demographic diversity is that the effect of demographic diversity on M&A performance shifts when introducing the ownership variable. At lower levels of demographic diversity the impact of diversity will be positive for ownership characterized by institutional owners and family owned firms, but at higher levels the effect will shift adversely (Ben-Amar et al., 2013).

***Nationality and Gender Diversity on Swiss Corporate Boards (Ruigrok, Peck & Tacheva, 2007)***

Ruigrok et al., (2007) examine how board diversity, defined as gender diversity and nationality diversity, affects the level of independence of the directors and the number of other directorships the director's holds. Differences regarding educational background, educational level, age and board tenure are furthermore examined. Ruigrok et al. (2007) look at 210 listed companies in 2003 in the Swiss context. The method consists of chi-square analysis for the initial test of the hypotheses. Followed by applying probit regression techniques to estimate the relation of the attributes and the gender and nationality of the directors (Ruigrok et al., 2007).

Ruigrok et al. (2007) means that gender and nationality diversity have shown substantial effects on board dynamics. They divide diversity attributes to a known definition of task-oriented attributes and relations-oriented attributes, whereas age, gender and nationality diversity are categorized as relation-oriented attributes, and education, functional background, and tenure serve as task-related diversity attributed. Ruigrok et al. (2007) state that task-related attributes of diversity are usually linked with positive consequences for the group. Whereas relations-oriented diversity can lead to slower communications, more discussions, more misunderstanding and lower decision speed. They associate this with a negative impact on the group. Ruigrok et al. (2007) state that the traditional perception of board diversity tends to focus on task-oriented diversity and independence, but as more recent calls shift towards a focus on multiple diversity, the relations-oriented diversity shows greater importance. In order to successfully manage board diversity, Ruigrok et al. (2007) states the importance of exploring how nationality and gender diversity affects board diversity and the independence of the directors. Ruigrok et al. (2007) note that several governance theories highlight the importance of the role the board of directors plays in strategy formulation. Hence, Ruigrok et al. (2007) state that “instead of looking at possible barriers to increasing board diversity, a better understanding is needed of how female and foreign directors

contribute to board behavior and performance (p.548)”. They mean that research should be directed towards an examination of what additional value or characteristics foreign or female directors bring to the board, as they interact with directors of other nationality and/ or gender (Ruigrok et al., 2007).

The study by Ruigrok et al. (2007) derives from Agency theory and the resource dependency theory. Agency theory focuses on the role of the board of directors, by stating it should be a function for monitoring and controlling the executive, which emerges from the separation of ownership and control that results in principal-agent problems for the firm (Ruigrok et al., 2007). Moreover, the agency theory suggest that the independence of the directors is crucial for the board’s ability to perform these tasks, i.e. monitoring and controlling tasks conducted by the executive management (Ruigrok et al., 2007). The resource dependency theory, on the other hand, focuses on the board of directors as resources for the firm. Hence the more fitting directors result in more valuable resources for the firm, and the members of the board are regarded as important resources, in terms of knowledge, experience, network, etc. (Ruigrok et al., 2007).

The results show that 3% of the directors of the Swiss boards are women and 22.1% of the directors were foreign. The study derives from eight hypotheses. Ruigrok et al. (2007) find strong support for hypothesis 2a: “Foreign directors are less likely to serve on other corporate boards in that country” (p.549) , but they do not find evidence for hypothesis 2b: “Female directors are less likely to serve on other corporate boards in that country.”(p.549). They also found a strong negative relationship between the gender and the independence; i.e. hypothesis 1b “Female board members are less likely to be independent” (Ruigrok et al., 2007:p.549) was confirmed. They state that female directors are more likely to be affiliated directors. Moreover, tendencies of a negative relationship between foreign directors and the likelihood of the directors being employed by the firm, a shareholder, consulting or having another dependent relationship to the firm. Ruigrok et al. (2007) find empirical evidence that foreign directors being positively related to a business educational background, whereas female directors were found to be more likely to have lower educational background levels. The study shows that female directors are more likely to have family ties to the firm, and Ruigrok et al., (2007) argues that this might be the reason for the lower educational levels, and mean that this could be typical for the Swiss governance climate, compared to the US or Germany (Ruigrok et al., 2007). They conclude that diversity in terms of nationality and mixed gender

directors results in a more complex member interaction on the board. Ruigrok et al., (2007) states that by viewing the attributes of the diverse directors as a “bundle of attributes” can provide an understanding of how diverse directors can be enabled to make a valuable contribution to the board (Ruigrok et al., 2007).

#### **2.6.4 Age diversity**

##### ***Age Diversity: An Empirical Study in the Board of Directors (Ferrero-Ferrero, Fernández-izquierdo & Muñoz-Torres, 2015)***

Ferrero-Ferrero et al., (2015) study the relationship between firm performance and age diversity on the board of directors. They see the board of directors as a key corporate governance mechanism, and therefore it can be assumed to be responsible for the performance and success of a firm. The study divides age diversity into three different variables; separation, variety and disparity. The study note the need to use both psychology and sociology theories as well as economical theories when studying something as complex as the roles played by directors. Therefore the study takes its theoretical foundation in upper echelon perspective and diversity typology. The study includes 205 firms from the United Kingdom, Germany and France for the year 2009 (Ferrero-Ferrero et al., 2015).

Ferrero-Ferrero et al. (2015) choose to measure the three types of age diversity differently. Diversity as separation, which is explained as differences in position or opinion among members, is measured by standard deviation of the age of directors. Diversity as variety, which is explained as differences in category, knowledge and experience among members, is measured by dividing the members into generation categories. These categories are Greatest Generation (1922-1945), Boomers (1946-1964), Xers (1965-1983), and Generation Y (1984-2002). To calculate diversity as variety Ferrero-Ferrero et al. (2015) uses Blau's index, which measures proportion of directors of a particular category. Diversity as disparity, which is explained as differences in social assets such as pay, power and prestige, is measured by the difference of director's pay. This measure is used since the study assumes that pay is a good proxy for distribution of power. Three different hypotheses are constructed to find a connection between corporate performance and the three definitions of age diversity. The authors also choose to include a number of control variables in form of firm size, capex, leverage, growth, liquidity, country and industry (Ferrero-Ferrero et al., 2015).

These control variables are thereafter tested with a linear regression model together with the diversity variables. Corporate performance is used as the dependent variable. The study also includes a robust variance matrix in form of White-corrected standard errors (Ferrero-Ferrero et al., 2015).

In their results Ferrero-Ferrero et al. (2015) find evidence for one of the three hypotheses presented. The variety definition of diversity is the variable where evidence is found, that is, greater age diversity as variety leads to improved corporate performance. The main conclusion is that board of directors with members from different generations in a balanced way increases the corporate performance. Ferrero-Ferrero et al. (2015) mean that this is because the older generations provide characteristics such as experience and wisdom, whereas the middle generation assumes to bring active responsibility and the younger generation brings the future plans and new approaches. Their findings suggest that governance guidelines should encourage age diversity in form of different generations on the board. One limitation to the study is that the measures used are sensitive to the board size. This could not be used as a control variable since it would present collinearity problems with firm size (Ferrero-Ferrero et al., 2015).

## 2.7 Summarizing table of similar studies

Study	Focus	Country	Data	Time period	Result
<b>Fattobene &amp; Caiffa (2016)</b>	Relationship of interlocking directorship and its effect on overconfidence and M&A's.	IT	296 M&A deals	2000-2013	Illusion of control, illusion of knowledge, hard-easy effect, self-attribution bias and gender differences has a link to directorship. M&A has negative contribution to the acquiring firm's performance.
<b>Chen, Crossland &amp; Huang (2014)</b>	What impact female board representation has on the firm's involvement in M&A's.	U.S.	13,248 firm-year observations and 2,825 acquisitions	1998-2010	U.S. female board representation is negatively related with number of acquisitions and negatively related with acquisition size. Ethnic diversity was consistently a significant predictor.
<b>Levi, Li &amp; Zhang (2014)</b>	Relationship between gender diversification on the board and the likeliness of acquisitions as well as paying a high bid premium.	U.S.	20,000 firm-year observations	1997-2009	U.S. female board representation is negatively correlated with the number of bids and the bid premium paid.
<b>Huang &amp; Kisgen (2013)</b>	Difference in corporate financial and investment decisions made by female and male executives.	U.S.	26,668 firm-year observations, 1,750 male-to-male transitions and 116 male-to-female transitions	1993-2005	Firms with female executives are less likely to make acquisitions and less likely to issue debt. This states that men are more risk taking than women.
<b>Ben-Amar, Francoeur, Hafsy &amp; Labelle (2013)</b>	Relationship between board composition and M&A's.	CA	206 acquiring firms and 289 deals	2000-2007	The result shows that depending on the ownership, the independence of the directors are more or less important.
<b>Ruigrok, Peck &amp; Tacheva (2007)</b>	Relationship between gender- and nationality diversity and independence of the directors together with director attributes.	CH	210 firm-year observations	2003	Diversity in terms of nationality and mixed gender result in a more complex member interaction of the board.
<b>Ferrero-Ferrero, Fernández-izquierdo &amp; Muñoz-Torres (2015)</b>	Relationship between firm performance and age diversity on the board.	UK, DE & FR	205 firms	2009	They find evidence that diversity as variety, dividing the members into different generations, leads to increased firm performance.

Table 1. Summarizing table of similar studies.

## **2.8 Dependent variable: Acquisition attempts**

Research regarding how diversity on top management affects firm performance has been quite common. An area that is less researched is how diversity on the board of directors affects the strategic thinking of the board. Acquisitions are greater managerial investment decisions and therefore these decisions are subject to board involvement. The effectiveness of the structure of the board is particularly visible in the context of acquisitions (Redor, 2016).

A lot of acquisitions are observed as failures for the acquiring firm (Sevenius, 2011; Schoenberg, 2006). Therefore, as a shareholder in the acquiring firm, acquisitions are considered a risky strategic decision. The more acquisition attempts a firm engages in, the higher the risk of engaging in an acquisition that will fail. The acquisition attempts of the firm and what variables that drives it are therefore of utmost interest as a shareholder.

An acquisition attempt is measured as a bid for a firm, even if the target firm rejects the bid. Acquisition attempts can be seen as closely related to Agency theory. Agency theory states that the interest of board of directors and shareholders are often misaligned (Besanko et al., 2013). Managers and board of directors got incentives to take part of acquisitions even if they are seen as risky, while most shareholders on the other hand are risk averse and prefer to decrease risk.

## **2.9 Independent variables**

In the following sections research and theories regarding the chosen explanatory variables are further discussed. A hypothesis for each variable is presented after each section based on the theories and previous research.

### **2.9.1 Gender diversity**

Gender diversity in firms in general, and in top-management and board of directors in particular, has long been a widely discussed topic. This has also led to the variable being included in more research than other, similar, variables.

Pearce and Zahra (1991) found evidence in an empirical study on board of directors that boards with more women had more intense debates and disagreements. They were also associated with more perceived and objective firm performance. This evidence is aligned with Social identity theory and intergroup relationships. This is also in line with the results of Chen

et al. (2014) who discovered that in the U.S. context female board representation is negatively correlated with the amount of acquisition attempts by the firm. Levi et al. (2014) come to the same conclusion that the number of acquisition bids will decrease if the board is more gender diverse. Huang and Kisgen (2013) add that this also is the case for female executives.

*Hypothesis 1: Boards with more women will be associated with fewer acquisition attempts.*

### **2.9.2 Nationality diversity**

Oxelheim and Randøy (2003) and Ruigrok et al. (2007) have researched what effect foreign directors have on the firm's value. Their research shows that foreign directors improve the boards international exposure and the network of the board. This is seen as an important competitive advantage when coming to international acquisitions.

Diversity of nationalities on the board does not only have positive implications. It can create communication problems and cause misunderstandings. These communication issues, and the conflicts they might lead to, can affect both the time spent on decisions and the accuracy of the decisions (Ruigrok et al, 2007).

Foreigners on the board are at risk of being trapped in a minority position (Ruigrok et al, 2007). According to Social identity theory this could lead to the forming of an out-group containing the foreign members of the board. The presence of a new out-group can, according to Social identity theory, lead to more intense discussions when the out-group becomes more motivated to take a stand in interactions with the in-group of domestic members.

In this study nationality is measured as citizenship. Members without Swedish citizenship are considered foreign and members with Swedish citizenship, even though they might have been born and raised abroad, are considered Swedish.

*Hypothesis 2: Boards with higher diversity in nationality will be associated with fewer acquisition attempts.*

### **2.9.3 Age diversity**

As remarked in Ferrero-Ferrero et al. (2015), the effects of age diversity on the board is much less researched than variables such as gender and race. This does not mean that the variable is

insignificant, seeing evidence on age diversity's effect on corporate performance has been shown (Ferrero-Ferrero et al. 2015). It does suggest that there is a need for more and new approaches regarding age diversity research.

According to Harrison and Klein's (2007) diversity typology, diversity can be defined in the form of separation, variety and disparity. Nielsen (2010) builds on this and highlight that the distinction of diversity as variety, separation and disparity on some variables, such as age, needs to be applied in future research.

Building on the research by Ferrero-Ferrero et al. (2015), who were able to prove a relationship between age diversity as variety and corporate performance, this definition of age diversity remains interesting for further research. Chen et al. (2014) chose to include age diversity in a similar way, by dividing the board of directors into different birth groups depending on what decades the members were born. Age diversity as variety, dividing and observing which age generations are being represented on the board, could also be seen affected by Social identity theory. Different age generations could create different in- and out-groups. This should, as Social identity theory states, lead to more thorough discussions before decisions (Hogg, 2006).

*Hypothesis 3: Boards with members representing different age generations will be associated with fewer acquisition attempts.*

## 2.10 Summary of hypotheses

<i>Hypothesis 1</i>	<i>Boards with more women will be associated with fewer acquisition attempts.</i>
<i>Hypothesis 2</i>	<i>Boards with higher diversity in nationality will be associated with fewer acquisition attempts.</i>
<i>Hypothesis 3</i>	<i>Boards with members representing different age generations will be associated with fewer acquisition attempts.</i>

*Table 2. Summary of hypotheses.*



## 3. Method

*Chapter three describes the method used in the study. Firstly the methodological approach is presented, followed by the method used for data gathering and statistical analysis. Lastly a discussion of the chosen methodology is presented.*

### 3.1 Research approach

The study derives from a deductive research approach, meaning that the study is based on previous research and accepted theories (Bryman & Bell, 2013). Hence hypotheses are formed based on what is known from previous examinations. Analyses and Empirical results are analyzed in terms of rejection or acceptance of hypothesizes, followed by conclusions and consequences analysis to compare earlier research with the study's results. Bryman and Bell (2013) summarize this process in six steps: Theory, Hypothesis, Data Collection, Results, Hypothesis acceptance or rejection, Reformulation of theoretical approach. Theory and hypothesis are presented in chapter two, and data collected are based on these.

The authors aim to conclude a general understanding of the effects of board composition on board strategic decisions regarding acquisition attempts for the Swedish context. Conclusions drawn from this study are intended for further testing in further research on other governance systems. By testing this method on other contexts, possibly a general theoretical understanding of the strategic effects of board composition can be determined (Bryman & Bell, 2013). Hence the study is based on a quantitative approach; focusing on numerical data, since this method is consistent with previous research regarding board diversity in relation to acquisitions (e.g. Chen et al., 2014; Levi et al., 2014).

#### 3.1.2 Research philosophy

The study derives from four research philosophies: constructivism, objectivism, positivism and interpretivism. These can be considered from two perspectives: Ontological considerations, including the nature of reality and considered in terms of constructivism and objectivism, and epistemological considerations, i.e. the relationship between the researcher and reality, hence portrayed in positivism and interpretivism (Bryman & Bell, 2013). The method used in the study derives from the objectivism and positivism; hence the authors concluded a quantitative approach to best fit the purpose of the study. This choice is validated by the arguments in 3.1.2.1 and 3.1.2.2.

### **3.1.2.1. Ontological considerations**

Constructivism and Objectivism have been taken into account as ontological considerations. Constructivism refers to the assumption that social phenomena are to be considered as in a constant state of revision, hence being constructed by social actors. Whereas objectivism entails as the social actor and the social phenomena exist separated and externally. Thus Objectivism originates separated from the individual's reach or influence (Bryman & Bell, 2013). The study derives from an objective approach, thus objectivism state that reality is mind-independent, no matter if an individual's perception harmonizes with the reality or not. The constructivism approach provides a contrasting point of view, which advocates that norms and perceptions will be of influence for the nature of reality (Bryman & Bell, 2013). Consequently, hypotheses of the study have been either acknowledged or rejected, whereas conclusions origins from these. Moreover do the authors aim to conduct a study as independent of context and time as possible; hence an objective approach is required. Additionally Vrasidas (2000) contends that constructivism is based on multiple realities; constructivism states that an interpretive understanding forms fact, and therefore fact is formed by the individual's experiences and perceptions. As this study aims to find a general understanding of the relationship between board diversity and firm strategic decisions; an objectivist reasoning is furthestmost bearing.

### **3.1.2.2 Epistemological considerations**

For researchers, interpretivism and positivism study approaches should be taken into account. Interpretivism includes the human element, deriving from the understanding that conducted research is not permanent, but changing with the researcher. This view derives from several subjective realities of science (Bryman & Bell, 2013). As data collected aims to present a general understanding of the effects of board diversity, interpretivism is not applicable in this study. Positivism, on the other hand, perceives the world to be external, i.e. that a single objective reality exists, regardless of the researcher's perception of it (Bryman & Bell, 2013). Hence positivism favors this study, and positivism has permeated statistical techniques to uncover a single and objective reality. The authors have therefore maintained a clear distinction between personal experience or judgment and science or fact.

### **3.1.3 Research design**

The study is structured according to six steps, suggested by Bryman and Bell (2013):

1. Theory
2. Hypotheses
3. Data Collection
4. Results
5. Hypotheses acceptance or rejection
6. Reformulation of theory.

### **3.1.4 Selection of theoretical framework**

The theoretical framework consists of theories previously used by researchers in the field of board composition. The Social identity theory and Agency theory are both in line with what previous research derives its theoretical foundation from (Chen et al., 2014; Ruigrok et al., 2007). Chen et al. (2014) build their analysis on the Social identity theory, as they base the conclusions of the gender differences to an in-group and out-group decision-making behavior. Moreover is the Agency theory also consistent with researchers explanation of the strategic behavior of the board of directors. Tricker (2012) states that Agency theory both describes the existents of the board of directors, as well as the problems if objectives of directors and principals are unaligned. The relationship of Board of directors, owners, executives and shareholders can be explained by Agency theory (Tricker, 2012), hence the strategic behavior studied in this thesis derives from this theoretical foundation in order to analyze how board composition affects the strategic behavior.

## **3.2 Data**

### **3.2.1 Data gathering**

For this study the authors have chosen to use secondary data exclusively. This choice has been made due to the quantitative approach of the study. By using secondary data the authors directly receives access to high quality data and therefore larger samples can be studied (Bryman & Bell, 2013). The authors consider the use of secondary data as a contribution to the credibility of the study.

Data regarding the board composition has been gathered manually from the companies' annual reports. This is a time consuming process and the authors has therefore applied limitations on the sample further explained 3.2.2. From the Swedish Large Cap 388 firm-year

observations were observed. 54 observations were removed due to incomplete board attribute- and control variables data and the sample used was reduced to 334 firm year observations.

Data regarding the included control variables has been gathered through S&P Capital IQ, which is a provider of financial data for listed companies. The data on S&P Capital IQ is standardized which makes the data in the sample more comparable. The authors consider this a contribution to the credibility and quality of the study.

Data regarding the amount of acquisition attempts has been gathered through Zephyr. Zephyr is a database that provides detailed information on worldwide acquisitions and is well established in research. The database is therefore considered creditable and the data gathered through Zephyr is considered reliable. The attempts have been retrieved as the date the acquisition bid was made, and therefore the study does not take into consideration if the acquisition goes through or not. The 334 firm year observations performed a total of 509 acquisitions.

### **3.2.2 Data limitations**

The study limits itself to the Swedish context. This geographical limitation ensures that the study excludes effects from differences in different geographical contexts. By excluding these effects, the authors hope to avoid distortions deriving from differences in contexts. Similar studies (e.g. Chen et al., 2014) has been done in other contexts such as the U.S. context, but none has been observed in the Swedish context.

In the Swedish context the study observes the companies listed on the Large Cap. The data regarding the board composition has to be manually gathered and this is a time consuming process. Due to the time limitation of the study this limitation had to be applied.

The study examines companies during the time period 2011-2015. These are the most recent years with data available, and therefore the data that give the most representative result of the present situation.

### 3.3 Statistical analysis

#### 3.3.1 Multiple regression

A Multiple regression describes the relationship between one dependent variable and a number of independent variables (Brooks, 2014). The regression show how much of the dependent variable that is explained by the independent variables.

The formula for multiple regressions according to Brooks (2014):

$$Y_t = \beta_1 + \beta_2 X_{2t} + \beta_3 X_{3t} + \dots + \beta_k X_{kt} + U_t$$

*Figure 1. Formula for multiple regression Brooks (2014).*

Y stands for the dependent variable,  $\beta_1$  is the intercept and indicates the value of Y when all independent variables have a value of zero. The X variables are a number of independent variables, which are believed to influence Y. The coefficient estimates  $\beta_2, \beta_3$  and so on are the coefficient that tells the effect each X variable has on Y. The U variable is lastly an error term and is assumed to be zero according to the model assumptions presented by Brooks (2014) and further discussed in 3.3.2.

In this study the multiple regression will take the following form:

$$\begin{aligned} \text{Acquisition attempts} = & \beta_1 + \beta_2(\text{gender}) + \beta_3(\text{nationality}) + \beta_4(\text{Age}) + \beta_5(\text{Board size}) + \\ & \beta_6(\text{Debt-to-equity}) + \beta_7(\text{current ratio}) + U_t \end{aligned}$$

*Figure 2. Formula for for multiple regression on acquisition attempt.*

#### 3.3.2 Model assumptions

For the result to be considered correct the multiple regression model needs to meet five assumptions (Brooks, 2014):

$$(1) E(u_t) = 0$$

*Figure 3. Assumption 1: Expected error term equals zero (Brooks, 2014).*

The expected error term  $u_t$  equals zero. If a constant term is included this assumption is never violated (Brooks, 2014).

$$(2) \text{var}(u_t) = \sigma^2 < \infty$$

*Figure 4. Assumption 2: The error term  $u_t$  should be homoscedastic (Brooks, 2014).*

The error term  $u_t$  should be homoscedastic. Homoscedasticity is when the variance of the errors is constant. This can be tested by performing a White's test or a Breusch-Pagan-Godfrey test (Brooks, 2014).

$$(3) \text{cov}(u_i, u_j) = 0$$

*Figure 5. Assumption 3: The covariance between the error terms equals zero (Brooks, 2014).*

The covariance between the error terms equals zero. This means that the error terms are uncorrelated with each other. If the error terms would be dependent of each other they are autocorrelated (Brooks, 2014).

$$(4) \text{cov}(u_t, x_t) = 0$$

*Figure 6. Assumption 4: The independent variables are non-stochastic (Brooks, 2014).*

The independent variables are non-stochastic. This means that the independent variables are independent of each other and can't be correlated (Brooks, 2014).

$$(5) u_t \sim N(0, \sigma^2)$$

*Figure 7. Assumption 5: The error term  $u_t$  is normally distributed (Brooks, 2014).*

The error term  $u_t$  is normally distributed. This can be tested through a Bera-Jarque test. For samples that are large enough, the violation of this assumption is basically negligible (Brooks, 2014).

### **3.3.3 Operationalization of the dependent variable**

The dependent variable, acquisition attempts, measure how many acquisition bids the firm's have made. If this variable would be treated as a binary variable, where it could only assume 0 if no acquisition bids had been made and 1 if one or more bids had been made, the authors would exclude a large amount of interesting data.

Therefore, in this study, the dependent variable will be operationalized as an interval where it can assume zero or any positive number. This method could lead to a violation of assumption 5, normally distributed error terms. This assumption is basically negligible if the sample is large enough and the non-normal distribution can therefore be ignored to avoid exclusion of data (Brooks, 2014).

*Acquisition attempts:  $0 \leq \#$*

*Figure 8. Operationalization of the dependent variable (Brooks, 2014).*

### **3.3.4 Operationalization of the Independent variables**

To be able to answer the main question of the study the multiple regressions will be performed with three independent variables.

Gender - In the regression the percentage of women on the board will be used. It was operationalized as the number of female representatives on the board in a given observation divided by the board size.

*Gender: % of women on the board*

*Figure 9.1 Operationalization of the independent variable: Gender.*

Nationality - In the regression the percentage of foreign board members will be used. It was operationalized as the number of foreign representatives on the board in a given observation divided by the board size.

*Nationality: % of foreign board members.*

*Figure 9.2 Operationalization of the independent variable: Nationality.*

Age - The age diversity will be looked at as variety, dividing and looking on what age generations are being represented on the board. Ferrero-Ferrero et al. (2015) uses the four major generations of the 20th century. These are the Greatest Generation (1922-1945), Boomers (1946-1964), Xers (1965-1983) and Generation Y (1984-2002). The board members has been divided into these four groups and the variable will be operationalized as an interval describing how many different generations are represented.

*Age: Number of generations represented (1-4)*

*Figure 9.3 Operationalization of the independent variable: Age.*

### 3.3.5 Operationalization of the control variables

By including three control variables to the study, that measures the size of the board, leverage and liquidity of the firm, the authors hope to be able to exclude these factors from the result of the study.

Board size - The board size has been gathered through the firms annual reports. The size of the board is especially interesting since 2 out of 3 independent variables are a percentage of total board size. Board size is also interesting since too small groups do not reach enough diversity, but too large groups will result in ineffective communication and processes (Yukl, 2002). The board size has been operationalized as an interval between 5 and 15.

*Board size: Number of board members (5-15)*

*Figure 10.1 Operationalization of the control variable: Board size.*

Debt-to-equity - The debt-to-equity ratio has been gathered through the S&P Capital IQ database. Debt-to-equity is a ratio that describes the firm's financial leverage. Firms with high leverage have a more constrained financial policy, which limits costly acquisitions. For each firm the debt-to-equity from the annual report the year before (y-1) has been gathered and will be operationalized as a percentage.

*D/E: % at the start of the year.*

*Figure 10.2 Operationalization of the control variable: Debt-to-equity.*

Current ratio - The current ratio has been gathered through the S&P Capital IQ database. Current ratio describes the liquidity of the firm and the firm's ability to pay long- and short-term debt. For each firm the current ratio from the annual report the year before (y-1) has been gathered and will be operationalized as a multiple.

*Current ratio: (Current assets / Current liabilities) at the start of the year.*

*Figure 10.3 Operationalization of the control variable: Current ratio.*

### 3.4 Interpretation of regression

According to Brooks (2014) the most common method used to fit a line to the sample is ordinary least squares (OLS). By minimizing the sum of squares  $R^2$  is generated.  $R^2$ , which



takes the shape of a value between zero and one, shows how much of the variance in the dependent variable that can be explained by the regression model. For example an  $R^2$  of 0.2 means that 20% of the variance in the dependent variable can be explained by the independent variables included in the regression. In cross-sectional data one can rarely obtain a high  $R^2$  since the data does not include the period effects, and therefore this should not be the main thing to focus on.

To be able to achieve a regression model with as high significance as possible, the study will be using the Stepwise-backwards method in the regression analysis. This means that the first regression will be performed with all the variables included. Stepwise the authors will remove variables with low relevance to improve the significance of the model. The purpose of this is to eliminate the diluent effect variables with low relevance might have on the regression model. The commonly used significance levels are 1%, 5% and 10%. What usually decides the significance level to use is the size of the sample. The larger the size, the higher is the need for a lower significance level (Brooks, 2014). Due to the sample size being fairly small in comparison to other research on financial data (e.g. Chen et al, 2014; Levi et al, 2014), the authors have decided to look at the regression with a 10% significance level.

### **3.5 Quality of research design**

#### **3.5.1 Reliability**

The reliability of a research study refers to the criterion of whether there is consistency in the result of the study. If the results of the study can be replicated and still proven in repeated studies; the reliability can be seen as high (Bryman & Bell, 2013). This means that statistical results should not fluctuate when, on several occasions, similar tests are conducted. Furthermore, the probability of the results being affected by temporary coincidental effects should be assumed to be low (Bryman & Bell, 2013). All data used in this study consists of secondary data collected from established and well-known databases, widely used by analysts and researchers, which should be considered to contribute to an increased reliability in this study. However, as a study is based on secondary data, Lundahl and Skärvad (1999) highlight the risk of the data collected to be biased or incomplete. The authors have taken this into consideration as a potential critique, deriving from the fact that the secondary data is presented separated from the phenomena. To reduce the effect of misinterpretations, the authors have consistently used independent sources and derived from a critical approach to

the sources used. Additionally, the sample collected is fairly large, including all Swedish Large Cap firms meeting the criteria, and the authors believe that any coincidental factors will have little, or no, effect once all the observations are combined.

### **3.5.2 Replicability**

Closely related to the reliability is the criterion of replicability. Replicability refers to the condition that the proven results of a study should be directly replicable for another researcher, following the procedures described in the original study. According to Bryman and Bell (2013), the replicability criterion is of great importance for the credibility of the study, despite the fact that replication studies are less common in the field of business. The method described in this chapter should be considered to provide a replication study with the same results. However, the human error factor should be considered, since the data has been handled manually when transferring data and recording data to fit the statistical program used. The risk of human errors has been decreased, as the data set has been double checked multiple times. Therefore, the study should fulfill the replicability criterion.

### **3.5.3 Validity**

Validity describes the extent to which what intends to be measured is measured. Hence the validity refers to whether the operationalization of the theoretical framework is measured in a comprehensive way, derived from the existing theory. Validity can be measured in either external validity or internal validity. In a causal relationship, a variation of the dependent variable should be found in the used independent variables, in order for the internal validity to be high. If a shift of the dependent variable instead is produced by another factor, the internal validity decreases. The external validity refers to the criteria of whether proved results can be representative of other cases, i.e. if the given results can be generalized and furthermore applied to other research areas (Bryman & Bell, 2013).

The variables used in this study are in line with previous research in the field of board diversity. Hence the relationship of gender, nationality and age diversity can be assumed to be related to the causality the authors are trying to question. However, most previous research focuses on the relationship between firm-performance or acquisition performance and board composition, which could have an adverse impact on the internal validity. Due to the limitation of the Swedish large cap segment of listed companies, the results are only transferrable to this context. Therefore, regarding the external validity, the results can not be

generalized to other contexts. Instead, the result should be tested on other contexts in order to provide a more generalizable understanding of the relationship.

#### **3.5.4 Method criticism**

The methodological considerations and processing were selected in order to reach results and conclusions as trustworthy as possible. Methods have been chosen to achieve a high replicability in order to give future research the possibility to reach the same results. The authors have decided to focus solely on Large Cap firms in the Swedish context, resulting in 334 firm-year observations. A larger sample would both increase the generalization of the results and the reliability of the study. Another criticism commonly raised by researchers refers to that quantitative methods could be based on a insufficient precision and correctness of the data used in the study. As the major part of data used derives from annual reports, this is assumed to have been controlled by an authorized auditor; hence this information is expected to be correctly presented. However, as data collected was gathered manually, the risk of human error significantly increases. Variables selected for the study are previously examined by other researchers, which indicates that conclusions drawn from hypothesizes and empirical results are valid. Moreover a comparison of the found results in the study and previous research is feasible.

#### **3.5.5 Source criticism**

Literary sources and secondary data used in the study have been carefully selected to provide high reliability and validity. Method selection is based on earlier research and commonly used methodology literature in order to provide a replicable framework for the study.

##### **3.5.5.1 Literary criticism**

The theoretical framework builds on the Social identity theory and Agency theory. These theories are well known and previously used by researchers in the field of corporate governance. However, Agency theory can be criticized for assuming the nature of human to always act opportunistic (Tricker, 2012). This narrow definition of human motivation has been taken into account by the authors. Hence, the authors acknowledge the risk of the analysis being affected by the perception of the limitations of Agency theory. The Social identity theory aims to explain the psychological nature of group processes and relations. Although this approach can be criticized in the sense that it assumes a simplified perception of the individual's actions as well as an in-group bias. The in-group bias refers to putting too

much importance of the in-group variable since it assumes group relations to be stable instead of dynamic. The authors have acknowledged this critique and therefore chosen to complement the theory with governance literature by Tricker (2012) regarding the behavior of the board of directors.

#### **3.5.5.2 Data criticism**

The data collected for the study is retrieved from well-known and widely used databases; Acquisition information has been retrieved from Zephyr, data on control variables from Capital IQ and further data from annual reports. The databases are commonly used by researchers but should be acknowledged for standardizing the data and therefore presenting it in a simplified way. This is considered as a limitation to the result, but on the other hand makes the comparison between different data more feasible; hence the authors have chosen to use these. The sample is composed of cross-sectional data. Since the sample is composed of cross-sectional data it will be hard to get a high  $R^2$  on the optimal regression model. This means that the authors will not get a high explanation of the dependent variable, but will instead only be able to see what independent variables have an explanatory effect on the dependent variable.

## 4. Results

Chapter four describes the results of the study. Firstly some descriptive statistics on the data are presented followed by the multiple regressions performed. The chapter ends with a discussion regarding the underlying assumptions for the regression model.

### 4.1 Data descriptives

The final sample is composed of 334 cross-sectional observations of Sweden's largest listed companies between 2011 and 2015.

#### 4.1.1 Acquisition attempts

	Mean	Max	Min	Std. Deviation	N
Acquisition attempts	1.523	19	0	2.475	334

Table 3. Data descriptives: Acquisition attempts.

The average acquisition attempts performed by the sample were 1.523, with a maximum of 19 and a minimum of 0. 154 of the observations in the sample performed 0 acquisition attempts, while the other 180 observations performed a total of 509 acquisition attempts (Figure 12, Appendix 2).

#### 4.1.2 Board size

	Mean	Max	Min	Std. Deviation	N
Board size	9.098	15	5	2.323	334

Table 4. Data descriptives: Board size.

The board size of the sample differs between 15 and 5, with an average board size of 9.098. 20 of the observations had the minimum board size of five while only four had the maximum board size of 15 (Figure 13, Appendix 2).

#### 4.1.3 Gender

	Mean	Max	Min	Std. Deviation	N
% Women	27.576%	60%	0%	11.86%	334

Table 5. Data descriptives: Gender.

The average representation of female members was 27.576%, with a maximum of 60% and a minimum of 0%. Six of the observations in the sample had 0% female representation. (Figure 14, Appendix 2).

#### 4.1.4 Nationality

	Mean	Max	Min	Std. Deviation	N
% Foreign	18.669%	90.909%	0%	23.5%	334

Table 6. Data descriptives: Nationality.

The average representation of foreign members was 18.660%, with a maximum of 90.909% and a minimum of 0%. 151 of the observations had 0% of foreign members while only eight observations had above 80% (Figure 15, Appendix 2).

#### 4.1.5 Age

	Mean	Max	Min	Std. Deviation	N
# of generations	2.278	4	1	.691	334

Table 7. Data descriptives: Age.

The average number of age generations represented on the board of directors was 2.278, with a maximum representation of four and a minimum of one. 39 observations had one generation represented, 170 observations had two generations represented, 118 observations had three generations represented and only seven observations had the maximum of four generations represented (Figure 16, Appendix 2)

#### 4.1.6 Debt-to-equity

	Mean	Max	Min	Std. Deviation	N
Debt-to-equity	72.469%	569.0%	0.2%	62.70%	334

Table 8. Data descriptives: Debt-to-equity.

The average debt-to-equity ratio was 72.469%, with a maximum of 569% and a minimum of 0.2%. 87 of the observations had a debt-to-equity ratio above 100% and 20 of the observations had a debt-to-equity ratio below 10% (Figure 17, Appendix 2).

#### 4.1.7 Current ratio

	Mean	Max	Min	Std. Deviation	N
Current ratio	1.393	8.900	0.02	1.05	334

*Table 9. Data descriptives: Current ratio.*

The average current ratio was 1.393, with a maximum of 8.9 and a minimum of 0.02. Only 13 observations had a current ratio above three and 30 observations had a current ratio below 0.2 (Figure 18, Appendix 2).

#### 4.2 Testing for correlation

Before performing the regression analysis the data was tested for correlation to see if any independent variable needed to be excluded from the regression.

As can be observed in table 10, none of the variables show signs of being too highly correlated. A Correlation value close to one or negative one would be a problem regarding violation of assumption 4. If this would have been the case for any of the variables, there might have been a need to exclude that variable from the regression.

<b>Covariance Correlation</b>	Acquisition attempts	Age generations	Women	Foreign	Board size	Current Ratio	Debt-to- equity	Quick ratio
Acquisition attempts	6.105714 1.000000							
Age generations	-0.094993 -0.055700	0.476362 1.000000						
Women	-0.009476 -0.007905	0.010603 0.129722	0.014024 1.000000					
Foreign	-0.009476 -0.016037	-0.0328777 -0.205044	-0.005608 -0.198023	0.057185 1.000000				
Board size	1.026077 0.178987	0.328777 0.205325	0.002814 0.010241	0.094760 0.170802	5.382454 1.000000			
Current Ratio	0.000845 0.000326	-0.017798 -0.024601	-0.015833 -0.127551	0.019865 0.079250	0.329899 0.135656	1.098765 1.000000		
Debt-to- equity	-0.077183 -0.049892	-0.062016 -0.143521	0.010670 0.143911	-0.031698 -0.211722	-0.364686 -0.025186	-0.0215670 -0.328639	0.391955 1.000000	
Quick ratio	0.051897 0.023111	-0.038148 -0.060823	-0.014553 -0.135228	-0.144553 -0.135228	0.017855 0.082164	0.053099 0.025186	-0.153946 -0.270587	0.825822 1.000000

*Table 10. Covariance & Correlation analysis.*

### 4.3 Regression analysis

As mentioned in 3.4 the authors have constructed the optimal regression model with Stepwise-backwards method. The purpose with this is to construct a model with only significant independent variables.

#### 4.3.1 Model summary

When looking at the model summary for the Stepwise-backwards method, that is shown in table 11, we can observe that the optimal model that only includes significant variables, excluded four of the six included variables. The first excluded variable was women, which means that women showed the least significance in the first regression. After that the control variable current ratio was removed, followed by debt-to-equity. The last variable that was removed was representation of foreign members. The optimal regression model that only includes significant variables on the data is model 5, including the constant, number of age generations represented and the control variable board size. According to this model 4.1% of the dependent variable is explained by board size and number of age generations on the board. This weak goodness of fit is partly due to the sample being composed of cross-sectional data, and partly due to the relationship being fairly weak.



Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.221	.049	.031	2.436	.049	2.792	6	327	.012
2	.221	.049	.034	2.432	.000	.032	1	327	.859
3	.217	.047	.036	2.430	-.001	.481	1	328	.488
4	.215	.046	.038	2.428	-.001	.318	1	329	.573
<b>5</b>	<b>.202</b>	<b>.041</b>	<b>.035</b>	<b>2.431</b>	<b>-.005</b>	<b>1.857</b>	<b>1</b>	<b>330</b>	<b>.174</b>
1. Predictors: (Constant), Current ratio, # of generations, % Women, Board size, % Foreign, Debt-to-equity									
2. Predictors: (Constant), Current ratio, # of generations, Board size, % Foreign, Debt-to-equity									
3. Predictors: (Constant), # of generations, Board size, % Foreign, Debt-to-equity									
4. Predictors: (Constant), # of generations, Board size, % Foreign									
<b>5. Predictors: (Constant), # of generations, Board size</b>									

Table 11. Regression analysis: Model summary.

### 4.3.2 Model significance

Table 12, the ANOVA-table, gives an overall measure of the model to show if the model has any explanatory function and significance. As we can see the optimal regression model 5, including the constant and the variables number of generations and board size is significant on the 1% significance level. This means that the chosen model does have significant influence on our dependent variable.

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
5	Regression	83.529	2	41.765	7.068	<b>.001</b>
a. Dependent Variable: Acquisition attempts						
5. Predictors: (Constant), # of generations, Board size						

Table 12. Regression analysis: ANOVA-table of model significance.

### **4.3.3 Connection between dependent and independent variables**

Table 13 shows how the independent variables affect the dependent variable, and the significance level of the independent variables in the different regression models. What is important to notice is that women, foreign and debt-to-equity are observed as a percentage, which leads to a very low beta.

Between representation of women and acquisition attempts we can observe a negative relationship in the first model. That means that every time Women representation increases by one step (1%) acquisition attempts decrease by 0.002 steps. The p-value is far from significant (0.859) which means that the effect observed is not significant. Because of this the coefficient can't be said to statistically differ from zero, which means that it can't be proven that women representation affects acquisition attempts.

Between representation of foreign members and acquisition attempts we can observe a negative relationship in the fourth model. This means that every time foreign representation increases by one step (1%) acquisition attempts decrease by 0.008 steps. The p-value is also here non-significant (0.174) which means that the effect observed is non-significant. Because of this the coefficient can't be said to statistically differ from zero, which means that it can't be proven that foreign representation affects acquisition attempts.

Between number of age generations and acquisition attempts we can observe a negative relationship in the optimal model. This means that every time number of age generations increase by one step (one more generation represented) acquisition attempts decrease by 0.346. This variable is statistically significant on the 10% level (p-value of 0.080), which is the weakest commonly used level of significance, but it does show a significant relationship between number of age generations and acquisition attempts. Since the variable is significant on the 10% level it means that the coefficient differs from zero (the independent variable affects the dependent variable) with 90% certainty. What also can be observed is the fact that the p-value of number of generations is greatly increased from 0.036 to 0.08 when foreign members variable is removed. This means that the number of generations variable is partly supported by representation of foreign members, i.e. when foreign members is included number of age generations show significance on the 5% level.

Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.943	.821		1.149	.252		
	Board size	.227	.062	.214	3.697	.000	.872	1.147
	<b>% Women</b>	<b>-.002</b>	<b>.012</b>	<b>-.010</b>	<b>-.178</b>	<b>.859</b>	<b>.929</b>	<b>1.077</b>
	% Foreign	-.009	.006	-.086	-1.471	.142	.850	1.176
	# of generations	-.441	.208	-.123	-2.123	.034	.863	1.159
	Debt-to-equity	-.002	.002	-.044	-.728	.467	.793	1.262
	Current ratio	-.096	.136	-.041	-.705	.481	.876	1.142
2	(Constant)	.897	.777		1.153	.250		
	Board size	.227	.061	.213	3.698	.000	.875	1.143
	% Foreign	-.009	.006	-.084	-1.462	.145	.870	1.149
	# of generations	-.445	.207	-.124	-2.154	.032	.871	1.148
	Debt-to-equity	-.002	.002	-.045	-.751	.453	.801	1.248
	Current ratio	-.094	.135	-.040	-.694	.488	.882	1.134
3	(Constant)	.727	.737		.986	.325		
	Board size	.224	.061	.210	3.659	.000	.880	1.137
	% Foreign	-.009	.006	-.084	-1.449	.148	.870	1.149
	# of generations	-.432	.206	-.121	-2.101	.036	.878	1.139
	Debt-to-equity	-.001	.002	-.032	-.564	.573	.888	1.127
4	(Constant)	.525	.644		.815	.415		
	Board size	.230	.060	.216	3.832	.000	.910	1.098
	<b>% Foreign</b>	<b>-.008</b>	<b>.006</b>	<b>-.077</b>	<b>-1.363</b>	<b>.174</b>	<b>.910</b>	<b>1.099</b>
	# of generations	-.415	.203	-.116	-2.042	.042	.898	1.114
5	(Constant)	.385	.636		.605	.546		
	Board size	.212	.059	.199	3.615	.000	.958	1.044
	<b># of generations</b>	<b>-.346</b>	<b>.197</b>	<b>-.097</b>	<b>-1.755</b>	<b>.080</b>	<b>.958</b>	<b>1.044</b>

a. Dependent Variable: Acquisition attempts

Table 13. The connection between dependent and independent variable.

#### 4.4 Test for heteroscedasticity

To make sure assumption 3, *the error term  $u_t$  should be homoscedastic*, is not violated the authors have performed both a White's and a Breusch-Pagan-Godfrey (BPG) test of model 1. Model 1 includes all variables and should therefore show eventual heteroscedasticity problems for all variables. Both these tests test  $H_0 =$  Homoscedasticity. If the model is rejected it means that heteroscedasticity is present. As can be observed in appendix 3, in Table 18 and Table 19, neither the White's (Prob F = 0.2784) nor the BPG (Prob F = 0.2167) reject  $H_0$ . We can therefore assume that homoscedasticity is present.

#### 4.5 Underlying assumptions

The regression model requires the five assumptions presented in 3.3.2 are met. All tests regarding the assumptions have been performed on model 1. Since model 1 includes all variables it should show signs of problems or skewness that could be present and affect all the different regression models.

*Assumption 1* - As explained in 3.3.2, since a constant is included in the regression this assumption is not violated.

*Assumption 2* - Assumption 2 says that the error term should be homoscedastic. As proven in 4.3.4, all regression models are homoscedastic.

*Assumption 3* - Autocorrelation is in principle only shown in time-series data (Brooks, 2014). Since this study is based on cross-sectional data assumption 3 is assumed to be met.

*Assumption 4* - There is nothing in the regression that shows signs of multicollinearity. The correlation test in 4.2 shows no signs of correlation between the independent variables. Also all VIF-values shown in 4.3.3 are all close to 1, which show that multicollinearity is not a problem in any of the regression models.

*Assumption 5* - There seems to be just a little bit of skewness and excess kurtosis present (Figure 11 and Figure 12, appendix 2). The size of the sample makes violations to this assumption basically negligible, and therefore the authors have decided not to trim the data.

## 5. Analysis

*Chapter five analyses the results presented in chapter four. The analysis derives from the hypotheses of the study, and the theoretical framework.*

### 5.1 Hypothesis 1: Boards with more women will be associated with fewer acquisition attempts

Variable	Coefficient	Sign expected A priori	Significant
% Women	-0.002	-	No (p = 0.859)

*Table 14. Relationship between gender diversity and acquisition attempts.*

The result does not show a significant relationship between gender diversity and the number of acquisition attempts. This result differs from the observed results of the reviewed previous research (e.g. Chen et al., 2014; Levi et al., 2014). The lack of significance furthermore means that *Hypothesis 1: Boards with more women are less likely to get involved in acquisition attempts* can not be confirmed.

The average proportion of women on the board of directors is considered as a possible explanatory aspect to this difference. Chen et al., (2014) and Levi et al., (2014) both confirm that female representation on the board of directors is negatively related to number of acquisition attempts in the U.S. context. These studies both focus in the U.S. context, where the female board representation differs from the Swedish context. Chen et al. (2014) observes a 10% average female representation in their sample and Levi et al. (2014) finds 9.5% average female representation in their sample, whereas the observed percentage of women in this study's sample measures 27.6%.

The difference in the average female board representation, and how this affects the observed results, could be connected to the Social identity theory. With 10% women in the average U.S. boards, compared to 27% in the average Swedish Large Cap boards, the in-group and out-group effects can be assumed to have a greater impact on the U.S. boards, where female directors represent a minority group in higher occurrence. Since only one out of ten directors in the U.S. studies are female, the Social identity theory state that female directors assumingly will experience an out-group position, compared to male directors (Hogg, 2006). The Social identity theory states that this creates a situation where out-group members, i.e. the female

directors, are more likely to oppose the in-group, i.e. the male directors, in a discussion (Hogg, 2006). In terms of proposed acquisitions, this means that female directors on the board decrease the risk of groupthink when assessing propositions since the female directors are less likely to feel a need of following the opinions of the group, as they already categorize as out-group. In the sample of this study, i.e. in the Swedish context, on the other hand, the female directors represent almost one third of the directors. The probability of the female directors on these boards to categorize themselves as an out-group to the same extent, compared to the male directors, should therefore be lower than on the U.S. boards. This means that the effect of the Social identity theory decreases, and the risk of cohesiveness in the decision-making processes increases.

Another important aspect to take into consideration when discussing the differences of this study in the Swedish context, compared to the U.S. context, is how the ownership structure affects the impact gender diversity has on decision-making processes regarding acquisitions. Levi et al. (2014) derive their findings of statistical significance in a negative relation between the number of female directors on the board and the number of acquisition bids to the characteristics of female directors. As Levi et al. (2014) states that female directors show better attendance records and defines women as more efficient monitors, the probability of women being overconfident decreases due to the monitoring characteristics. As Levi et al. (2014) identify female directors as better monitors and diversified boards taking a longer time to reach a decision on the acquisition bids, the U.S. boards with female directors result in fewer deals to a lower premium. The study in the Swedish context shows no significance on these conclusions, which the authors derive to the ownership differences. How the ownership differences affect the impact female board characteristics have on acquisitions is analyzed with the findings of Ben-Amar et al. (2013) below.

Ben-Amar et al. (2013) examined how ownership concentration affects the impact of board diversity and found that the higher the ownership concentration is, the less need for independent directors, i.e. statutory diversity. Ben-Amar et al. (2013) also found that with the higher ownership concentration, the effect of demographic diversity (i.e. gender diversity, cultural or national diversity and director's tenure) is reduced, which is reviewed in 2.6.3. The Swedish governance system differs from the U.S. governance system in terms of ownership concentration, whereas high ownership concentration characterizes the Swedish governance system, and the U.S. system is characterized by low ownership concentration (Coffee, 2005).

A high ownership concentration, as in the Swedish context, results in more active shareholders (Ben-Amar et al., 2013). This means that the active shareholders take on the role of monitoring the decisions made, and active shareholders might even have more contact with the executives than the board of directors have. Therefore, the role of monitoring that the directors hold (Tricker, 2012) is less important in the Swedish context than in the U.S. context, due to the concentrated ownership in the Swedish context. Since Levi et al. (2014) state that one of the explanations of why the number of female directors reduces the number of acquisition bids is that female directors are better monitors than their male counterpart, the difference in ownership concentration is an important explanation of the differences in the results of this study and the previous research in the U.S. context. No significant results could be found in this study on the impact of female directors on acquisition attempts. As the female characteristics are less important in the Swedish context than in the U.S. equivalent, the authors analyze that the ownership concentration in the Swedish context can help explain the lack of significance in this study.

An important aspect of responsibilities of the board of directors is the role as supervisors of the executive's work, and the task of monitoring (Tricker, 2012). The Agency theory state how agency costs can occur between shareholders and executives, and how the board of directors function to minimize the agency problems by monitoring the executive work. Hence investors might expect women to reduce the agency problems more, due to their characteristics as Levi et al. (2014) states that female directors show better attendance record and defines women as more efficient monitors. However, the role of monitoring is less important in the Swedish context, as earlier mentioned, which results in an illusion of the perception for the shareholders of Swedish firms, to believe that women reduce agency problems more than the male directors. Hence the illusion of control over the agency situation might even increase the risk of agency problems and the shareholders could oversee potential opportunistic behavior by the directors. As stated in chapter two, directors could serve their own interest rather than the shareholders when pursuing their work on the board. For the shareholders that are aware of the fact that women are considered as better monitors, an illusion of control could result in agency problems between the board of directors and the shareholders. Fattobene et al. (2016) states that the illusion of control results in overconfidence, which would mean that the shareholders believe that they have more under control and supervising than they actually do. However, any agency problems in the relationship with the executives, on the other hand, should decrease since both a board with

both more female representation and a concentrated ownership context should result in better monitoring of the executives work and decision-making (Fattobene et al., 2016; Ben-Amar et al., 2013).

The lack of significance in this study on the gender variable, in contrast to the earlier reviewed research by Chen et al. (2014), Levi et al. (2014) and Huang and Kisgen (2013), show that the generalization of the relationship found in their studies is limited. The results on the variable of gender diversity could not be considered as static, but instead dependent on the context.

## 5.2 Hypothesis 2: Boards with higher diversity in nationality will be associated with fewer acquisition attempts

Variable	Coefficient	Sign expected A priori	Significant
% Foreign	-0.008	-	No (p = 0.174)

*Table 15. Relationship between nationality diversity and acquisition attempts.*

The result shows tendencies of a negative relationship between the variable of nationality diversity and acquisition attempts. What is important to note is that this relationship is non-significant, so it is not proven that the coefficient differs from zero (i.e. it is not proven that diversity in nationality affect number of acquisition attempts).

Different aspects can describe the effect of nationality diversity on the board of directors, where the Social identity theory presents a key point. Since the Social identity theory state that members of the board will categorize into in-groups and out-groups, nationality diversity on the board will foster more disagreements. Members of an in-group are normally more likely to have the same opinions as others of the same group. Likewise are the members outside the group, the ones in the out-group, less likely to agree with the in-group, and are more likely to oppose the others (Hogg, 2006). This enhances the discussion and therefore the time to reach a decision is extended. In this study the average amount of foreign directors are 19%, hence the foreign directors could end up as an out-group and the Swedish directors as an in-group. This means that boards with more foreign directors are more likely to have opposing opinions and therefore reach more well founded decisions. The decisions by a diversified board will therefore get more input in a discussion process. This helps explain how



nationality diversity show some tendencies, even if the tendencies are non-significant, of reducing the acquisition attempts.

Another important aspect for the tendencies in the result is the differences between different nationality contexts. Foreign directors will have different experiences, compared to the Swedish directors, due to differences in the governance systems that shape their opinions and decisions (Coffee, 2005). Directors from e.g. a Latin country, who are characterized by high family ownership, can affect the decision-making of the directors in terms of even higher ownership concentration, which could lead to less diversification and reduced risk-taking. Whereas directors from the U.S. context is highly influenced by the heuristics of his or hers experience, i.e. the director will be used to a dispersed ownership from the U.S.. This creates a dynamic climate for discussions where the decision-making processes enhance from different nationalities amongst the directors. Different national contexts result in different experiences for the directors and according to Ruigrok et al. (2007) nationality diversity results in a more complex member interaction amongst the directors. Yukl (2002) and Tricker (2012) states that a diversified board is less likely to experience conformity and groupthink. In line with above stated by Tricker (2012), Yukl (2002) and Ruigrok et al. (2007) this study does show tendencies of a negative relationship between the number of foreign directors and the acquisition attempts, in line with hypothesis 2. The authors derive the tendencies of a negative relationship to the enhanced discussion climate that arises from nationality diversity on the boards, and leads to better founded decisions regarding acquisitions.

Another factor that affects the decision-making process on acquisitions when foreign directors are present at the board is their knowledge on international or foreign contexts. Assumingly, one can say that some of the acquisitions will be propositions on firms in foreign contexts. The knowledge that foreign directors can have from their previous experience will differ from the Swedish directors' according to Coffee (2005), and therefore they might bring in different aspects of evaluation of the proposed acquisitions. Coffee (2005) means that the context of various governance systems affects not only the ownership structure but also the volatility, whereas firms in the U.S. or UK context will be more volatile compared to Swedish firms, as well as differ in size, legislation and tax effects (Coffee, 2005). Hence nationality diversity on the board can help the decision-making process on foreign acquisitions, which help explain the observed tendencies of a negative relationship between nationality diversity and acquisition attempts.

Furthermore, Ruigrok et al. (2007) find evidence that background experiences differ between foreign and domestic directors in their study in the Swiss context. Even though this study does not cover the backgrounds of the directors, the evidence of Ruigrok et al. (2007) can help explain the tendencies of a negative relationship between the number of foreign directors and acquisition attempts. Ruigrok et al. (2007) find that “Foreign directors are less likely to serve on other corporate boards in that country” (p.549) and that foreign directors are more likely to have a business educational background than others. This could mean that foreign directors are less likely to be overconfident due to the lack of the Illusion of knowledge (Fattobene & Caiffa, 2016). The illusion of knowledge refer to the fact that directors with access to more information, regardless of the information source, will perceive themselves as in control and therefore are more likely to act in overconfidence. Since Ruigrok et al. (2007) state that foreign directors are less likely to sit on several boards of directors in the country, they are less likely to experience the illusion of knowledge and therefore less likely to base their decision-making on overconfidence. Hence the decision-making processes will enhance from nationality diversity.

Moreover, the differences of the educational background can lead to a better understanding of the evaluation of proposed acquisitions, since foreign directors are more likely to have a business educational background, as Ruigrok et al. (2007) state. However, the business educational background can also mean that the directors with this background are affected by the theoretical standpoints, i.e. what most theory state about acquisitions. According to e.g. Sevenius (2011), as reviewed in 2.5.2, most literature on acquisitions mean that acquisitions generally are value destroying for the shareholders, since 66% of the acquisitions fail (Sevenius, 2011). Therefore, as foreign directors are more likely to have a business educational background (Ruigrok et al., 2007), the foreign directors will be more likely to have a negative approach to acquisitions since business literature states that acquisitions often fail. Thus, the authors mean that the differences in educational background between foreign and Swedish directors, furthermore explain the observed tendencies of a negative relationship.

The lack of significance in the nationality variable can, moreover, derive from the degree of integration to the Swedish culture for the foreign directors. The study categorize according to citizenship but does not take into account how long the directors have been living in Sweden or how well integrated they are with Swedish culture. If the foreign directors have been living

in Sweden for a long time, one can assume that the directors have been acclimatized and therefore behave and think more alike the Swedish directors. This could lead to a mitigation of the feeling as an out-group, since the directors should tend to feel more like the in-group after further integration. The in-group and out-group part of Social identity theory should therefore be considered a floating partition and not a static. This could be seen as a limitation to Social identity theory and could explain the lack of significance in this study. In this aspect, Social identity theory is then increasingly relevant the closer the introduction to diversity, and of less importance when the directors have been integrated.

### **5.3 Hypothesis 3: Boards with members representing different age generations will be associated with fewer acquisition attempts**

<b>Variable</b>	<b>Coefficient</b>	<b>Sign expected A priori</b>	<b>Significant</b>
# of generations	-0.346	-	Yes (p = 0.080)

*Table 16. Relationship between age diversity and acquisition attempts.*

The study shows significance on the 10% level in the result on the negative relationship between age diversity and the number of acquisition attempts. By each additional age category represented on the board, where one category represents the minimum and four the maximum, the acquisition attempts will reduce by 0.346.

Ferrero-Ferrero et al. (2015) mean that age diversity has a positive impact on the decision-making process in terms of contributing with different perspectives, due to the fact that the group can interpret greater information richness, and therefore enhance the discussion climate. Ferrero-Ferrero et al. (2015) state that the different age categories differ in characteristics, as described in 2.6.4. Hence a balance between the generations represented on the board results in a better provided decision-making process, in the sense that the board is more likely to adopt different views and make more deliberated decisions (Ferrero-Ferrero et al., 2015). As acquisitions generally are value destroying for the firm, the observed negative relationship between age diversity and acquisition attempts can therefore partly be described by the increased quality of the decision-making process deriving from the age diversity on the boards in the study.

The broadening of the views and cognitive repertoire of the board can, moreover, help clarify how the application of the Social identity theory explains the observed negative relationship. The differences between the generations both provide different experiences to make well-informed decisions, but also provide a perception of an in-group and an out-group. Ferrero-Ferrero et al. (2015) categorize that the members have differences in category, knowledge, and experiences and according to Hogg (2006) this results in a perception of an in-group with the members of the same generation, i.e. the same category, knowledge and/or experience. According to the Social identity theory, the sectioning of in-groups and out-groups results in discussion with less conformity. A more critical discussion climate is more likely to emerge since out-group members are more inclined to oppose the suggestions by the in-group members. If instead only one generation is represented, the members are more likely to perceive themselves as part of the same in-group, and this means that they are less likely to oppose the proposed acquisitions, i.e. they are more likely to end up in groupthink. Ferrero-Ferrero et al. (2015) study the relationship between firm performance and age diversity and find a positive relationship. Since acquisitions are a risky strategic decision that often fail (Sevenius, 2011; Schoenberg, 2006), the result of Ferrero-Ferrero et al. (2015) could be seen as in line with the negative relationship found in this study between age diversity and acquisition attempts.

The generations measured in the data is divided into four categories, which means that not only one in- and out-group can be present but instead several. The result shows that an increase in age categories represented on the board leads to a reduction in the number of acquisition attempts. The age variable differs in this sense compared to the gender and nationality diversity variables, which only measures the in- and out-group to two categories. For nationality diversity the categorization means either Swedish or foreign, and for gender this means either women or men. The age diversity is, as mentioned above, measured in four categories. This is a possible cause for the significance in this variable, but not in the others. The Social identity theory states that the discussion enhances from in-grouping and out-grouping (Hogg, 2006), and with more age categories represented, there is a possibility that the decision-making processes will enhance even more.

Since acquisitions are likely to reduce shareholder value (Sevenius, 2011) a reduced risk of groupthink consequently means a reduced risk for decision-making misaligned with the

shareholder's objectives. Groupthink amongst one or few groups results in fewer well-informed decisions as group members are more afraid of losing their in-group membership than to end up with the “wrong” decision or output, i.e. a bad result (Yukl, 2002; Janis, 1972). The board of directors function in order to monitor and oversee the work of the executives, as well as to form strategy and policies, in order to make sure the firm operates in the interest of the shareholders (Tricker, 2012). With this in mind, as well as the probability of acquisitions to fail (Sevenius, 2011), one can assume that the shareholders expect the board of directors to take decisions in order to lower the number of acquisition attempts and only pursue the most well founded propositions. However, the directors might not always act in line with the interests of the shareholders. As Agency theory states, a misalignment of the interests between the shareholders and the directors results in agency problems and agency costs (Besanko et al., 2013). However, the result of this study shows that age diversity can lower the agency problems, since an increase of age diversity on the board of directors is likely to result in a decrease in acquisition attempts, i.e. to steer towards the interests of the shareholders.

Few studies have found evidence for age diversity to affect board decision-making, the authors have only found Ferrero-Ferrero et al. (2015) with statistical significance between age diversity on the board of directors and firm performance. The authors therefore derive the negative relationship found between age diversity and acquisition attempts partially to the Swedish context. Hofstede et al. (2010) state that the Swedish context is defined by the overall Swedish culture. Hofstede et al. (2010) use six dimensions to compare culture between different countries. The Swedish culture scores low on the dimension power distance, which could help explain how Swedish boards decision-making enhances from age diversity, whereas other countries might not improve from age diversity to the same extent. Power distance, as described in 1.2.2, refer to how much power the members put into different authorities, such as formal titles, hierarchy, age, etc. (Hofstede et al., 2010). Since Sweden scores low on the dimension of power distance, this means that the members are less likely to accept an unequal distribution of power, i.e. younger members are more likely to perceive themselves as on the same level as older members. In a culture with high power distance (e.g. United Arab Emirates, Chile, China, etc.), on the other hand, the members are likely to have great respect for authorities (Hofstede et al., 2010). The respect for authorities can take form in terms of older members having more power, and therefore the younger members do not dare to oppose others, but instead accepts the groupthink. In the Swedish

context, the effect of age diversity enhances from the low power distance since younger members dare to oppose the elder, younger members perceive their opinions as valuable as the elders and younger members can, therefore, contribute more to the discussions than the younger members living in a culture with high power distance. Hence the authors partially derive the significance to the way the Swedish culture accept younger members as equally powerful as older.

## 7. Conclusions

*Chapter seven summarizes the results and conclusions, and how these results answer the purpose and main question of the study.*

The purpose of the study is to determine how board diversity, in terms of gender, nationality and age, affects the acquisition attempts of listed firms. For the variables gender and nationality the authors have not been able to find any significance and can therefore not prove these variables to have an effect on acquisition attempts. The result does show significance for a negative correlation between age diversity and acquisition attempts on the 10% significance level. This variable was divided into four generations and the result shows that for every new generation introduced to the board, the firm performs 0.346 less acquisition attempts.

The authors derive this result mainly from the improved decision-making process owing to different category, knowledge and experience among the members. These different characteristics divide the members into in- and out-groups, and help eliminate the groupthink problem. Members of an out-group is not afraid to challenge members of an in-group the same way they would have been to challenge members in the same group. Thanks to this, the discussions leading up to decisions are more thorough, and more risky acquisition attempts are passed on. Hence, the amount of acquisition attempts decreases.

The authors also derive the result to the Swedish context. Few earlier studies have found evidence of age diversity affecting board decision-making the same way this study has. The Swedish context is characterized by high ownership concentration and the Swedish culture. In Sweden, members are rarely likely to accept an unequal power distribution and therefore younger members perceives themselves as on the same level as older members, which enhances the discussion climate. This is considered to be one of the reasons why this study observes a negative relationship between age diversity and acquisition attempts in the Swedish context, whereas others have not found this relationship in other contexts.

The result also shows that board size is a variable that affects acquisition attempts on a significant level. Both age and board size affects acquisition attempts, but only a small part of acquisition attempts is explained by these variables. This shows that acquisition attempts is a major strategic decision that is affected by a lot more variables than this study includes.

## 8. Discussion

*Chapter eight starts with a discussion of the observed result, followed by a discussion of the theoretical and practical contribution and ends up with suggestions for further research.*

### 8.1 Discussion regarding the observed results

An important aspect of the observed results is the time period. This study measure over a five years time period, which can be concluded to shorten the time period of applicability of the results. In 2.5 the authors describe that acquisitions occur in waves, which could mean that the observed effects of diversity in relation to acquisitions can be applicable for a certain wave but not for another.

Another limitation of this study is the assumption that acquisitions are negative for the firm and the shareholders. Even though much research show that a large part of acquisitions fail (Sevenius, 2011; Schoenberg, 2006), the concept of failing can differ depending on the incentives of the firm. The mere best output for the firm might not be to achieve the best results or reach all goals, but instead to learn as much as possible. Some goals can also be very long-term and hard to derive correctly to the acquisition. The point is that the assumption of acquisitions as value destroying is only applicable to a pre set goal. Whereas this might not be the objectives of a firm, hence the assumption that acquisitions are value destroying might be of little importance. Some firms might do best to seek, over a longer time-scope, to maximize the learning curve. Hence no matter what the incentives of the acquisitions were, both a failure and success results in new insights and knowledge, i.e. an increase in the learning curve.

Furthermore, over a longer time-scope, the risks associated with acquisitions might decrease, as the long-term objectives of acquisitions might focus less on the financial return and more on intangible assets and knowledge. Hence the results of this study must be considered from both a short-term time-scope and a long-term time-scope.

What is noteworthy as well is that different shareholders have different preferences. Most shareholders can be considered risk-averse, but there are shareholders that also prefer risk due to the possibility of high returns it brings. These risk-seeking shareholders might prefer firms that engage in acquisitions, and to attract these investors a less diversified board might then be preferred.



The study only finds significance in one of the three diversity variables. Nevertheless, board diversity is affected by a lot more than only age diversity, for instance the study also find significance in the control variable board size. Board size and age diversity only explains a small part of acquisition attempts, and Ruigrok et al. (2007) conclude that educational background and independence are further diversity variables that affects firms strategic decisions. Thus, the authors note that a lot more diversity variables and control variables need to be included to achieve a higher degree of explanation for the dependent variable acquisition attempts.

## **8.2 Theoretical and practical contributions**

The study broadens the theoretical understanding of the impact of board diversity on firm strategic decisions. The study focuses on the Swedish context and thereby complements the existing literature on the field, since less research have been conducted for the Swedish context in this field of study.

The results of the study differ from much of the reviewed results of the similar research in 2.6 (e.g. Chen et al., 2014; Levi et al., 2014). Hence the study contributes in limiting the generalization of the results of the existing research on the field. The authors can conclude that the correlation of diversity and acquisition attempts is dependent on the national context and culture, which is a contribution to the existing understanding of this correlation.

An important contribution of the study is that this study observes statistical significance, on a 10% significance level, of a negative correlation between age diversity and number of acquisition attempts for Swedish Large Cap firms. This further broadens the existing literature on board diversity. It, furthermore, adds an interesting point of view for both firms' internal principle construction, as well as broadens the understanding for potential investors.

## **8.3 Further research**

The study only shows significance in one out of three variables. Hence the authors believe that it would be interesting to further investigate all the independent variables and their relationship with acquisition attempts in the Swedish context. One way to reach a higher significance could be to gather more data and make the study larger. However, due to the fact

the understanding and normative interpretation of diversity have changed in the recent times, where diversity is considered an important aspect in today's' context in higher occurrence than earlier (Dawson et al., 2014; European Commission, 2012), the authors do not consider a longer time period to be the most accurate field of study. Instead, the authors suggest to include Mid- and Small Cap firms in the Swedish context to further investigate the generalizability the results have to Swedish firms of variable size. Furthermore, the authors suggests including other national contexts to both examine the generalizability of similar national contexts, as well as to compare results of disparate national contexts.

As mentioned above, diversity can be defined in many different variables whereas age, nationality, and gender only serve as three of these. Other examples of diversity variables could be educational background, professional background, sexual orientation, personality and much more. To further investigate the relationship of diversity and acquisition attempts, the authors suggest including more diversity variables in further research.

Acquisitions serve as important firm-strategic decisions, as mentioned earlier, but not the only firm strategic decisions. To further broaden the understanding of the effects of diversity in the board composition, the authors suggest studying the relationship between board diversity and other firm-strategic decisions as well.

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## Appendix 1: Data

Firm	Acq attempts	Board size	% Women	% Foreign	# of gen	D/E (y-1)	Current ratio (y-1)
AAK AB	2	10	20%	30%	3	99%	2.4x
ABB Ltd	6	8	13%	75%	2	25%	1.4x
Alfa Laval AB	4	11	27%	0%	3	36%	1.4x
ASSA ABLOY AB	10	10	20%	10%	3	63%	.9x
AstraZeneca PLC	2	12	25%	83%	1	40%	1.5x
Atlas Copco AB	3	11	27%	18%	3	71%	1.9x
Atrium Ljungberg AB	0	6	17%	0%	2	104%	.3x
Autoliv Inc. SDB	0	9	11%	67%	2	20%	1.4x
Axfood AB	1	10	50%	10%	3	21%	.9x
Betsson AB	2	7	14%	0%	3	70%	1.3x
BillerudKorsnäs AB	1	12	25%	25%	3	17%	2.0x
Boliden AB	0	11	27%	9%	2	27%	1.6x
Castellum AB	0	7	29%	0%	1	162%	.3x
Electrolux AB	0	12	33%	42%	2	68%	1.1x
Elektro AB	2	8	25%	63%	2	23%	1.5x
Ericsson. Telefonab. L M	5	15	27%	33%	3	23%	2.0x
Fabege AB	0	8	25%	0%	3	147%	.1x
Fastighets AB Balder	0	5	20%	0%	3	174%	.4x
Fingerprint Cards AB	0	5	20%	0%	1	12%	8.9x
Gefinge AB	3	11	18%	0%	2	114%	1.7x
Hennes & Mauritz AB	1	10	50%	0%	3	37%	2.7x
Hexagon AB	4	7	29%	14%	2	74%	1.1x
HEXPOL AB	1	6	17%	0%	2	69%	1.9x
Holmen AB	0	12	17%	0%	3	31%	1.0x
Hufvudstaden AB	0	9	22%	0%	3	35%	.2x
Husqvarna AB	0	11	36%	9%	2	67%	2.2x
Industrivärden AB	0	7	14%	29%	2	43%	.1x
Indutrade AB	12	7	14%	0%	1	86%	1.3x
Intrum Justitia AB	1	7	29%	0%	1	114%	.8x
Investor AB	1	13	23%	31%	2	31%	2.4x
JM AB	0	9	33%	0%	3	19%	2.7x
Kindred Group Plc	2	6	0%	33%	2	5%	.8x
Kinnevik AB	1	7	29%	43%	2	11%	.9x
Klövern AB	1	5	60%	0%	2	202%	.2x
Kungsleden AB	0	7	43%	0%	2	153%	.9x
Latour. Investmentab	2	9	33%	0%	3	10%	1.3x
Loomis AB	2	6	33%	0%	1	79%	1.1x
Lundbergföretagen AB	0	8	38%	0%	3	28%	1.0x
Lundin Petroleum AB	0	7	14%	57%	2	19%	.7x
Melker Schörling AB	1	8	25%	13%	4	7%	1.4x
MTG AB	1	8	25%	75%	2	36%	1.2x
NCC AB	0	10	20%	10%	3	66%	1.6x
NetEnt AB	0	7	14%	0%	2	86%	1.3x
NIBE Industrier AB	3	6	17%	0%	2	105%	2.0x
Nobia AB	0	9	22%	33%	3	33%	1.1x
Peab AB	1	11	18%	0%	3	116%	1.3x
Ratos AB	0	7	29%	29%	1	94%	1.1x
SAAB AB	3	12	25%	0%	2	13%	1.3x
Sagax AB	0	7	14%	0%	2	313%	.7x
Sandvik AB	0	10	10%	30%	2	91%	1.7x
Securitas AB	8	11	45%	0%	2	142%	1.0x
Skanska AB	1	12	17%	25%	2	35%	1.1x
SKF. AB	1	12	25%	50%	3	61%	2.5x
SSAB AB	0	12	8%	17%	2	67%	2.1x
Stora Enso Oyj	2	8	13%	63%	1	73%	1.7x
SWECO AB	5	12	42%	8%	3	5%	1.3x

<i>Swedish Orphan Biovitrum</i>	0	9	33%	22%	3	14%	2.4x
<i>Svenska Cellulosa AB</i>	4	12	17%	8%	2	60%	1.5x
<i>Tele2 AB</i>	0	8	25%	50%	2	66%	.9x
<i>Telia Company AB</i>	6	11	27%	27%	1	65%	1.0x
<i>Tieto Oyj</i>	0	10	20%	60%	2	33%	1.1x
<i>Trelleborg AB</i>	1	12	33%	8%	2	57%	1.3x
<i>Wallenstam AB</i>	1	5	40%	0%	2	153%	.0x
<i>Wihlborgs Fastigheter AB</i>	0	8	38%	0%	3	195%	.6x
<i>Volvo. AB</i>	1	12	17%	42%	2	152%	1.1x
<i>ÅF AB</i>	4	11	27%	0%	3	3%	1.5x
<i>AAK AB</i>	1	11	18%	36%	3	100%	2.2x
<i>ABB Ltd</i>	9	8	13%	75%	2	14%	1.5x
<i>Alfa Laval AB</i>	1	11	27%	0%	3	11%	1.4x
<i>ASSA ABLOY AB</i>	6	10	20%	10%	3	53%	1.2x
<i>AstraZeneca PLC</i>	1	11	36%	91%	2	39%	1.5x
<i>Atlas Copco AB</i>	5	11	27%	18%	3	69%	2.5x
<i>Atrium Ljungberg AB</i>	0	7	14%	0%	2	100%	.3x
<i>Autoliv Inc. SDB</i>	0	10	10%	70%	2	25%	1.5x
<i>Axfood AB</i>	1	10	50%	10%	3	16%	.9x
<i>Betsson AB</i>	1	7	14%	0%	3	80%	1.5x
<i>BillerudKorsnäs AB</i>	1	11	27%	18%	3	20%	1.7x
<i>Boliden AB</i>	1	11	27%	9%	2	26%	1.4x
<i>Castellum AB</i>	0	6	33%	0%	1	148%	.2x
<i>Electrolux. AB</i>	4	12	42%	42%	2	59%	1.3x
<i>Elektro AB</i>	1	8	25%	63%	2	32%	1.3x
<i>Ericsson. Telefonab. L M</i>	1	15	20%	27%	3	21%	2.1x
<i>Fabege AB</i>	0	9	22%	0%	3	150%	.2x
<i>Fastighets AB Balder</i>	0	5	20%	0%	3	213%	.5x
<i>Fingerprint Cards AB</i>	0	5	20%	0%	1	11%	7.2x
<i>Getinge AB</i>	1	11	18%	0%	2	96%	1.8x
<i>Hennes &amp; Mauritz AB</i>	0	10	50%	0%	3	34%	3.0x
<i>Hexagon AB</i>	1	7	29%	14%	2	90%	1.5x
<i>HEXPOL AB</i>	1	6	17%	0%	2	195%	.9x
<i>Holmen AB</i>	0	12	17%	0%	3	36%	1.2x
<i>Hufvudstaden AB</i>	0	9	22%	0%	3	31%	.0x
<i>Husqvarna AB</i>	0	11	36%	18%	3	63%	2.3x
<i>Industrivärden. AB</i>	0	7	14%	29%	2	24%	.1x
<i>Indutrade AB</i>	7	7	14%	0%	1	83%	1.4x
<i>Intrum Justitia AB</i>	4	7	29%	0%	1	101%	1.1x
<i>Investor AB</i>	0	11	27%	27%	2	24%	3.5x
<i>JM AB</i>	1	9	33%	0%	3	26%	2.6x
<i>Kindred Group Plc</i>	1	6	0%	33%	2	5%	.8x
<i>Kinnevik AB</i>	0	9	22%	33%	2	13%	1.8x
<i>Klövern AB</i>	1	7	43%	0%	3	189%	.3x
<i>Kungsleden AB</i>	0	8	38%	0%	2	200%	1.3x
<i>Latour. Investmentab</i>	2	9	33%	0%	3	6%	1.5x
<i>Loomis AB</i>	4	6	33%	0%	1	56%	.6x
<i>Lundbergföretagen AB</i>	0	8	38%	0%	3	29%	.9x
<i>Lundin Petroleum AB</i>	0	8	25%	63%	3	47%	1.5x
<i>Melker Schörling AB</i>	0	7	29%	0%	4	15%	7.0x
<i>MTG AB</i>	0	8	25%	75%	2	44%	1.2x
<i>NCC AB</i>	0	9	22%	11%	3	52%	1.6x
<i>NetEnt AB</i>	0	6	0%	0%	2	54%	1.6x
<i>NIBE Industrier AB</i>	3	6	17%	0%	2	44%	2.0x
<i>Nobia AB</i>	0	10	30%	30%	3	37%	1.1x
<i>Peab AB</i>	4	11	18%	0%	3	92%	1.3x
<i>Ratos AB</i>	0	8	25%	25%	2	84%	1.2x
<i>SAAB AB</i>	3	12	25%	0%	2	16%	1.2x
<i>Sagax AB</i>	0	7	14%	0%	2	266%	1.0x
<i>Sandvik AB</i>	1	10	10%	30%	3	81%	1.8x

<i>Securitas AB</i>	19	11	45%	0%	2	124%	1.0x
<i>Skanska AB</i>	0	12	17%	25%	2	18%	1.2x
<i>SKF. AB</i>	0	12	25%	50%	2	61%	2.1x
<i>SSAB AB</i>	1	12	8%	17%	3	66%	2.3x
<i>Stora Enso Oyj</i>	0	7	14%	57%	1	64%	1.7x
<i>SWECO AB</i>	12	11	45%	9%	3	9%	1.4x
<i>Swedish Orphan Biovitrum</i>	0	8	38%	13%	3	27%	2.1x
<i>Svenska Cellulosa AB</i>	4	11	9%	9%	2	54%	.9x
<i>Tele2 AB</i>	1	8	25%	50%	2	9%	.9x
<i>Telia Company AB</i>	1	11	27%	18%	1	49%	1.2x
<i>Tieto Oyj</i>	0	9	11%	56%	1	28%	1.2x
<i>Trelleborg AB</i>	1	12	33%	8%	2	62%	1.1x
<i>Wallenstam AB</i>	0	5	40%	0%	2	139%	.1x
<i>Wihlborgs Fastigheter AB</i>	0	8	38%	0%	3	192%	.1x
<i>Volvo. AB</i>	5	12	17%	50%	2	167%	1.2x
<i>ÅF AB</i>	1	10	30%	0%	3	10%	1.4x
<i>AAK AB</i>	1	8	50%	13%	4	76%	2.1x
<i>ABB Ltd</i>	5	8	13%	75%	2	58%	1.5x
<i>Alfa Laval AB</i>	2	12	25%	0%	3	43%	1.5x
<i>ASSA ABLOY AB</i>	8	10	20%	0%	3	56%	1.0x
<i>AstraZeneca PLC</i>	3	12	25%	83%	1	43%	1.4x
<i>Atlas Copco AB</i>	6	12	25%	17%	3	62%	2.4x
<i>Atrium Ljungberg AB</i>	0	6	17%	0%	2	117%	.2x
<i>Autoliv Inc. SDB</i>	0	9	11%	67%	2	17%	1.8x
<i>Axfood AB</i>	0	10	50%	10%	3	13%	.9x
<i>Betsson AB</i>	1	6	17%	0%	2	22%	1.2x
<i>BillerudKorsnäs AB</i>	3	12	25%	25%	3	86%	1.1x
<i>Boliden AB</i>	0	11	27%	0%	2	27%	1.5x
<i>Castellum AB</i>	0	7	43%	0%	1	167%	.3x
<i>Electrolux. AB</i>	0	13	31%	38%	2	83%	1.1x
<i>Elektro AB</i>	0	8	25%	63%	2	90%	1.6x
<i>Ericsson. Telefonab. L M</i>	5	15	33%	33%	3	22%	2.0x
<i>Fabege AB</i>	1	8	25%	0%	3	166%	.1x
<i>Fastighets AB Balder</i>	2	5	20%	0%	3	177%	.3x
<i>Fingerprint Cards AB</i>	0	5	0%	0%	2	1%	6.4x
<i>Getinge AB</i>	0	11	18%	0%	2	115%	1.3x
<i>Hennes &amp; Mauritz AB</i>	0	10	50%	0%	3	37%	2.7x
<i>Hexagon AB</i>	6	6	50%	17%	2	62%	1.4x
<i>HEXPOL AB</i>	0	6	17%	0%	2	62%	.8x
<i>Holmen AB</i>	0	11	18%	0%	3	32%	.8x
<i>Hufvudstaden AB</i>	0	9	22%	0%	3	34%	.2x
<i>Husqvarna AB</i>	0	10	50%	10%	2	76%	2.0x
<i>Industrivärden. AB</i>	0	7	14%	29%	2	38%	.1x
<i>Indutrade AB</i>	5	8	13%	0%	1	106%	1.2x
<i>Intrum Justitia AB</i>	0	8	25%	0%	1	117%	.7x
<i>Investor AB</i>	0	13	23%	31%	2	27%	3.6x
<i>JM AB</i>	0	10	30%	0%	2	20%	2.5x
<i>Kindred Group Plc</i>	1	6	0%	33%	2	8%	.8x
<i>Kinnevik AB</i>	0	8	25%	50%	2	6%	.5x
<i>Klövern AB</i>	0	5	60%	0%	2	234%	.3x
<i>Kungsleden AB</i>	0	8	38%	0%	3	140%	2.5x
<i>Latour. Investmentab.</i>	1	9	33%	0%	3	15%	1.0x
<i>Loomis AB</i>	0	5	40%	0%	1	73%	1.1x
<i>Lundbergföretagen AB.</i>	0	8	38%	0%	3	27%	.7x
<i>Lundin Petroleum AB</i>	0	8	25%	38%	2	31%	.8x
<i>Melker Schörling AB</i>	0	8	25%	13%	4	7%	.0x
<i>MTG AB</i>	0	7	29%	86%	2	20%	1.2x
<i>NCC AB</i>	0	10	20%	10%	3	121%	1.7x
<i>NetEnt AB</i>	0	7	14%	0%	2	91%	1.3x
<i>NIBE Industrier AB</i>	2	6	17%	0%	2	89%	2.2x

Nobia AB	0	8	38%	25%	3	40%	1.0x
Peab AB	1	11	18%	0%	3	109%	1.4x
Ratos AB	0	7	29%	29%	1	79%	1.2x
SAAB AB	1	12	33%	0%	2	16%	1.4x
Sagax AB	1	7	14%	0%	2	241%	.8x
Sandvik AB	2	10	10%	30%	2	126%	2.3x
Securitas AB	7	11	45%	0%	2	175%	1.0x
Skanska AB	1	13	15%	23%	2	57%	1.2x
SKF. AB	2	12	25%	50%	3	70%	2.5x
SSAB AB	3	12	8%	17%	2	68%	2.6x
Stora Enso Oyj	2	10	30%	70%	1	88%	2.1x
SWECO AB	7	11	45%	9%	3	46%	1.3x
Swedish Orphan Biovitrum	0	9	33%	22%	3	12%	3.2x
Svenska Cellulosa AB	0	12	17%	8%	3	55%	1.0x
Tele2 AB	0	8	25%	63%	2	83%	.8x
Telia Company AB	1	11	36%	18%	2	84%	1.6x
Tieto Oyj	1	10	30%	60%	2	23%	1.0x
Trelleborg AB	3	12	33%	8%	2	53%	1.3x
Wallenstam AB	0	5	40%	0%	2	139%	.0x
Wihlborgs Fastigheter AB	1	8	38%	0%	3	201%	.3x
Volvo. AB	2	12	17%	42%	2	171%	1.1x
ÅF AB	4	11	36%	0%	3	37%	1.2x
AAK AB	3	8	50%	13%	4	56%	1.9x
ABB Ltd	1	8	13%	75%	2	42%	1.6x
Alfa Laval AB	1	12	25%	0%	3	30%	1.4x
ASSA ABLOY AB	10	10	20%	0%	3	63%	1.0x
AstraZeneca PLC	1	13	31%	85%	1	45%	1.3x
Atlas Copco AB	3	11	27%	18%	2	64%	2.4x
Atrium Ljungberg AB	1	7	14%	0%	2	113%	.6x
Autoliv Inc. SDB	0	9	22%	89%	3	16%	1.5x
Axfood AB	1	10	60%	10%	3	3%	1.0x
Betsson AB	1	6	17%	0%	2	16%	.9x
BillerudKorsnäs AB	0	11	27%	18%	3	82%	1.1x
Boliden AB	2	11	27%	0%	3	36%	1.2x
Castellum AB	0	7	43%	0%	1	154%	.3x
Electrolux. AB	2	12	33%	33%	2	104%	1.1x
Elektro AB	1	8	25%	63%	2	82%	1.6x
Ericsson. Telefonab. L M	6	15	33%	33%	3	22%	2.1x
Fabege AB	0	7	29%	0%	3	155%	.1x
Fastighets AB Balder	0	5	20%	0%	3	152%	.5x
Fingerprint Cards AB	1	5	0%	0%	2	0%	6.4x
Getinge AB	1	12	33%	0%	2	104%	1.4x
Hennes & Mauritz AB	0	10	50%	0%	2	45%	2.3x
Hexagon AB	8	6	50%	17%	2	56%	.9x
HEXPOL AB	4	7	29%	0%	3	27%	1.7x
Holmen AB	0	11	18%	0%	3	30%	.9x
Hufvudstaden AB	0	9	22%	0%	3	38%	.3x
Husqvarna AB	0	11	45%	18%	2	64%	2.2x
Industrivärden. AB	0	9	33%	22%	2	30%	.1x
Indutrade AB	12	8	13%	0%	1	92%	1.9x
Intrum Justitia AB	2	8	25%	0%	1	137%	.8x
Investor AB	0	13	23%	31%	2	20%	3.7x
JM AB	0	10	30%	0%	2	23%	2.6x
Kindred Group Plc	1	7	14%	43%	2	48%	1.0x
Kinnevik AB	0	7	29%	43%	2	2%	5.5x
Klövern AB	0	5	60%	0%	2	227%	.1x
Kungsleden AB	0	7	57%	0%	2	161%	.3x
Latour. Investmentab.	2	9	33%	0%	3	18%	.9x
Loomis AB	1	6	33%	0%	1	54%	.9x
Lundbergföretagen AB	0	8	38%	0%	3	26%	.8x

Lundin Petroleum AB	0	8	25%	38%	2	98%	.7x
Melker Schörling AB	0	8	25%	13%	4	5%	.0x
MTG AB	2	7	29%	86%	2	35%	1.2x
NCC AB	1	10	30%	10%	3	110%	1.6x
NetEnt AB	0	7	14%	0%	2	40%	1.9x
NIBE Industrier AB	3	6	17%	0%	2	79%	2.8x
Nobia AB	1	10	30%	20%	3	26%	1.1x
Peab AB	1	10	20%	10%	3	112%	1.2x
Ratos AB	0	7	29%	14%	1	78%	1.0x
SAAB AB	1	12	33%	0%	2	15%	1.5x
Sagax AB	0	7	14%	0%	2	196%	.4x
Sandvik AB	1	9	11%	33%	2	90%	1.7x
Securitas AB	2	11	45%	0%	2	148%	1.2x
Skanska AB	0	13	15%	31%	2	50%	1.3x
SKF. AB	1	13	23%	46%	3	101%	2.1x
SSAB AB	1	12	17%	25%	3	69%	1.9x
Stora Enso Oyj	1	9	33%	67%	2	104%	1.7x
SWECO AB	4	10	50%	10%	3	101%	1.2x
Swedish Orphan Biovitrum	0	10	40%	30%	3	17%	2.7x
Svenska Cellulosa AB	0	12	17%	8%	3	57%	1.0x
Tele2 AB	1	8	38%	63%	2	41%	.9x
Telia Company AB	2	11	36%	18%	2	80%	1.6x
Tieto Oyj	2	10	20%	60%	2	27%	1.3x
Trelleborg AB	2	12	17%	8%	2	46%	1.4x
Wallenstam AB	0	5	40%	0%	2	132%	.1x
Wihlborgs Fastigheter AB	0	7	43%	0%	3	203%	.1x
Volvo. AB	2	12	17%	42%	1	175%	1.1x
ÅF AB ser	3	10	30%	0%	2	28%	1.2x
AAK AB	2	8	50%	25%	3	46%	2.0x
ABB Ltd	2	8	13%	88%	1	46%	1.6x
Alfa Laval AB	1	13	31%	8%	3	105%	1.3x
ASSA ABLOY AB	11	10	20%	0%	2	56%	1.1x
AstraZeneca PLC	2	12	33%	83%	1	55%	1.0x
Atlas Copco AB	7	11	27%	18%	2	48%	2.1x
Atrium Ljungberg AB	0	6	33%	0%	2	114%	.2x
Autoliv Inc. SDB	3	11	18%	82%	3	47%	1.9x
Axfood AB	0	10	60%	10%	3	3%	1.1x
Betsson AB	1	6	17%	0%	2	17%	1.1x
BillerudKorsnäs AB	0	12	33%	33%	3	66%	1.1x
Boliden AB	0	11	36%	0%	2	32%	1.3x
Castellum AB	0	7	43%	0%	2	145%	.5x
Com Hem Holding AB	1	8	38%	25%	2	130%	.7x
Electrolux. AB	2	11	36%	27%	2	89%	1.0x
Elektro AB	2	9	33%	44%	2	72%	1.5x
Ericsson. Telefonab. L M	5	14	36%	36%	3	18%	2.0x
Fabege AB	0	7	29%	0%	3	149%	.2x
Fastighets AB Balder	1	5	20%	0%	3	165%	.5x
Fingerprint Cards AB	0	6	17%	0%	2	0%	2.7x
Getinge AB	1	12	33%	0%	2	111%	1.1x
Hemfosa Fastigheter AB	0	7	43%	0%	2	177%	.7x
Hennes & Mauritz AB	0	10	50%	0%	2	47%	2.1x
Hexagon AB	3	6	50%	17%	2	59%	1.1x
HEXPOL AB	0	7	29%	0%	3	11%	1.4x
Holmen AB	0	12	25%	0%	3	28%	.9x
Hufvudstaden AB	0	9	22%	0%	3	34%	.4x
Husqvarna AB	1	10	50%	20%	2	62%	1.8x
Industrivärden. AB	0	7	29%	14%	1	23%	.2x
Indutrade AB	11	8	25%	0%	2	83%	1.2x
Intrum Justitia AB	2	8	38%	13%	2	190%	.7x
Investor AB	0	11	36%	27%	2	20%	4.0x

<i>JM AB</i>	0	10	30%	0%	1	46%	2.5x
<i>Kindred Group Plc</i>	2	8	25%	38%	2	42%	1.1x
<i>Kinnevik AB</i>	0	7	29%	43%	2	2%	4.1x
<i>Klövern AB</i>	0	5	60%	0%	2	196%	.1x
<i>Kungsleden AB</i>	0	7	57%	0%	2	137%	.9x
<i>Latour. Investmentab.</i>	2	8	25%	0%	3	29%	.7x
<i>Lifco AB</i>	6	11	18%	0%	2	75%	1.7x
<i>Loomis AB</i>	0	8	25%	0%	2	84%	1.0x
<i>Lundbergföretagen AB</i>	0	8	38%	0%	3	25%	.8x
<i>Lundin Petroleum AB</i>	0	8	38%	38%	2	570%	1.0x
<i>Melker Schörling AB</i>	0	8	25%	13%	4	3%	.0x
<i>MTG AB</i>	2	6	17%	83%	2	18%	1.2x
<i>NCC AB</i>	0	10	30%	10%	3	107%	1.7x
<i>NetEnt AB</i>	0	8	25%	0%	2	47%	2.1x
<i>NIBE Industrier AB</i>	1	6	33%	0%	1	115%	2.8x
<i>Nobia AB</i>	1	11	36%	18%	3	26%	1.3x
<i>Peab AB</i>	1	10	20%	10%	3	87%	1.2x
<i>Ratos AB</i>	0	7	29%	29%	1	60%	1.3x
<i>SAAB AB</i>	0	12	33%	0%	2	21%	1.5x
<i>Sagax AB</i>	0	7	14%	0%	2	199%	.3x
<i>Sandvik AB</i>	0	9	22%	33%	2	101%	2.1x
<i>Securitas AB</i>	1	11	45%	0%	2	128%	1.2x
<i>Skanska AB</i>	0	11	27%	27%	1	50%	1.3x
<i>SKF. AB</i>	0	13	23%	46%	3	107%	2.4x
<i>SSAB AB</i>	1	11	18%	27%	2	68%	1.5x
<i>Stora Enso Oyj</i>	0	8	25%	63%	2	94%	1.4x
<i>SWECO AB</i>	2	11	45%	9%	3	76%	1.2x
<i>Swedish Orphan Biovitrum</i>	0	10	40%	30%	3	18%	2.6x
<i>Svenska Cellulosa AB</i>	0	10	30%	10%	2	54%	.9x
<i>Tele2 AB</i>	2	6	33%	83%	2	37%	.9x
<i>Telia Company AB</i>	2	11	36%	18%	2	87%	1.6x
<i>Thule Group AB</i>	0	7	29%	0%	2	90%	1.4x
<i>Tieto Oyj</i>	5	10	20%	50%	2	24%	1.4x
<i>Trelleborg AB</i>	1	13	23%	15%	2	49%	1.1x
<i>Wallenstam AB</i>	0	5	40%	0%	2	125%	.1x
<i>Wihlborgs Fastigheter AB</i>	0	7	43%	0%	3	220%	.3x
<i>Volvo. AB</i>	4	12	25%	50%	1	186%	1.2x
<i>ÅF AB</i>	7	10	30%	0%	2	24%	1.2x

Table 17. Data.

## Appendix 2: Histogram

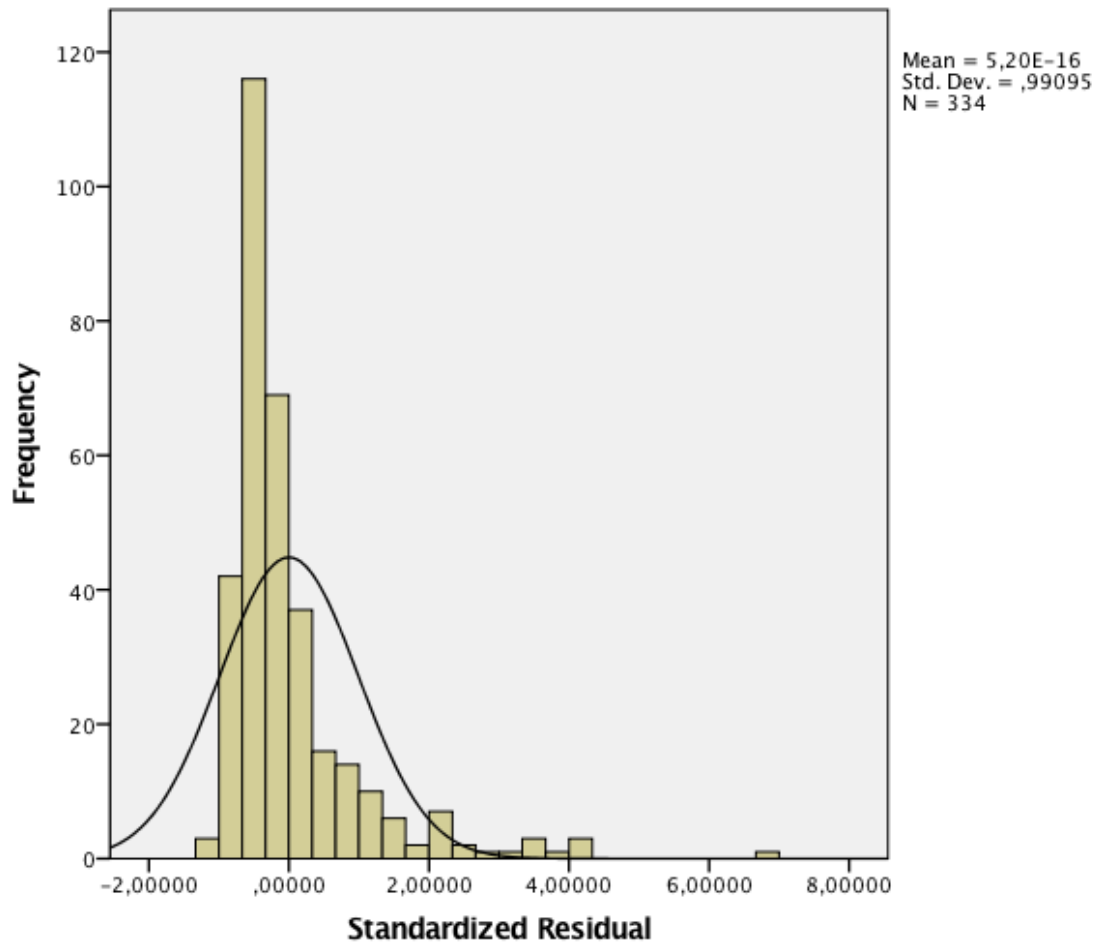


Figure 11. Histogram 1: Standardized Residuals.

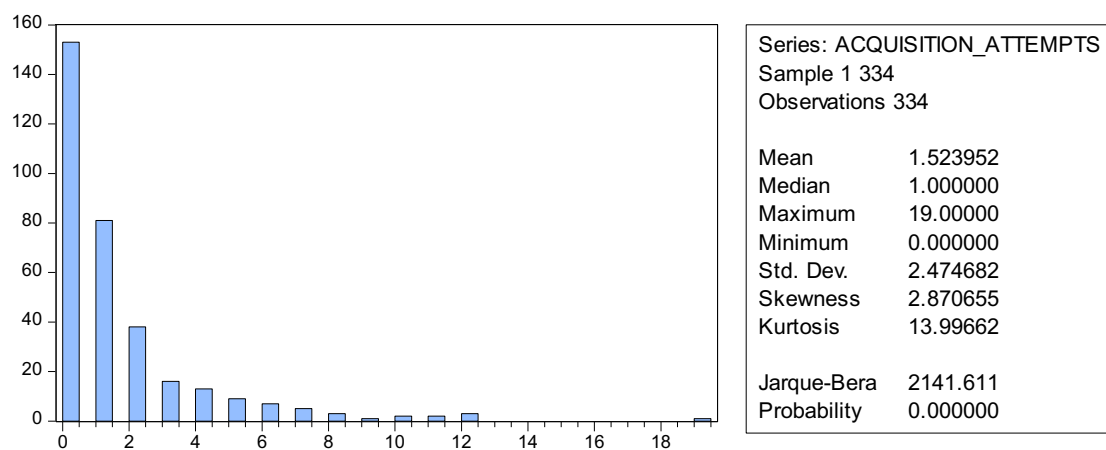


Figure 12. Histogram 2: Acquisition attempts.



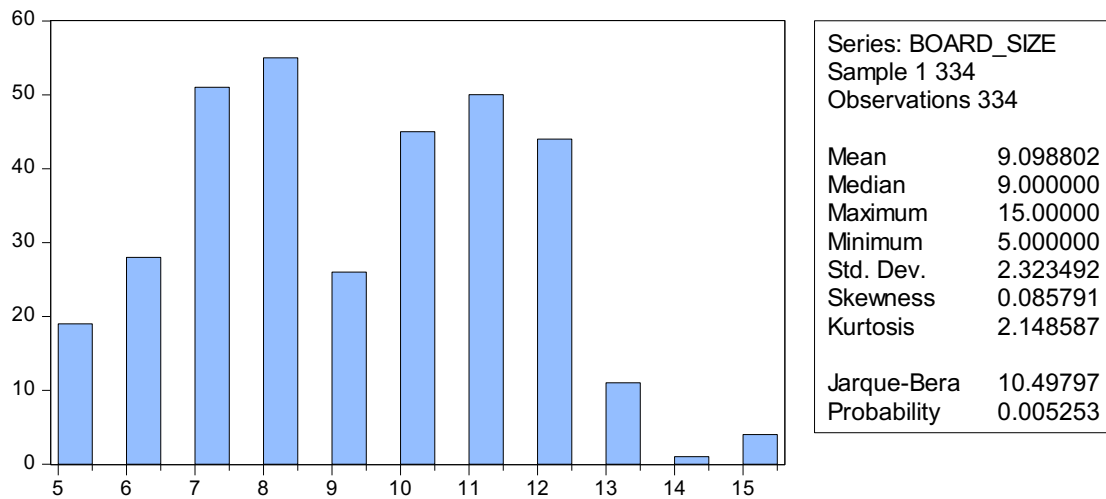


Figure 13. Histogram 3: Board size.

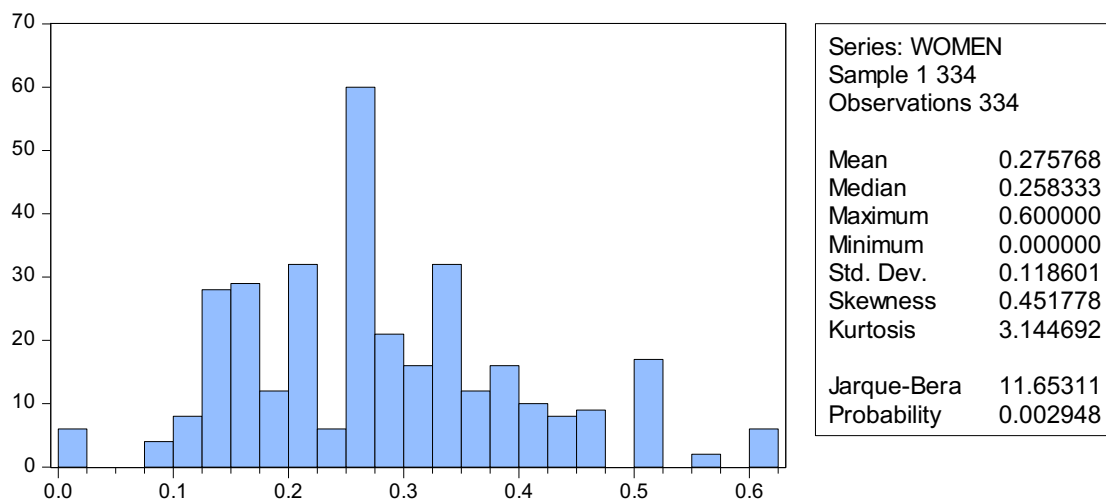


Figure 14. Histogram 4: Gender.

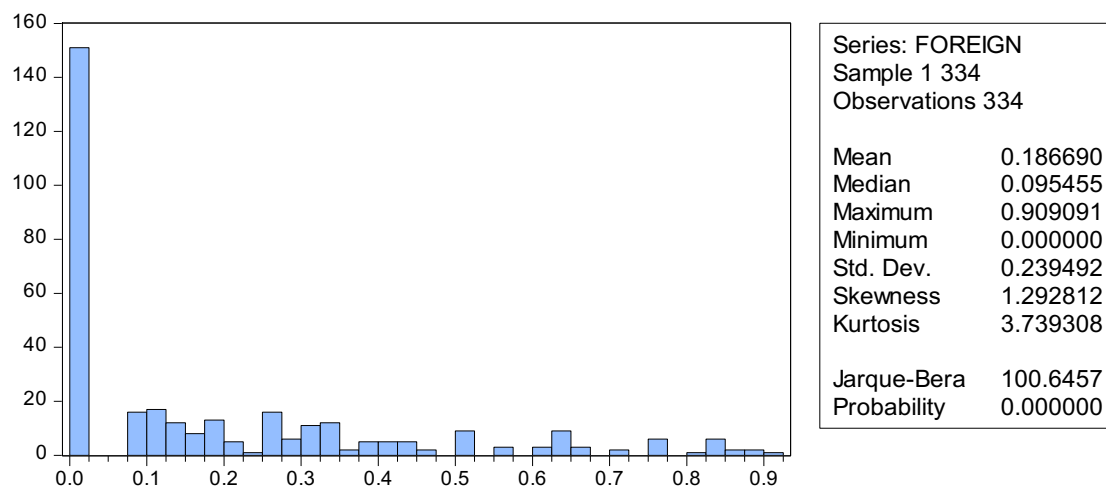
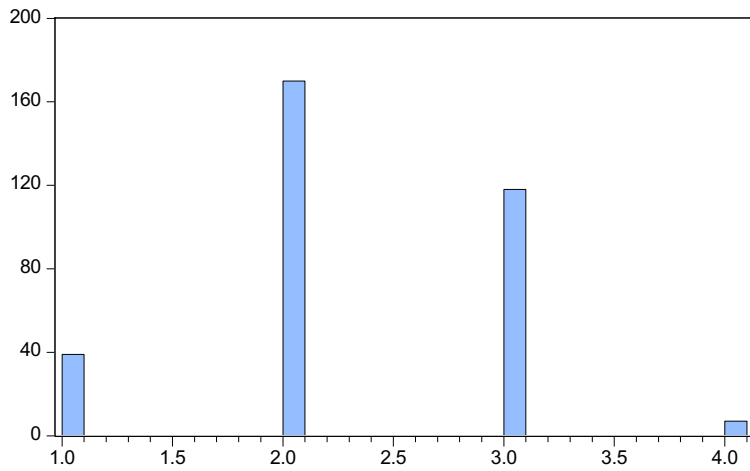


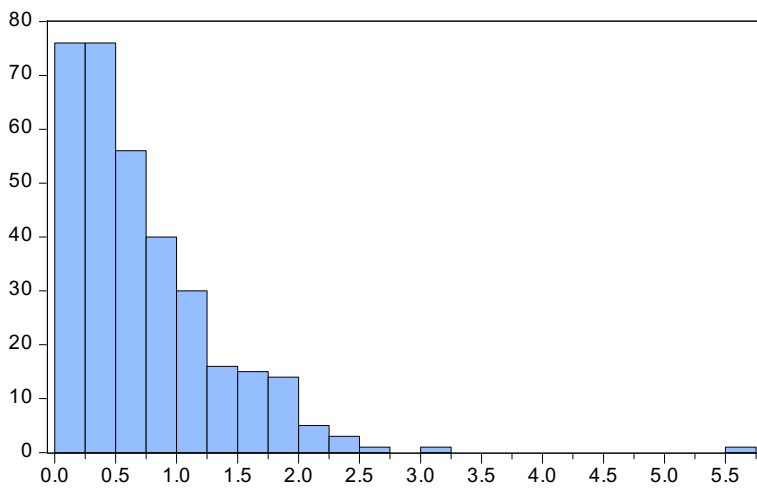
Figure 15. Histogram 5: Nationality.



Series: AGE_GENERATIONS	
Sample 1 334	
Observations 334	
Mean	2.278443
Median	2.000000
Maximum	4.000000
Minimum	1.000000
Std. Dev.	0.691225
Skewness	-0.046582
Kurtosis	2.621361
Jarque-Bera	2.115991
Probability	0.347151

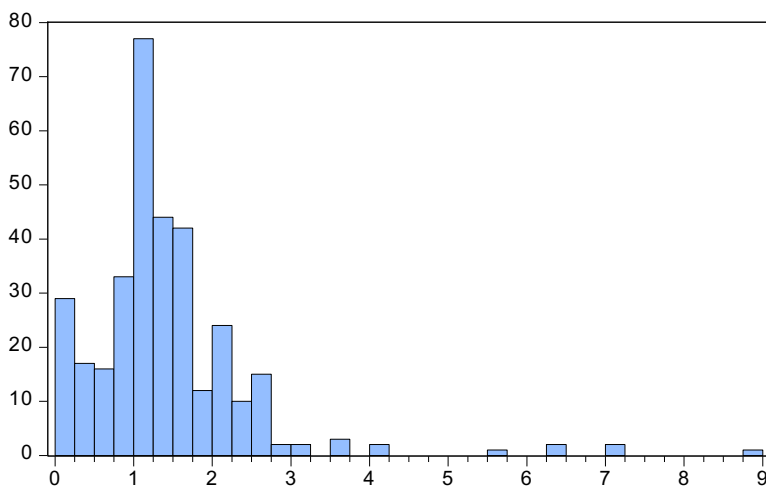
Figure 16. Histogram 6: Age.

Histogram 7: Debt-to-equity



Series: DEBT_TO_EQUITY	
Sample 1 334	
Observations 334	
Mean	0.724694
Median	0.569000
Maximum	5.699000
Minimum	0.002000
Std. Dev.	0.627003
Skewness	2.302793
Kurtosis	14.57167
Jarque-Bera	2158.683
Probability	0.000000

Figure 17. Histogram 7: Debt-to-equity.



Series: CURRENT_RATIO	
Sample 1 334	
Observations 334	
Mean	1.392844
Median	1.200000
Maximum	8.900000
Minimum	0.000000
Std. Dev.	1.049793
Skewness	2.988192
Kurtosis	17.85351
Jarque-Bera	3567.451
Probability	0.000000

Figure 18. Histogram 8: Current ratio.

## Appendix 3: White's & BPG

Heteroskedasticity Test: White

F-statistic	1.265596	Prob. F(5,328)	0.2784
Obs*R-squared	6.321774	Prob. Chi-Square(5)	0.2762
Scaled explained SS	40.59998	Prob. Chi-Square(5)	0.0000

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 04/12/17 Time: 15:31

Sample: 1 334

Included observations: 334

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.877185	21.95299	-0.222165	0.8243
AGE_GENERATIONS^2	0.026683	1.921483	0.013886	0.9889
AGE_GENERATIONS*BOARD_SIZE	0.898397	0.808267	1.111510	0.2672
AGE_GENERATIONS	-10.76704	11.18308	-0.962797	0.3364
BOARD_SIZE^2	-0.351067	0.211030	-1.663585	0.0972
BOARD_SIZE	5.181705	3.849504	1.346071	0.1792
R-squared	0.018927	Mean dependent var		5.855626
Adjusted R-squared	0.003972	S.D. dependent var		21.20808
S.E. of regression	21.16592	Akaike info criterion		8.960462
Sum squared resid	146942.7	Schwarz criterion		9.028926
Log likelihood	-1490.397	Hannan-Quinn criter.		8.987760
F-statistic	1.265596	Durbin-Watson stat		2.104914
Prob(F-statistic)	0.278448			

Table 18. Heteroskedasticity Test: White.

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.536434	Prob. F(2,331)	0.2167
Obs*R-squared	3.072197	Prob. Chi-Square(2)	0.2152
Scaled explained SS	19.73041	Prob. Chi-Square(2)	0.0001

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 04/12/17 Time: 15:30

Sample: 1 334

Included observations: 334

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.802818	5.542487	0.866546	0.3868
AGE_GENERATIONS	-2.323475	1.715199	-1.354639	0.1765
BOARD_SIZE	0.697533	0.510261	1.367011	0.1725
R-squared	0.009198	Mean dependent var		5.855626
Adjusted R-squared	0.003211	S.D. dependent var		21.20808
S.E. of regression	21.17400	Akaike info criterion		8.952367
Sum squared resid	148400.0	Schwarz criterion		8.986598
Log likelihood	-1492.045	Hannan-Quinn criter.		8.966015
F-statistic	1.536434	Durbin-Watson stat		2.100970
Prob(F-statistic)	0.216677			

*Table 19. Heteroskedasticity Test: Breusch-Pagan-Godfrey.*