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The Norwegian gender quota on boards of directors and its effects on gender stereotypes towards women in the boardroom

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Abstract

This study attempts to assess the effects of the Norwegian gender quota on corporate boards on changing gender stereotypes towards women as leaders in the boardroom. With support from theoretical explanations, it is postulated that gender quotas on boards aim to increase the numbers of women in these roles, allowing women to bypass gender discrimination in the access to such positions. It is further assumed that the increased share of women on boards can create spill overs and contribute to changing people's perceptions concerning women's ability to be leaders. Hence, by asking *to what extent do gender quotas contribute to changing gender stereotypes towards women as leaders in the boardroom*, this study proposes to examine whether gender balance on boards contributes to lessening gender stereotypes.

To study this phenomenon, a survey research is conducted among board directors in Norwegian companies to compare the perceptions of board directors in companies subjected to the quota legislation and board directors in companies not subjected to the legislation. The survey is designed as a cross-sectional study and analysed through quantitative data analysis methods.

The survey research is designed with support from previous empirical studies that investigated the *Think Manager – Think Male* syndrome, theorised and studied by Virginia Schein (1973; 1975) and replicated by various studies over the last three decades. Further theoretical support is gathered from Heilman's (1997, 2001) *lack of fit* model, Eagly and Karau's (2002) *role congruity theory of prejudice*, Kanter's (1993) work on women in organizations, and models on how stereotypes change (Weber and Crocker, 1983; Schneider, 2004).

The study concludes that board directors in Norwegian companies do not gender stereotype leadership in the boardroom, and that there is no statistical significant difference between the perceptions of board directors from the two company categories. However, the study is unable to provide warranted inferences to whether the introduction of the gender quotas can explain this phenomenon. Despite this limitation, it is argued that the effects of gender quotas (and the gender balance on boards that the law engendered) on lessening gender role stereotypes towards women in leadership cannot be excluded.

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COO	Cooperative
EC	European Commission

ECODA	The European Confederation of Directors Associations
EU	European Union
FBD	Female board director
ICC	Intraclass Correlation Coefficient
LTD	Private Limited Company
MBD	Male board director
NQC	Non quota-subjected company
PLC	Public Limited Company
POC	Publicly Owned Company
SBD	Successful board directors
TMTM	Think Manager – Think Male
QC	Quota-subjected Company

1. Introduction

This introductory chapter touches upon the main issues of this study. It introduces the current status of women in economic decision-making in the EU and presents recent policy developments (1.1). Then, it introduces the aim of the study by reflecting on theoretical explanations to the issue of women's underrepresentation in management and leadership positions; raising a relevant research question and proposing a way of evaluating the effects of affirmative action or more specifically gender quotas on corporate boards (1.2). Next, it is discussed how the proposed research question can be investigated (1.3), why it is social and academically relevant (1.4), and lastly how the study is divided and presented.

1.1 Women in economic decision-making and policy

Gender inequality in employment is the product of an extremely sex segregated labour market in terms of occupations (sectoral, vertical and horizontal), which, in turn, is deeply rooted in the traditional division of paid work and unpaid care work (Heilman, 1997; Bettio *et al.*, 2009). In attempts to achieve gender equality, legislations and policies adopted in many countries have over the last decades contributed to some progress in terms of increased labour market participation and educational attainment for women, in order to reach more balanced representation of men and women in political and economic decision-making positions. In spite of that, women are still outnumbered by men in roles that hold prestige, status and high remuneration, especially in powerful and influential top-level management positions (Heilman and Caleo, 2015). In the EU, women only account for 23.3% of corporate directors, 7% of board-chairs and 5.1% CEOs (EC, 2016).

In many countries, policy-makers have responded to the issue of gender imbalance in management by introducing affirmative action such as compulsory or voluntary gender quotas on non-executive boards of *publicly owned companies* (hereafter POCs) and *public limited liability companies* (hereafter PLCs). Through compulsory quotas, governments set out a minimum representation requirement for the underrepresented group, and attach different penalties for non-compliance, or none. When applying voluntary targets, on the other hand, governments either merely recommend that companies achieve a pre-determined level of representation, or specifically require companies to establish own targets. There are seldom any penalties for non-compliance attached to voluntary quotas/targets, although companies often are required to comply-or-explain the (lack of) accomplishment.

Advocates often claim that affirmative action on boards breaks down structural barriers and create endogenous instruments, thereby sustaining the recruitment of women beyond the focus on specific

numbers (Gabaldon *et al.*, 2016). According to Dhir (2015), the focus on boards of directors comes from a belief that boards play an important role in the corporate governance culture. As the role of the board is to manage business affairs and supervise management, it is seen to be a potential site of change. This is because diversity on boards can trigger diversity elsewhere in the corporate hierarchy. The focus on women on corporate boards is supposedly seen as a part of a broader strategy to increase gender balance in all levels of corporations.

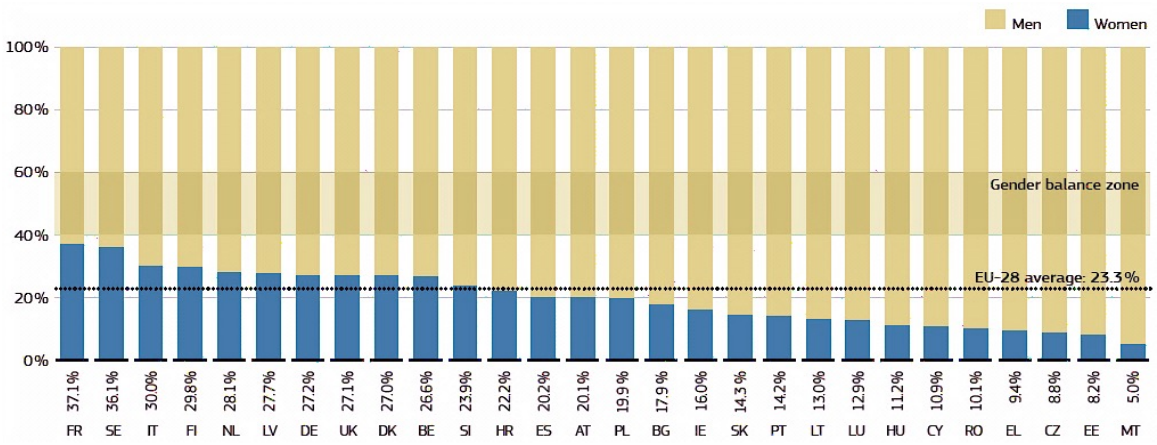
In Norway, a gender quota legislation was passed in 2003 defining a minimum of 40% representation of each sex on boards of directors. First, companies were given until 2005 to voluntarily increase the share of women on their boards. As this did not happen, a law came into force in 2005. This was a unique and historical development since such a quota had never been introduced in any country before. For POCs, the law was effective already from 2004, while PLCs were given until 2008 to comply with the legal requirement. In 2009, *cooperative companies* (hereafter COOs) were also covered by the legislation (Teigen, 2012). As a direct result of the law, the share of female directors in PLCs increased from 4% in 2002 to 40% in 2008. In *privately limited companies* (hereafter LTDs), which are not subjected to the quota legislation, the share of women only increased from 10% in 2002 to 17% in 2008 (Teigen, 2015a). According to Storvik and Teigen (2010), the Norwegian experience shows that "no sanctions, no success" (p. 3), referring to the fact that companies did not comply with the 40% requirement before the threat of penalties was a reality, which in Norway can be as serious as the dissolution of non-complying companies.

The Norwegian initiative created a snowball effect in other countries (Machold *et al.*, 2013). For instance, in 2010 the European Commission (hereafter EC) put the issue of women in leadership positions on the political agenda by first calling companies to self-regulate towards more gender balance. By late 2012, the EC put forward a directive (COM 2012 614) proposing a quantitative objective of 40% of women on EU´s largest PLC boards by 2020 (EC, 2016). Although the directive has never been passed and still waits to be discussed in the Council of Ministers, the threat of regulation from EU level has led several member states to adopt relevant measures (Doldor and Vinnicombe, 2015, Reding, 2013). While governments in countries such as Spain, France, Italy, Belgium, the Netherlands, and Germany have adopted quota laws with sanctions ranging from none to financial fines, in Denmark and Sweden governments opted for self-regulation and voluntary targets.

As a result of this increased attention, the number of women on boards of directors in the EU increased from 11.4% in 2010 to 23.3% in 2016. Notwithstanding, progress seems to be concentrated in a few member states. Especially member states that have adopted regulatory measures experienced significant increase from 2010 to 2016: Italy (+25.5 %), France (+24.8 %), Belgium (+16.1 %), Germany (+14.6 %), and the Netherlands (+13.2 %). See Figure 1 for the

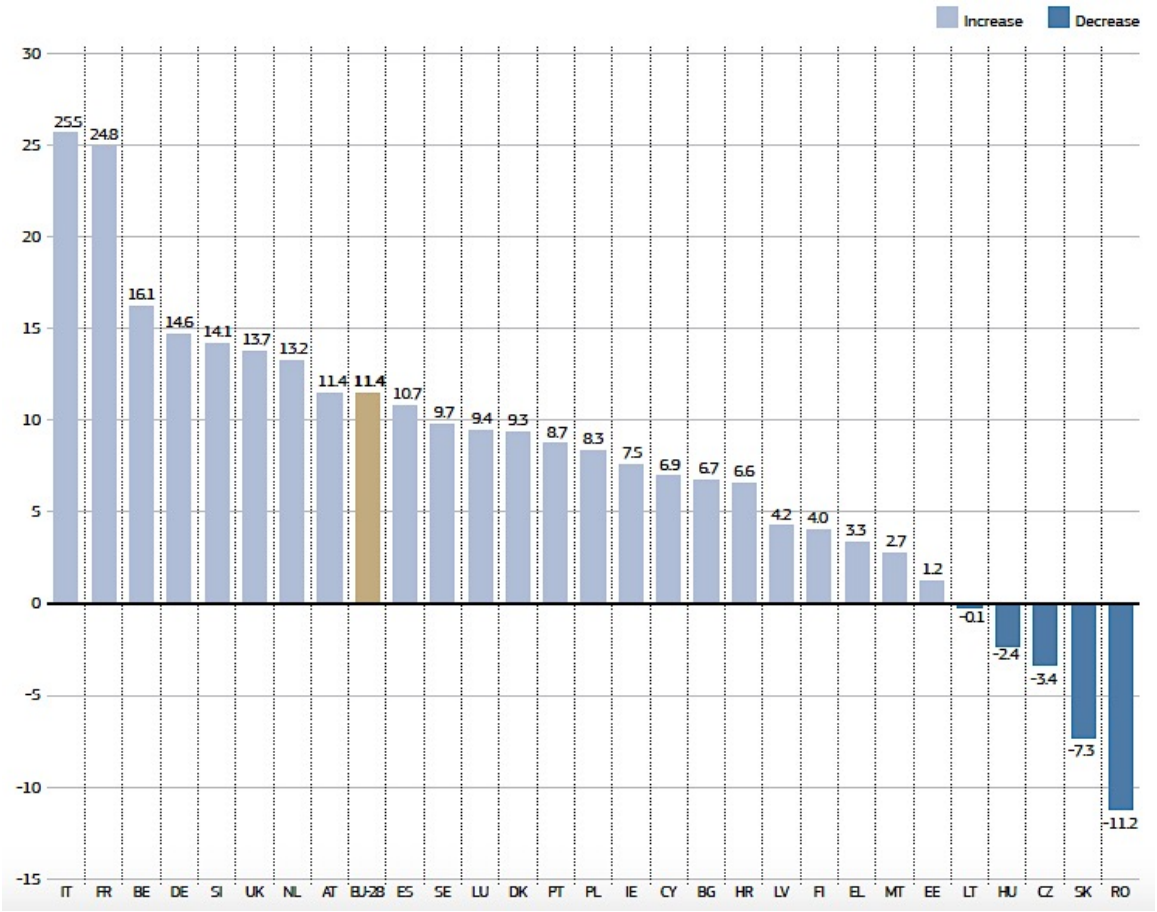
current status of gender balance on corporate boards in the EU and Figure 2 for an overview of increase in the share of women from 2010-2016.

Figure 1: The share of men and women on the boards of large public limited companies in the EU, April 2016



Source: European commission, 2016

Figure 2: Change in the share of women on boards of largest listed companies, EU-28, October 2010 – April 2016



Source: European commission, 2016

Regulating gender balance on boards seems to be accomplishing the direct effect of increasing the share of female directors on boards, but do quotas have impacts other than the increase in numbers? In the next sections, the purpose, research approach, and societal and academic relevance of this study is explained in more detail.

1.2 The aim of the study

Theoretical explanations to women's underrepresentation in leadership positions tend to fall under two categories (Oakley, 2000; Heilman, 2001; Gabaldon *et al,* 2015; Pande and Ford, 2011). The first category emphasises supply-side barriers such as women's educational level, past professional experience, and *inter alia* work vs. family decisions. The proponents of these explanations argue that women will naturally become more present in top management levels when they have been in managerial positions long enough (Heilman, 1997). In the second category, explanations emphasise demand-side barriers such as corporate recruitment practices, gender role stereotyping, and *inter alia* preferred leadership styles. Research shows that gender inequality exists even when men and women have similar or comparable experience and qualifications (Heilman and Caleo, 2015), suggesting that women face gender discrimination. In this explanation, gender discrimination is a function of gender role stereotypes, which form people's perceptions about the skills necessary to succeed in male dominated jobs and roles (Heilman, 2012; Schein, 1973, 1975). In fact, stereotyped conceptions about women do not only describe what attributes and abilities women allegedly possess but also how they ought to behave (Heilman, 2001). The maintenance of gender stereotypes results in discriminatory behaviour that not alone has consequences for women's career progress but also promotes discriminatory reactions towards women who occupy such leadership roles (Heilman, 1997; Eagly and Sczesny, 2009).

In this context, gender quota legislation is seen as an equality strategy that is supposed to address demand-side barriers by mandating more equitable representation of both genders, thus bypassing discrimination. As argued by Kogut *et al.* (2014), gender quotas disrupt structural barriers and allow the creation of endogenous mechanisms to sustain the recruitment of women beyond the *critical mass,* creating what they call *structural equality*. In addition to that, quotas contribute to changing attitudes and social norms by increasing information about the long run benefits of female labour and leadership (Pande and Ford, 2011). The last argument carries, however, an essentialist connotation by assuming that more women bring added or complementary value to leadership. Nonetheless, based on these assumptions, one of the outcomes of interest of gender quotas is to change biased perceptions about women's ability to be leaders, hence breaking down gender role stereotypes in the top of corporations.

Although gender quotas represent a relatively new approach to gender equality in economic decision-making positions and are more widely used for political positions, the effects of the instrument, as well as the effects of having more women on the top of corporations, have caught the interest of many researchers. There is an extensive literature concerned with issues of women, gender quotas, and gender diversity on boards. These studies use a variety of theoretical approaches and empirical data. Most studies can be divided in macro-, meso- and micro-level studies (Terjesen *et al.*, 2009; Hansen, 2013; Terjesen and Sealy, 2016).

Macro-level studies investigate issues of local, regional and national business environment. A few studies have found the share of women on corporate boards and the likelihood of a country to implement corporate quotas to be influenced by the environment and institutional context. Terjesen and Singh (2008) concluded that countries with a higher share of female board directors also had a high representation of women in senior management, more equality in pay, and a long tradition of women's political representation. Terjesen et al. (2015) found that especially three institutional elements are key for a country to implement corporate quotas: female labour market and gendered welfare benefits; leftist government coalitions; and policy initiatives for gender equality that have created path-dependency, both in the public and the corporate spheres.

Meso-level studies focus on the company and its board as units of analysis to investigate the relationship between board characteristics, processes, and outcomes, as well as firm experiences outside the board. For instance, Konrad et al. (2008) interviewed 50 women directors and 12 CEOs from *Fortune 1000 companies* to explore women's contribution to corporate governance. They found that women's contribution is only powerful and influential when women constitute a critical mass of three or more women. A great body of this literature is especially concerned with the impact of more women on the firm's organisational and financial performance. Famous studies of McKinsey (2007) and Catalyst (2007) show that companies with gender diverse management had 17% higher stock price growth, doubled the industry average in regard to operating profit and achieved more than 50% higher return on invested capital and on equity. However, the causal relationship between gender diversity and economic performance is still inconclusive. While some researchers find a positive relationship (Terjesern *et al*., 2016), others find a negative relationship by looking at the reactions of the stock market and in asset return (Ahern and Dittmar, 2012; Matsa and Miller, 2013) or no effect on profitability at all (Nygaard, 2011; Dale-Olsen *et al*., 2013)

Finally, micro-level studies explore the characteristics of women on boards or individual perceptions towards gender quotas and women in management. For instance, research on the Norwegian case has shown that post-quota female board members are generally younger and have more years of education than their male counterparts (Storvik and Teigen, 2010; Heidenreich, 2013). Also, though Norwegian post-quota female directors have gained greater network capacity, this has not translated into an increase in the appointment of women as board chairs (Seierstad and

Opsahl, 2011). Other studies explored how women's contribution to the board's work is perceived by both male and female board directors (Storvik, 2010; Nielsen and Huse, 2010) and how women themselves experience the quota instrument and their own influence in the boardroom (Elstad and Ladegård, 2012; Seierstad, 2016).

Despite the fact that impacting on gender discrimination is one of the main objectives of gender quotas as a public policy, little is known about how corporate gender quotas affect attitudes towards women (given that gender stereotypes do not associate women as possessing the traits often associated with leaders). Therefore, this study aims to examine the extent to which gender balance induced by gender quotas contributes to changing gender role stereotypes among board members towards women. Hence, this thesis seeks to answer the following research question:

To what extent do gender quotas contribute to changing gender stereotypes towards women as leaders in the boardroom?

To answer the above question, the following sub-questions will be answered stepwise:

1. What are the factors causing underrepresentation of women on corporate boards and what is the evidence that gender quotas address those factors?
2. How can attitudes towards women as leaders be examined?
3. Is there a relationship between the introduction of gender quotas and a lessening of gender stereotypes towards women board directors in the boardroom?

1.3 Research approach

To answer sub-question 1, the body of literature concerned with explaining the issue of women and leadership will be reviewed. A stronger emphasis will be put on understanding demand-side explanations as to gain more insight into the explanations that concern gender stereotyping. In addition to that, studies evaluating the impacts of gender quotas on boardrooms will also be reviewed. Preference will be given to studies that approach the impact of the quota instrument on board directors' attitudes towards women, their leadership abilities, and their contribution to the board's work.

To answer sub-question 2, a theoretical framework will be constructed on the basis of relevant concepts found in the literature. The theoretical framework will guide the development of a hypothesis that will be empirically researched. Although this study's main ambition is to evaluate the effects of a policy and should be placed in the field of public policy research, conceptions and theories from the research field of sociology, social psychology and organisational behaviour will be used to allow a deeper understanding of the topic. This is because, in order to evaluate whether

gender quotas are lessening gender bias in the boardroom, it is necessary to engage with conceptions that examine and explain attitudes and perceptions.

Sub-question 2 will also be answered by a methodological discussion of how to effectively measure the dependent variable, namely the change in gender stereotyping towards women as leaders. The research will focus on the impacts of the Norwegian gender quota as a study case. Norway was the first country to adopt a quota law and to achieve gender balance on boards. The methods of data collection and data analysis will be quantitative and designed as a cross-sectional study. To collect relevant data, surveys will be sent to board members of Norwegian companies targeted by the quota legislation. In order to allow warranted inferences about the relationship between gender quotas and gender bias, data will also be collected from a comparison group consisting of board directors in Norwegian companies that are not subjected to the law.

Finally, the data generated by the survey research will be exposed to statistical tests and interpreted as to confirm or reject the postulated hypotheses, thus answering sub-question 3.

1.4 Societal and academic relevance

Although women accounted for 57.4 % of all master students in the EU in 2013 (Eurostat, 2017), they are underrepresented in decision-making positions in the corporate world. In spite of cultural beliefs regarding women's lack of interest in power and top-level positions, many women have the ambition and aspiration to become leaders. As suggested by aforementioned theoretical explanations, women have the burden of overcoming obstacles not experienced by men. Considering women's capabilities and ambitions, the need for equal representation of women and men in all areas of political and economic decision-making is an issue of equality and fairness, and perhaps also of economic efficiency.

Another important issue is that affirmative action policies are generally supposed to be temporary measures as to engender a *push* towards a certain direction. Examining whether gender quotas contribute to changing biased perceptions about women's abilities to be leaders is of great importance for the effectiveness of the measure. Understanding the factors that contribute to this inequality and how adopted instruments are contributing to change is highly relevant to inform public policy-making.

Gender role stereotyping towards women in accessing and performing leadership positions is a well-documented barrier, especially in the field of social and organizational psychology (Schein, 1973, 1975; Heilman, 1997, 2001). Although there is evidence that this stereotyping is fading more recently, especially among women (Schein and Mueller, 1992; Powell *et al.*, 2002; Sczesney 2003; Duehr and Bono, 2006), economists and sociologists have documented that discrimination is still one of the main barriers to women's advancement in the labour market. By controlling for hours

worked per year, type of occupation, educational level, and professional experience, thus making men and women statistically equal as possible except for their sex, researchers have found that discrimination is a significant reason for gender gaps in pay and promotion (Eagly and Carli, 2007). Therefore, gender discrimination can be seen as one of the most persistent barriers. On the bright side, studies on political quotas have shown that the exposure of women in political leadership positions reduces discrimination and improves the visibility of women's capacity to be leaders, thereby changing voter attitudes towards female candidates (Beaman *et al.*, 2009 – study of women in village councils in India). However, in relation to gender quotas on corporate boards, this evidence is still lacking. The current study seeks to fill this gap and to make a contribution to the literature concerned with the effects of gender quotas and issues of women in leadership.

1.5 Thesis structure

The thesis is divided into seven chapters. In this chapter 1, the topics and the purpose of the research were introduced. The main questions to be researched and how answers will be derived have also been presented. In chapter 2, a literature review provides an overview of the main concepts of theoretical explanations to the underrepresentation of women in leadership positions. In addition, arguments in favour and against gender quotas, as well as evaluation studies of the effects of gender quotas are reviewed. Chapter 3 presents the theoretical framework, which will guide the generation of a hypothesis to be examined empirically. In chapter 4, the research design and methods for data collection and data analysis are presented along with a discussion of why the chosen design is deemed appropriate for the current study. In chapter 5, the empirical data is calculated and presented, offering answers to the main research question that will be further interpreted and discussed in chapter 6.

2. Literature review

In this chapter, the body of literature concerned with explaining the issue of underrepresentation of women in leadership is reviewed. While the literature distinguishes between supply-side and demand-side explanations, the studies that will be reviewed explore explanations that concern gender bias (2.1). As it is important for the current study to clarify how gender quotas can address the issue of gender stereotyping, a discussion of pros and cons is provided, followed by a review of studies on the contribution of the Norwegian quota to changing women's status on boards (2.2).

2.1 Barriers to women in leadership – explanations and evidence

Many scholars have long argued that women encounter a *glass ceiling* – a transparent and subtle but yet hard barrier – when they try to climb the corporate latter (Oakley, 2000; Sczesny, 2003). The notion of a glass ceiling is distinct from supply-side obstacles, such as women's level of education, aspirations to become leaders, and past work experience. Rather, the *glass ceiling* refers to an attitudinal and organisational bias that places women "just below but in full view of the top" (Carli and Eagly, 2016: 516). Since the *glass ceiling*, other metaphors have emerged to describe women's disadvantages in the workplace, e.g. *glass walls* – women are concentrated in certain sectors; *glass slipper* – women have less aspiration for power; and *glass cliff* – women are more likely to be hired for precarious leadership positions (Barreto *et. al*, 2009). Carli and Eagly (2016) have argued that the current status of women in leadership is more appropriately described by the image of a *labyrinth*, which illustrates the multiple paths that lead to the centre, where leadership is attained. However, some paths are more straightforward while others only lead to dead ends. The labyrinth implies that women face obstacles throughout their careers and that reaching the centre requires effort, thus being challenging but not impossible.

In summary, all these metaphors suggest that women experience obstacles that men do not have to face. Women experience discrimination on the basis of gender, and this permeates various aspects of employment: recruitment, selection, appraisal, compensation, and promotion (Heilman and Caleo, 2015). In order to understand how gender discrimination occurs and to be able to relate it to women's status in the top of organizations, it is necessary to understand the barriers that obstruct women's career progress. Theories and explanations to women's underrepresentation in top management tend to fall into two categories: supply-side and demand-side barriers (Oakley, 2000). These will be discussed in the next section.

2.1.1 Supply- and demand-side explanations

In their review of the literature, Gabaldon *et al.* (2016) identify that supply-side barriers concern individual considerations and constraints faced by women in progressing in the career ladder. For instance, women might not aspire powerful positions at all, be less hard-achieving and power hungry. Women might also identify with expected gender roles. Since it is commonly viewed that certain masculine stereotypes (ambition, assertiveness, etc.) are necessary to succeed in management roles (Eagly and Sczesney, 2009), women might not want to strive for management positions out of fear to diverge from their self-image. In addition, conflicts between work and life/family decisions might function as a demotivation factor to pursue leadership careers. These barriers are said to result in a limited pool of qualified women to be chosen from. According to the pipeline theory, when women are prepared and have the competencies required for male-dominated fields, they naturally will be more represented in these jobs and roles (Heilman, 1997). Given these considerations, instruments stressed to tackle supply-side barriers are often targeted at increasing women's aspirations to be leaders such as mentoring and training programmes, role models, as well as family-friendly policies (Pande and Ford, 2011).

Demand-side barriers emphasise explanations that concern gender discrimination, and biased perceptions of women' capabilities, and the institutional environment in the given society (Gabaldon *et al.*, 2016). There are mainly two types of gender discrimination. First, when women are few in a given position, information about their abilities is scarce. When employers are not sufficiently familiar with women's performance, they might make judgements based on average group characteristics, or choose known male candidates, resulting in *statistical* discrimination. Very closely related, biased perceptions often occur when there is a majority of one gender occupying a given position. The result is that the occupation becomes gender-typed, leading employers to presume that women lack the required knowledge and expertise and that they lack the networking capacity to be considered for traditionally male-typed jobs and roles (Gabaldon *et al.*, 2016).

Second, women are prevented from leadership positions because of *taste discrimination* – that is, a preference for male candidates on the ground of social norms that men are better leaders, and women simply do not possess the skills required (Pande and Ford, 2011). To the extent that taste discrimination causes women's underrepresentation in top management, leadership behaviours performed by women are regarded less positively than when performed by men (Eagly *et al.*, 1992).

Finally, since organisations are inserted in institutional environments, it is assumed that their practices are responses to the regulations in the larger setting. Gendered welfare policies and a female friendly labour market are examples of key institutional settings that favour women's employment conditions (Terjesen *et al.*, 2015). On the contrary, the lack of family-friendly and

gender concerns in a country's regulation often reinforces demand-side barriers towards women in corporations.

Instruments to tackle demand-side barriers are equality strategies designed to bypass discrimination and increase the number of women in leadership positions, e.g. affirmative action policies (Gabaldon *et al.*, 2016). According to Pande and Ford (2011), in the long run, quotas contribute to changing attitudes and social norms by increasing information about women's abilities. In summary, demand-side barriers stem from perceptions that women are less qualified to be leaders. In the literature, this is explained as a consequence of gender role stereotypes[1] about women and men, and stereotypes about the leader role. Previous studies have argued that gender stereotypes create negative perceptions of women's leadership abilities and skills, which result in women being less positively evaluated than men for leadership jobs and roles (Schein, 2001; Powell, 2011). In the next section, studies investigating this phenomenon will be reviewed and discussed.

2.1.2 Men, women and leaders – review of the evidence

Gender stereotypes and leadership/managerial stereotypes have been studied since the early 1970s, and defined as a foremost "psychological barrier to the advancement of women in management" (Schein, 2001: 676). Researchers have assumed that gender stereotypes shape people's evaluation of men and women's abilities and performance, and affect their attitudes and behaviour that may, in turn, result in gender discrimination. To study this relationship, researchers have asked management students and managers to rate the predominance of certain characteristics among men and women, and the importance of these characteristics to succeed in management jobs and roles.

In two of the most cited studies, Schein (1973, 1975) constructed a *descriptive index* of 92 traits and asked American male and female middle managers to rate which traits they believed to characterise *three condition groups*: *women in general, men in general, and successful middle managers*. Schein found that successful middle managers were perceived to possess characteristics attributed more commonly to men in general than to women in general. Although both male and female respondents perceived successful managers to be in possession of masculine traits, age and management experience showed to cause a small variation. Among male respondents in the age of 49 and above there was a small but significant similarity in the ratings of women and successful managers as compared to the ratings of younger male managers. In addition, women with less management experience (less than five years) attributed the same traits more significantly to men and successful managers, while their ratings showed no significant resemblance between the

1 In many of the reviewed studies, the term *sex role* rather than *gender role* is still used. According to Schein (2001), a distinction between sex and gender was not yet made in early 1970's, thus the term sex role instead of gender role is often maintained for the sake of consistency throughout studies. For the sake of consistency in this thesis, the term gender is viewed as more appropriate.

characteristics of women and the characteristics of successful managers. Based on these results, Schein claimed that, other things being equal, men would be preferred for management positions by both men and women. Schein postulated a *think manager – think male* (TMTM) phenomenon: successful managers and men are perceived to possess similar traits. Thus, when people think of the requisites to be a successful manager, they generally think of traits that are commonly associated with being masculine.

More than a decade later, and in a context in which women were more represented in management positions compared to early 1970's, Schein's study was replicated among male and female middle managers (Brenner *et al.*, 1989 – US), male managers (Heilman *et al.*, 1989 - US) and male and female upper management students (Schein *et al.*, 1989 – US) showing the prevalence of the TMTM perception among men. Female managers and female management students no longer did gender stereotype the requisites to be a successful manager, and viewed men and women as equally likely to possess the necessary characteristics. These results were interpreted as a consequence of changes in women's perceptions about women in general rather than a change in the view of the requisites to be a successful manager. However, international replications of Schein's study exposed no significant change in stereotyping among women. Four country samples (Schein and Mueller, 1992 – Germany and UK; Schein *et al.* 1996 – China and Japan) showed a significant high correlation between male and female's ratings of men and successful managers – an indication that TMTM was also a global phenomenon.

Applying a different approach, Powell and Butterfield (1979, 1989 – US MBA students) studied gender stereotyping of the managerial profession by looking at the extent to which respondents rated a *good manager* to be *androgynous* – that is, high in both feminine and masculine characteristics. The authors argued that as women entered management roles, leadership styles would become less masculine and more androgynous. However, in both studies, the results showed that a good manager was still described in masculine terms. As the share of female managers increased significantly since these studies, Powell and colleagues (Powell *et al.*, 2002 – US business students) hypothesised in the beginning of the 2000's a possible change in managerial stereotypes. They argued that sufficient information disconfirming the belief that good managers possess masculine traits might lastly be changing and replaced with more androgynous ones. The results were interpreted as both confirming and disconfirming. The persistence of masculine managerial stereotypes among respondents was once again established. However, the preference for masculine traits in a good manager decreased compared to 1979 and 1989.

More recent studies have been taking multifaceted approaches to the examination of gender stereotypes of managerial/leadership skills and abilities. They have postulated that gradual change in gender stereotypes might be occurring due to gender equality legislations, changing attitudes towards women, and increased organisational focus on diversity and equal opportunity practices

(Sczesney, 2003; Deuhr and Bone, 2006). Sczesney (2003 – German business students) took a closer look beneath the TMTM phenomenon by including traits from two specific leadership styles to their questionnaire (person-oriented and task-oriented). While previous studies would ask respondents to rate general managerial qualities about women, men, and managers in general, Sczesney sought to capture gender-specific leadership roles by including two additional condition groups: *male leaders* and *female leaders*. Finally, she examined the respondents' self-perception and perception of others as to analyse descriptive and prescriptive stereotypes – that is, beliefs about how men and women are and ought to be. In the results, male respondents rated the skills of men in general and male leaders to be more congruent with the leadership skills of leaders in general compared to the rating of women in general and female leaders. Also, male respondents ascribed lower importance of task-oriented skills to women (descriptive norms). In self-evaluation, female respondents rated person-oriented skills as being more important than male respondents (descriptive norms). However, male and female respondents found that both person-oriented and task-oriented skills are important skills for leaders in general (prescriptive norms). These results suggested on one hand that gender stereotypical views of leadership persisted in descriptive norms, i.e. how men (more task-oriented) and women (more person-oriented) are. Thus, gender bias endures, confirming the TMTM syndrome. On the other hand, both leadership styles were found important for leaders in general, suggesting that an androgynous type of leader to be important.

Deuhr and Bono (2006 – two samples: US students and managers) also studied the relationship between the gender stereotypes of men, women, and managers by modifying Schein's research approach and adding four additional condition groups: *women managers, men managers, successful women managers*, and *successful men managers*. To complement Schein's *descriptive index*, which they found to be out-dated, thus providing a limited description of men, women and managers, other adjectives were added to the index in order to use current models of effective leadership (task-oriented leadership, relationship-oriented leadership, and transformational leadership). The results suggested that stereotypes about men, women and managers might finally be changing. Male managers characterised women in general as more assertive, analytical and confident. Male students, however, showed similar perceptions to those of male managers and male students in earlier studies; hence, no change. As for women, the data suggested a change in women's perceptions toward a same-gender bias: female managers rated women more than men to possess characteristics similar to successful managers. This also meant an increase in the perceived agency of women.

More than four decades of research on the perceptions of men and women about the characteristics needed for managerial/leadership success have hypothesised that women's increased labour participation, enrolment in business schools and increased representation in managerial positions would over time contribute to dissipating the TMTM phenomenon (Heilman *et al.*, 1989). In earlier

studies, this has only proved true for women in some samples (Brenner *et al.*, 1989; Schein *et al.*, 1989 – US samples). More recent studies show evidence that gender stereotypes might be changing more fundamentally in the descriptive perceptions of men, who are traditionally the gatekeepers into top-level leadership positions (Deuhr and Bono, 2006).

2.2 Gender quotas on boards – explanations and evidence

Gender quotas on corporate boards are a kind of affirmative action that aims to increase the numbers of women in these decision-making bodies. In the literature of gender quotas, there are various types of discourses representing arguments both in favour and against. There are two distinct perspectives underlying justifications for gender quotas on boards (Teigen, 2000; Pande and Ford, 2011; Bjørkhaug and Sørensen, 2012; Hansen, 2013). The first is an ethical-moral perspective drawing on cultural explanations in which favourable arguments emphasise principles of equality, individual rights, social justice and democracy. The second is a utilitarian perspective, which stresses social and economic considerations to construct a *business case* for having women on boards. The latter draws from liberal feminist theories that highlight economic considerations to gender equality. On the opposite terrain, the arguments against gender quotas emphasise arguments regarding meritocracy, reverse discrimination, and shareholder democracy. Pros and cons to gender quotas are discussed as follows.

2.2.1 Pros and cons to gender quotas

Different from other measures, such as voluntary targets or recruitments efforts, quotas seek to achieve *equality of results*, rather than *equality of opportunity* (Bacchi, 2006) – that is, ensuring the increased representation of women occupying given positions instead of merely encouraging the recruitment. In terms of individual justice, the main argument in favour of gender quotas refers to the notion of *compensation*. This means that the quota measure is not just favouring the selection of women but replacing "institutionalized and unconscious discrimination practices" with more impartial ones (Seierstad, 2016: 392). However, guaranteeing the selection of women is very controversial. Quotas are said to bypass competitive processes and to ignore the merit principle, which ensures that the most competent person is selected. As a consequence, it is claimed that better-qualified men are excluded in order to meet the gender share requirement (Bacchi, 2006). Opponents of quotas suggest that this creates a kind of *reverse discrimination* towards those who do not gain from the measure. According to this position, equality of opportunities should be the goal of ensuring that positions are open to all and that the selection criteria are talent and merit (Seierstad, 2016). In addition, it is claimed that rather than gender equality, gender quotas can produce negative effects as a result of *backlash*. This is because being selected on the basis of

gender quotas can raise doubts about qualification, which could reinforce and worsen pre-existing stereotypes (Pande and Ford, 2011).

From a social justice point of view, the main argument in favour of quotas is that gender equality is a desirable value in a democratic society. That is, for a society to be fair and equal, power and influence must be distributed more or less equally between men and women (Teigen, 2000). The male dominance in positions of power and influence is a possible indication of gender discrimination, which from this point of view is something that should affirmatively be changed (Storvik and Teigen, 2010). The counter argument holds that gender quotas are in direct contradiction with the principles of shareholder's democracy. Company owners have a democratic right to recruit and select board members as they find fit, and by imposing regulations the state is interfering in the companies' freedom to make management decisions (Teigen, 2015b).

To build the utility case, it is argued that gender differences in attitudes and preferences are beneficial to business profitability. In practice, men and women bring different perspectives to decision-making and problem solving that could correct for informational biases (Tejersen *et al.*, 2016). In addition, since women are well educated and represent half of the population, the lack of women in certain positions must mean that women's talents and skills are not being fully utilised. Thus, widening the talent pool and exploiting women's potential is good for business (Teigen, 2000). As a counter argument, opponents argue that there can be unintended consequences. For instance, if the claim is that women and men have talents and different leadership styles, then the lack of women in leadership positions merely represents the efficient outcome. Consequently, if quotas promote the selection of unqualified women, then firm performance is compromised rather than improved (Pande and Ford, 2011).

2.2.2 The Norwegian gender quota – review of evaluation studies

As indicated by Terjesen *et al*. (2009: 320) in their survey of the literature, research on women on boards is commonly preoccupied with "improving corporate governance through better use of the whole talent pool's capital, as well as about building more inclusive and fairer business institutions that better reflect their present generation of stakeholders". The ultimate objective of this body of research is to examine how gender diversity influences corporate governance outcomes that, in turn, affect companies' performance. Thus, the literature has so far been mostly concerned with evaluating the business case for gender quotas. In this review, only studies that contribute to better understanding of the issue of gender bias in the boardroom will be reviewed. Moreover, the review only consists of studies that investigate the effects of the Norwegian case.

Exploring the early effects of the Norwegian gender quota (2002-2009 period), Seierstad and Opsahl (2011) focused on whether the increased share of women on Norwegian boards had

translated into increased female influence. They argued that "as the legislation brings more women onto boards, women will be seen as able to the task, and thus, companies will draw on women beyond the required representation" (p. 47). However, they observed that the quota has not impacted in a continuous increase of female directors beyond the required level and that no spill overs could be observed in terms of increase in the share of female board chairs and female CEOs, which remained low.

Other studies have investigated the characteristics of board composition as to assess the human capital of post-quota female board directors in Norwegian companies. Storvik and Teigen (2010) and Heidenreich (2013) found continuous male dominance among board chairs (32% men, 3% women) and employee representative (19% men, 11% women), with a few more women among the deputy chairs (9% men, 8% women). Also, female board members are generally younger and better educated than their male colleagues; 29% at the age of 60 or above were men, while only 6% were women. In regards to educational level, 36% of the women had a university education lasting six years or more, while this was the case for 22% of the men. In relation to educational background, there were only small differences between men and women, being 50% from both groups educated in business management. As for the rest, men tended to be educated within science and technology, and women in law. In terms of occupational background, more women reported being managers at some level, while men report being either owners, partners or self-employed.

Investigating board member's own evaluation of the board competencies of post-quota female directors, Storvik (2011) found overall positive evaluations. When asked whether they had experienced any change in the board's work post the quota reform, 48% of the respondents replied not to have experienced any noticeable change, 16% reported positive changes, and 6% reported negative changes. Respondents that stated a positive change were asked what kind of positive change they had experienced, reporting the introduction of new perspectives (78%), that more discussion takes place (67%), that the new female members have important areas of competence that the board previously lacked (42%), and that the work has become more pleasant (32%). Among 6% of the respondents, who had experienced negative changes, nearly all reported that the new female board members lack important areas of competence and insight (100%). Only a small share reported that more disagreement occurs (12%) and that less weight is placed on knowledge or analysis (15%).

By combining management theories with insights from social psychology, Nielsen and Huse (2010) explored how women's characteristics influence board decision-making and strategic involvement. They found no evidence to the claim that gender diversity can either improve or harm the work of corporate boards. In addition, contrary to theoretical predictions, when women's professional background diverge from those of men, women are less likely to influence the board's work, possibly because barriers are created when women were seen as minorities. However, when women

are viewed as having different values, their contribution is perceived as positive. The authors postulated that women who have strong values are likely to raise their voice, be more active and influential. In summary, Nielsen and Huse found evidence for complex dynamics between men and women in the boardroom: when women are not perceived as equals, their values and contributions are likely to be disregarded. Male respondents were more likely than female respondents to negatively evaluate women's influence on board decision-making, indicating that the problem is likely to stem from gender bias.

With a similar research aim, Elstad and Ladegård (2012) examined the degree to which women believe that they contribute to and influence board decisions, and whether perceptions differ on boards with gender balance and boards with few women (Norwegian PLCs and LTDs). In other words, the authors sought to examine whether women are *tokens* or real *influencers.* Women were asked about their assertiveness in expressing different opinions, if they had sufficient access to information, and if they were able to participate in informal networking. The overall results demonstrated that women perceive themselves to exhibit a high level of assertiveness, information sharing, and participation in informal socialisation outside the boardroom. Nonetheless, there was an indication that the proportion of women on the boards had an impact on their perceived participation and influence (but not on self-censorship). Thus, Elstad and Ladegård suggested that the better the gender balance on a board, the higher is the influence and contribution to the board's work exercised by female directors.

Through a qualitative study, Seierstad (2016) explored the experiences of women who benefitted from the quota law in Norway as to assess how women see the need for quotas on corporate boards and which justification narratives they use. Seierstad postulated that women would draw on two key arguments in support of quotas: utility and justice. In summary, the study indicated strong support among women to the quota measure, although younger directors appeared more hesitant supporters of quotas than older directors. The interviewed women appeared to support both the business case argument (women were widening the talent pool) and the justice argument (resources were allocated more fairly). Seierstad observed that *gender* was not perceived by the interviewed women as a condition that structure opportunities, pointing to a gender-neutral understanding towards the quota measure. Seierstad recommended that future studies should *inter alia* focus on the perspective of women directors as a way of investigating "the black box of board behaviour, looking at how quotas and increased diversity have affected this setting" (p. 401).

The reviewed studies show us that the effects of the Norwegian gender quota are not straightforward. In the next chapter, a theoretical framework to understand the gender stereotypes towards women in leadership will be build, with the aim of supporting the definition of hypotheses.

3. Theoretical framework and hypothesis

In this chapter, relevant conceptions about gender role stereotypes and how these can lead to gender bias in organizations are examined. First, important concepts are defined (3.1). Then, two related theories that explain the process of gender bias through gender stereotypes are discussed. These are *lack of fit model* and *role congruity theory of prejudice* (3.2 and 3.3). Next, Kanter's (1993) famous work on *tokenism* is introduced as to contribute to an understanding of the challenges that women might face when they are few in numbers in jobs and roles dominated by men (3.4), followed by a short discussion of how stereotypes can change (3.5). Finally, this chapter concludes by discussing the connection between these different theories and by generating hypotheses to be empirically investigated (3.6).

3.1 Gender as a frame

As argued in the last chapter, to understand the barriers that women face when trying to access and perform leadership positions involves recognising the role that gender stereotypes play in this process. That said, this study has no ambition of explaining and testing how social cognitive processes lead to gender bias and discrimination against women, causing barriers to their career choices and opportunities. Nonetheless, as gender is an important frame to understand social relations, it is important to establish some definitions.

Besides from the distinction between *sex* and *gender*, being sex the binary biological category that refers to our physiological characteristics as male and female and gender as referring to cultural expectations and roles often associated with being male or female, gender also refers to a lens or a frame for organizing and understanding social relations (Ridgeway, 2011). Contemporary scholars of sociology and social psychology argue that gender is a social construct that is produced and reinforced through socialisation; "becoming a stable and durable aspect of who we are" (Correll *et al.*, 2007: 2). Gender is an important analytical category because it functions as a basis for inequality by placing people in different social groups (e.g. male and female), and as a frame for organising everyday interactions in which people define themselves in relation to others (in addition to class, caste, age, race, gender identity and sexual orientation) (Correll *et al.*, 2007). The gender frame is deeply rooted in beliefs and expectations about gender differences (Ridgeway, 2011) – that is, that certain attributes and values are typical of men and women, and that certain attitudes and behaviours are more appropriate for men than for women, and vice-versa. Such beliefs are *gender stereotypes*. In social role theory, it is argued that people often perceive attributes as gendered, and a common distinction is made between *agentic* and *communal* characteristics. Agentic characteristics are commonly ascribed to men (e.g. assertiveness, ambition, dominance, autonomy, self-confidence, self-reliant), while communal characteristics are commonly ascribed to women (kind, affectionate,

helpful, gentle, sentimental, sympathetic) (Eagly and Karau, 2002; Eagly and Sczesny, 2009). Following theoretical models explain the mechanism through which gender stereotypes lead to prejudice and discrimination against women in organizations.

3.2 Lack of fit model

Heilman (1997, 2001) has developed the hypothesis that a lack of stereotyped *fit* explains why women are underrepresented in the top of organizations, and why women who occupy such positions face challenges. The postulation is that the attributes and abilities associated with being a successful leader are similar to gender stereotypes of men and dissimilar from gender stereotypes of women. Underlying the *lack of fit model* is the notion that certain jobs and roles are traditionally perceived as masculine. This perceived *fit* influences performance expectations about how successful or unsuccessful a person would be in a particular job or role. Hence, when jobs and roles do not match the attributes believed to describe women, they are consequently perceived as ill equipped to perform them. In summary, the perceived lack of fit leads to expectations about how men and women would perform in certain jobs and roles and creates gender biases, which, in turn, give impetus for employment decisions.

In the lack of fit model, gender role stereotypes are assumed to be the foundation of gender biases and the root cause of gender discrimination in the treatment of women in organizations, limiting their advancement and opportunities. Heilman and colleagues (Heilman, 2012; Heilman and Parks-Stamm, 2015; Heilman and Caleo, 2015) argue that gender stereotypes contain *descriptive* and *prescriptive* properties. While descriptive gender stereotypes describe how men and women *are* like, prescriptive gender stereotypes prescribe how men and women *should be* like. Descriptive stereotypes about men and women are often oppositional. According to Heilman (2012), men are customarily ascribed in terms of *agentic* characteristics associated with abilities such as achievement-orientation, autonomy, rationality, etc. Women, on the other hand, are commonly attributed *communal* adjectives that indicate concern for others, collaboration, emotional sensitivity, etc.

Descriptive stereotypes result in the perception that there is a poor fit between what women are like and the necessary traits to be successful in masculine jobs and roles. Prescriptive stereotypes result in the creation of normative behavioural standards that, if violated, can lead to social penalties. Both these mechanisms create decreased performance expectations and increased expectations of failure, which, in turn, produce biased evaluations. The consequences are barriers to women's progress in organizations, as well as the disapproval and devaluation of the performance of women who are successful. According to Heilman (2008), gender discrimination is a consequence of this evaluative punishment.

3.3 Role congruity theory of prejudice

Much similar to the lack of fit model, Eagly and Karau (2002) have developed the *role congruity theory of prejudice.* In short, the theory suggests that prejudice against women as leaders stems from the incongruity between how people perceive women and how they perceive a leader. Comparable to Heilman (2001), they claim that gender roles contain two kinds of norms: descriptive and injunctive. Descriptive norms are consensual stereotypes about group members, while injunctive norms are expectations about what group members ought to/would ideally do. Very similar to what has been explained in previous sections, men are perceived as agentic while women are perceived as communal. However, leaders are also ascribed agentic characteristics, thereby supporting the perceived incongruity between being a woman and being a leader.

The role congruity theory offers explanations to understand how prejudice against female leaders occurs and intensifies the perceptions of incongruity. According to Eagly and Karau (2002), there are two types of prejudice. The first occurs in the presence of less favourable evaluations of women's leadership potential in comparison to men. It derives from descriptive norms – that is, women's qualities are expected to be distinct from the qualities of leaders. The second type of prejudice occurs in the presence of less favourable evaluations of women's actual leadership behaviour in contrast to men. It derives from prescriptive norms – that is, women, who exhibit the agentic requirements of the leader role, are violating expectations.

This situation constrains female leadership in two ways: Either women conform to the gender role expected of them and fail to meet the requisites of the leader role, or they conform to their leader role and fail to meet the requirements of their gender role. These two types of prejudice produce two types of obstacles. The first materialises in restricted access of women to leadership roles in comparison to men, while the second refers to greater difficulties for women to be successful in these roles. Therefore, according to this theory, the only possible way to overcome the *incongruity* between perceptions of women and perceptions of leaders is through either an alteration in the gender stereotype or the leader stereotype.

3.4 Tokenism

Women on boards, when few in numbers, are likely to be seen by men – the dominant group – as tokens, i.e. representatives for their group characteristics (Terjesen *et al.*, 2009). In an influential study on *Men and Women of the Corporation*, Kanter (1993) theorised about "(…) the dramas of the many and the few in the organization" (Kanter, 2003: 36), arguing that different proportional representations have significance on social life. Kanter argued that the numerical distribution of men and women in upper management creates a different interaction context for the

underrepresented group. Kanter constructed four group categories with regards proportion of kinds of people and described the challenges that might appear for the tokens/minority.

Uniform groups have only one type of social group with homogeneous characteristics in relation to e.g. sex, race, or ethnicity (typical ratio of 100:0). *Skewed groups* have a large predominance of one social group, which, because of numerical dominance, controls the group and its culture (ratio 85:15). The few are called *tokens* and are seen as representatives of their social category rather than for their individuality. *Titled groups* have a less extreme distribution in which the dominants become the majority and the underrepresented become the minority (ratio 65:35). In this distribution, the minority is able to form alliances and affect the culture, and hence become differentiated individuals. Finally, in *balanced groups* (ratio 60:40 or 50:50), the majority and minority become potential sub-groups that may not, for instance, produce gender-based identifications any longer, but rather emphasise individual roles and abilities.

Being a token is associated with facing special situations that may result in three perceptual tendencies: *visibility*, *polarisation* and *assimilation*. These tendencies lead to particular group dynamics that, in turn, generate responses that are typical of a token. Women that are *visible* in corporations may capture a larger share of attention, resulting in performance pressures. This is because they risk becoming subjects of conversations and scrutiny, where even small mistakes are given large importance. As a response, token women may try to limit their visibility by keeping a low profile, and risk being overlooked, or they may try to take advantage of the attention, and risk being marked as troublemakers.

In *polarised* situations, the dominant group become conscious of the contrast between own social characteristics and those of the underrepresented group. A consequence is a tendency to heighten the dominant's culture boundaries by exaggerating own commonalities as well as the differences of the tokens. This is often done by making the token be seen as causing an interruption in the flow of group activities, thus reinforcing their differences, or by expecting loyalty from the token as to be given a chance to become *one of them*. As in polarised contexts, token women are too few to create a counterculture, their strategy responses are often to accept social isolation, and risk exclusion from informational socialisation, or to try to become insiders by providing loyalty to the dominant group and turning against their own.

When tokens are *assimilated*, they are so by being associated with pre-existing generalizations and stereotypes about their social group, allowing the dominant group the use pre-defined expectations about attitudes and behaviour. Token women become encapsulated in limited and caricatured roles, which may result in statistical discrimination – that is, probabilistic but often irrational reasoning about the abilities of a particular person – or in what is often called the *woman's slot* – that is, special places for women in terms of jobs and roles. A typical token response is to give in to the

stereotyped roles by either self-distortion or self-perpetuation. This is often done by exaggerating the prescribed roles (submissiveness, frivolity, etc.) or by accepting role encapsulation and hence limiting any demonstration of competence.

The interaction dynamics discussed above are, according to Kanter, applicable to any situation in which groups are unbalanced in terms of sex, race, or ethnicity. This means that male tokens in female dominated groups may experience similar forces and dynamics. Thus, the focus of Kanter's analysis is organizational structure and placement rather than gender (Acker, 2003), adopting a different conceptual perspective than proposed in this thesis – that is, women experience discrimination on the basis of their gender. That said, Kanter's work is included in this theoretical framework because it offers important concepts to understand the dynamics, expectations and limitation imposed on women that are few in numbers in male dominated jobs.

3.5 Can gender stereotypes change?

In chapter 2, the reviewed studies showed that although the TMTM phenomenon persists, there are signs that it is decreasing. It has been theorised that the continued increase in the representation of women in influential leadership positions provides disconfirming information that contributes to change stereotypes (e.g. Powell *et al*, 2002). In the book *Framed by gender: How gender inequality persists in the Modern World*, Ridgeway (2011) argues that gender as a frame for organising social relations is not likely to change, because "gender is central to the process by which people render themselves comprehensible to themselves in terms that are socially valid in their society" (p. 191). Challenging the gender frame implies confusing the perceptions about who the others are, as well as the validity and stability of own female and male identity; an identity that involves a great deal of emotional investment in both physical and social terms. Therefore, although perceptions can be challenged, people have a powerful interest in maintaining routinely gender categorizations. Ridgeway further argues that cultural gender beliefs are so persistent that they actually lag behind contemporary material accomplishments and tendencies in modern societies, where greater emphasis is put on human rights and treating workers as citizens. Ridgeway suggests that cultural beliefs and stereotypes can change when forces in the labour market and from public policies contribute to pressure transformations in this direction in spite of resistance.

In fact, theoretical models from the field of psychology suggest that stereotypes can change when confronted with new and disconfirming information (Weber and Crocker, 1983; Schneider, 2004). There are three models of stereotype change. In the bookkeeping model, stereotypes change in an incremental process in which every piece of disconfirming information impacts in small changes until sufficient accumulation can lead to substantial changes. In the conversion model, stereotypes change radically in an all-or-nothing fashion when confronted with salient information. In the

subtyping model, disconfirming information only leads to the creation of sub-stereotypes as a way of making adjustments without confronting the initial stereotype.

3.6 Hypotheses

More than four decades of research on the perceptions of men and women about the characteristics needed for managerial/leadership success have postulated that women's increased labour market participation, enrolment in business schools, gender equality legislations, changed organizational practices, and increased representation in managerial positions would have over time contributed to dissolve gender bias (Heilman *et al.*, 1989). As indicated by the studies reviewed in chapter 2, there is evidence that a successful/good manager/leader is predominantly described in masculine terms (Schein, 1973, 1975; Powell and Butterfield 1989; Powell et al, 2002). However, more recent studies have shown indication of some change in the attributes ascribed to and expected of female leaders by both men and women, but to a higher degree among women (Sczesney, 2003; Duehr and Bono, 2006).

It is important to note that although these studies might have generalizable potential, the statistical comparisons made through most of these them referred to middle managers or leaders in general, and their results can therefore not be extrapolated as valid for the perceptions of leaders such as directors on boards. How board members perceive the requisite leadership traits to be a successful board director is still lacking in the literature. Nonetheless, the reviewed studies on the effects of the Norwegian gender quota have shown important aspects. The post-quota female board members are younger and have more years of education (Storvik and Teigen, 2010; Heidenreich, 2013). In addition, the increased share of female directors is not seen to have negatively changed the board's work, and a majority of board members report no noticeable change in this regard (Storvik, 2010). Still, male board members tend to underestimate the contribution of female board directors who they have dissimilar professional experiences to those of male board members, while they tend to value the contributions of female directors who they show strong opinions (Nielsen and Huse, 2010). Also, female directors tend to see themselves as more influential when women are high in numbers on the board as opposed to when they are few (Elstad and Ladegård, 2012).

As suggested by the *lack of fit model* and the *incongruity theory of prejudice*, women's advancement to top-level leadership positions is hindered by a mismatch between the (masculine) leadership requirements for the job and the (feminine) qualifications that women are perceived to possess. In addition, when women manage to access these positions, they risk biased evaluations that derive from their nonconformity to the stereotypes expected of them. This evaluative process results in prejudice against women, or in other words: gender discrimination/bias.

According to Kanter (1977), in gender-balanced groups, women are no longer encapsulated in roles that are stereotypically expected of them and are seen for their individuality and abilities. Corporate boards from companies subjected to gender quotas have a high share of female directors (between 40-60%) and can be expected as a setting in which gender stereotypical evaluation of women's abilities is not a common practice. With further support from the conversion model of stereotype change, gender quota legislation can be seen as sufficient input for radical change to happen in the common gender stereotypes and leadership stereotypes. Hence, expectations can be made that in companies that are subjected to the quota legislation (hereafter quota company – QC), in which boards are gender balanced, prejudice against female board directors is less likely to occur when compared to companies that are not subjected to the quota legislation (hereafter non-quota company – NQC), and are composed of gender imbalanced groups (ratios 100:0, 85:15 and 65:35). If the visibility of women as female directors on boards contributes to lessening stereotypes against women leaders, boards of directors in QC should not significantly hold gender stereotypes the requisite leadership characteristics to be a successful board director. Hence, to analyse whether gender quotas (or more specifically increased gender balance) are impacting on gender stereotypes, the following hypotheses will be tested:

Hypothesis 1: Among QC board members, there is less degree of gender stereotyping in respect to leadership characteristics as compared to NQC board members.

As board members of QCs are expected to have less degree of gender stereotypes, there will not be much difference between female and male directors, hence:

Hypothesis 2: There is no significant difference between the mean ratings of QC female and male board directors.

However, as shown by more recent TMTM studies (chapter 2), female respondents tend rate both men and women as possessing the requisite leadership traits to be a successful leader/managers in comparison to male respondents. Therefore, it is expected that in the NQC sample:

Hypothesis 3: There is less degree of gender stereotyping in respect to leadership characteristics among NQC female board directors in comparison to NQC male board directors.

4. Research design and methods

In this chapter, the choices of research design and data collection and analysis methods are presented. The chapter starts by explaining which research strategy and design is deemed most appropriate (4.1), followed by an operationalization of the dependent and independent variables (4.2). Then, the method and process of data collection are presented and explained in detail (4.3). Next, the context and population under investigation are introduced (4.4), along with a description of how the population has been sampled (4.5). In this section, choices made in regard to survey design, sampling and survey distribution are discussed. Finally, the choice of data analysis method is explained (4.6), followed by a discussion of how to ensure reliability and validity (4.7).

4.1 Research strategy and design

This study aim to answer the following research question: *To what extent do gender quotas contribute to changing gender stereotypes towards women as leaders in the boardroom?*

This research purpose evokes an explanatory type of research design. According to de Vaus (2001: 1), descriptive research aims to examine "*what* is going on", while explanatory research attempts to explain the question "*why* is it going on". Explanatory research typically seeks to test whether changes in one independent variable are related to changes in one or more dependent variable (6 and Bellamy, 2012).

With support from the theoretical discussion provided in the last chapter, it can be argued that gender stereotyping is one of the major causes of women's underrepresentation in leadership positions. As women are not expected to possess the requisite skills and abilities to be leaders, they are not chosen to serve in such jobs and roles. The fewer women are visible in such jobs and roles, the more the notion that it must be justified is perpetuated. When measures as mandatory quotas are put in place, they provide the basis for disrupting this reasoning. In this thesis, it is assumed that there is a relationship between gender quotas and change in stereotypes towards women as leaders in the boardroom. This means that there is at minimum a correlation between gender quotas, or more directly the gender balance on boards that it stimulates, and a change in gender role stereotypes towards women and men. Furthermore, there is a causal relationship between these two variables, which means that they are more than just correlated; one variable causes the other (Wahed and Hsu, 2010). However, causality is very difficult to determine and the interest of this thesis is to examine correlation/association.

Because of the limited time frame of this study and the impossibility of gathering data about the gender stereotypes of board members towards women as leaders in the time prior to the implementation of the quota legislation in Norway, a cross-sectional design is considered the most

appropriate research design for this study (Bryman, 2004). The cross-sectional approach allows the examination of relationships between variables by relying on variations in the independent variable among more than one case (de Vaus, 2001). That is, inferences can be drawn by examining the "extent to which variation in the outcome variable is linked with group differences", investigated for both the intervention group and an eventual comparison group (Ibid, p. 51). This is because, instead of investigating changes systematically linked to variations in the independent variable, as experimental study designs are able to do, the cross-sectional design allows the investigation of group differences at one point in time (Salkind, 2010). As argued by Salkind, "cross-sectional studies are quick and relatively simple, but they do not provide much information about the ways individuals change over time" (p. 314). Therefore, cross-sectional studies only offer "a relatively *passive* approach to making causal inferences" (de Vaus, 2011: 172). In order to investigate the dependent variable (gender stereotypes) without investigating variations over time, group differences can be compared as a way of bypassing the temporal limitation of this study. Consequently, data will be collected among board members in QCs (men and women), namely the group that has had exposure to the legislation, and board members in NQCs (men and women), namely the group that has not had exposure to the legislation.

4.2 Operationalization

In this study, it is expected that gender quotas lead to gender balance (independent variable), which, in turn, leads to less gender stereotyping (dependent variable).

Dependent variable: gender stereotyping in perceptions about requisite leadership characteristics

As suggested by the empirical studies and theories discussed in chapters 2 and 3, gender inequality in the access to leadership positions is to a great extent caused by psychological barriers, i.e. cultural beliefs about the competencies and abilities of men and women to be in leadership jobs and roles. It was also argued that gender stereotypes can be investigated by measuring people's perceptions to which traits are requisite to be successful in leadership and how these are assigned to men and women. Hence, an appropriate way to assess gender stereotypes seems to study people's perceptions towards men and women's leadership characteristics.

Schein's (1973, 1975) TMTM studies are very influential and her *descriptive index of 92 traits* has been used by many subsequent studies. However, Schein and others have been interested in the perceived requisite characteristics to be a successful manager. Also, Schein's descriptive index only looks at agentic and communal characteristics assigned to successful managers in comparison to how these are assigned to men and women *in general*. As Schein's descriptive index is assumed out-dated in regard to more contemporary leadership styles (Deuhr and Bono, 2006), the characteristics chosen to be included in this research are based on the study of Deuhr and Bono

(2006) in which both agentic and communal adjectives (traditionally gendered traits) and task-oriented, relationship-oriented and transformational adjectives (more contemporary leadership styles) are included as constructs for gender stereotyping. These five different categories of traits can also be looked at separately as five different scales (this distinction will be important in data analysis chapter). See the 47 traits in table 1 below:

Table 1: 47 leadership traits

Agentic characteristics (7)	**Relationship-oriented leadership (10)**
Aggressive	Compassionate
Ambitious	Cooperative
Analytical ability	Fair
Assertive	Good listener
Dominant	Inclusive
Forceful	Intuitive
Self-confident	Shows appreciation
Communal characteristics (7)	Sociable
Aware of the feelings of others	Tactful
Creative	Understanding
Helpful	**Transformational leadership (13)**
Kind	Attends to the needs of others
Passive	Considerate
Submissive	Considers others' ideas
Sympathetic	Encouraging
Task-oriented leadership (10)	Energetic
Competent	Enthusiastic
Competitive	Inspiring
Decisive	Open-minded
Independent	Optimistic
Industrious	Sense of purpose
Intelligent	Sincere
Logical	Supportive
Objective	Trustworthy
Skilled in business matters	
Speedy recovery from emotional disturbances	

Deuhr and Bono (2006: 845)

Independent variables: gender balance in the boardroom

The assumption behind this independent variable is that gender balance in the boardroom is pre-requisite for the disruption of gender stereotypes about women's leadership. It is assumed that in gender-balanced boardrooms, women are not tokens but seen as competent leaders, and leadership and gender role stereotypes are subjected to change. In gender-imbalanced boardrooms, on the contrary, women are generally few in numbers and gender role stereotypes have a fertile soil to be produced and maintained. Gender balance and gender imbalance is defined in accordance with the Norwegian gender law (see table 2 below).

4.3 Data collection – the survey

Besides from being a suitable method for data collection in a cross-sectional study that evaluates quantitative variables, survey research is also an appropriate method when investigating the

opinions, attitudes, beliefs and emotions of a target population (Mrug, 2010). In addition, given the facility of distribution, it was deemed appropriate to make use of an online survey that could be accessed through an anonymous link.

The survey consists of four blocks. In Block 1, five descriptive questions seek to identify the participants' gender, age, tenure, company type, and gender composition. Different from the TMTM studies that were interested in assessing the participants' gender stereotypes of women and men in general, this study is more interested in the participants' gender stereotypes in the boardroom context. Therefore, the respondents' perceptions are assessed in relation to three condition groups: *successful board directors (SBDs)*, *actual male board directors (MBDs)*, and *actual female board directors (FBDs)*. The randomized questions of Blocks 2-4 are:

Q7 How much do you agree that the following leadership skills are characteristic for **successful board directors**?

Q8 How much do you agree that the following leadership skills are characteristic for **actual male board directors**?

Q9 How much do you agree that the following leadership skills are characteristic for **actual female board directors**?

To which of the above question, participants were asked to rate the same items (the 47 leadership traits, see table 1 above). The items are rated on a 5-point Likert scale ranging from *strongly agree* to *strongly disagree*, which is a commonly used in perception assessments (Barnette, 2010).

In an introductory message, the real intention of the study was omitted and participants were given a vague explanation of the purpose of the study, which was to collect data about leadership styles at board director level. In addition, a randomised flow was added to the survey in which each respondent only was able to see *one* of the three condition questions above. This is because being able to see all three questions (with the same 47 leadership characteristics) could influence the participants to rate all three questions equally or to consciously try to hide their gender stereotypes. See Appendix 1 for the complete survey with skip logics and randomization flow.

4.4 Context and population

As argued in the introductory chapter of this study, the Norwegian quota legislation offers a unique case of analysis. Norway was the first country to adopt minimum requirements for gender composition on boards with strict sanctions for non-compliance, namely the risk of dissolution or deregistration of the company (Storvik and Teigen, 2010). So far, Norway is also the only country

to adopt such a measure in which the deadline has passed[2] and targets have been achieved. Therefore, Norway is often used as a reference in impact evaluations of gender quotas (Berglund and Landfors, 2015). The minimum gender share requirements on boards are prescribed in the *Norwegian Public Limited Liability Companies Act: § 6-11a* (Teigen, 2015a).

Table 2: Minimum requirements in Norway's gender quota law

Extract from *The Company Act: § 6-11a* *	Number of board members	Minimum gender share required
"Where there are two or three members on the board, both genders should be represented.	2	50% (1)
	3	33% (1)
Where there are four or five members on the board, both genders should be represented by at least two members.	4	50% (2)
	5	40% (2)
Where there are six to eight members on the board, both genders should be represented by at least 3 members	6	50% (3)
	7	43% (3)
	8	38% (3)
Where there are nine or more members on the board, the membership should comprise at least 40% men and 40% women".	9 or more	40%

* These requirements apply also to deputy members, and are also to be applied separately to employee-elected and shareholder-elected board members.

Sources: Storvik and Teigen (2010, p. 4); Teigen and Heidenreich (2010).

The population of interest in this study is board directors of Norwegian companies that are subjected to the gender quotas (QCs) and companies that are not (NQCs). In other words, the population of interest is board directors from companies with different gender composition, balanced as well as imbalanced. QCs are PLCs, COOs and POCs. NQCs are LTDs or other types of private ownership enterprises, making LTD board directors an interesting comparison group. See table 3 below for the number of companies of each type of company in the target population, as well as available information on the respective average share of male and female board members.

Table 3: Overview of the target population by company type and sex

			***N* board members in total**	**Share**	***N* companies in total**
QCs	**PLCs**				176 [2; *]
		Total	1 231 [1]	100 [1]	
		Men	713 [1]	57.9 [1]	
		Women	518 [1]	42.1 [1]	
	POCs				452 [3; **]
		Total	N/A	N/A	
		Men	N/A	N/A	
		Women	N/A	N/A	
	COOs				5 130 [3]
		Total	N/A	N/A	
		Men	N/A	N/A	
		Women	N/A	N/A	
NQCs	**LTDs**				207 813 [2]
		Total	569 487 [1]	100 [1]	
		Men	464 624 [1]	81.6 [1]	
		Women	104 863 [1]	18.4 [1]	

[2] 2005 for publicly owned companies, 2008 for PLCs, and 2009 for cooperatives.

*According to Statistics Norway (2017), there were 176 PLCs in Norway in 2016. However, the Brønnøysund Register Centre provides a list of 206 PLCs. When comparing the list extracted from Brønnøysund Register Centre and the list of companies listed on the Oslo Stock Exchange (2017), a list of 272 PLCs could be compiled for the sample frame. See Appendix 3 for the full list of companies in the sample frame and sampling.

**Of which 253 are inter-municipal companies, 191 are municipal business enterprises, and 8 are state-owned enterprises.

Sources: [1] Statistics Norway (2017a); [2] Statistics Norway (2017b); [3] The Brønnøysund Register Centre (2017).

In Norway, all limited companies must have boards of directors. As already established, limited companies can either be private (private ownership) or public (offer shares to the general public). There are 207,813 LDTs in Norway (The Brønnøysund Register Centre, 2017) of which the majority are small family businesses in which the owners themselves often sit on the board (Storvik and Teigen, 2010). In regard to PLCs, a definite amount of companies is not possible to find, and different sources show different numbers. See Appendix 2 for description of typical corporate governance structure in Norway and how board directors get appointed.

4.5 Population sampling and survey distribution

Since reaching the whole target population is not possible, an accessible sampling frame has been identified in order to get a representative sample of the population (Fritz and Morgen, 2010). Company lists have been compiled using different sources.

The sampling frame of Norwegian PLCs consists of 186 companies that are listed the Oslo Stock Exchange (2017) and other companies registered as PLCs in *The Brønnøysund Register Centre* (2017). As explained in previous sections, it seems impossible to find the exact population of PLCs, and the list of 272 companies can, therefore, be considered as covering the whole population.

The Norwegian company registry has also been used to make a sampling frame of POCs and LTDs. Given that there are 207,813 LTDs in Norway, the sampling frame consists of the largest companies in terms of employees (ranging from 150 to more than 15000 employees). This is because, the larger the companies are in terms of employees, the more board seats they have, and the higher is the probability of attaining responses from a larger share of board directors.

COOs are excluded from the sampling frame because of the following reasons. While there are 5.130 COOs in Norway, according to Teigen (2012: 142), in 2012 only 304 COOs were subjected to the quota legislation. This indicates that the law does not cover all COOs in the country. A list of COOs subjected to the quota law is not available, forcing the exclusion of board directors in COOs the sampling frame.

After compiling company lists, each company website was visited. Whenever e-mail addresses were available on the website, the survey invitation was sent directly to the board members. In total 165 board directors were contacted directly. When e-mail addresses to board directors were not

available, the survey invitation was sent to the CEO or company general e-mail, hoping that the survey invitation would be forwarded to the actual board members. It is acknowledged that the chances of the survey to get to the board members would be very small. CEOs and other employees are very busy with company activities and do often not have interest in surveys. After more than 6 weeks, only 38 valid responses were received.

As a second attempt, the names of board members from the same list of companies were identified on the Norwegian business finder PROFF (https://www.proff.no/), and board members were contacted via LinkedIn. After 2-3 weeks, 150 valid response were received (112 responses after taking contact on LinkedIn). See table 4 below for number of survey invitations sent out using the different distribution methods.

Table 4: Population, sampling frame and samples

Company type	Population (numbers of companies)	Sampling frame	Number of Companies contacted via e-mail	Number of board members contacted via e-mail	Number of board members contacted via LinkedIn
PLCs	272	272	238	30	300
POCs	452	452	300	28	50
LTDs	207 813	1130	752	107	200
Total	**208,537**	**1801**	**1290**	**165**	**550**
Response rate			**38/1290=2.9%**	**38/165=23%**	**112/550=20%**

4.6 Method of data analysis

4.6.1 Intraclass correlation coefficient

The data analysis will start by showing descriptive features of the sample demographic characteristics, such as company type, age, gender, and experience as board director. This will be done by running simple frequencies and descriptive tests.

In previous studies of the relationship between gender stereotypes and leadership characteristics (e.g. Schein 1973, 1975; Schein *et al*., 1989; Brenner *et al.*, 1989; Heilman *et al.*, 1989; Schein and Mueller, 1992; Deuhr and Bono, 2006) the principal measurement of interest was the degree of resemblance between the ratings of *successful manager*, *men in general* and *women in general*. Most of these studies have used the *intraclass correlation coefficient* (ICC) to measure this relationship.

There are several versions of the ICC and depending on the assumptions, ICCs can be calculated and interpreted in different ways (Shrout and Fleiss, 1979). In this study, the calculation bears the objective of testing the resemblance between the mean ratings of 47 leadership traits given by

independent respondents. The 47 traits are fixed *classes*, and the raters are random. Therefore, based on the guidelines of Shrout and Fleiss (1979), Howell (2012) and Koo and Li (2016), a one-way random model is selected to compute the ICC analysis. This model attempts to account for where any random effects might be coming from by assuming that either the classes or the raters are random; the latter being true in the current study. The ICC of a one-way model represents the absolute agreement between the ratings. The larger the value of the ICC, the smaller variability there is within the classes relative to variability between the classes, and the more resemblance there will be between the mean scores of SBDs vs MBDs, and SBDs vs FBDs (Schein, 1973).

4.6.2 Main effects and interaction

To complement the ICC analyses of agreement between mean ratings, it is found relevant to test the main effects and interaction of independent variables (often called explanatory variables) on the dependent variable (often called the response or outcome variable). According to Agresti and Finley (1997), main effects and interaction are important whenever analysing multivariate relationships.

To identify the effect of gender balance on gender stereotypes towards women as leaders in the boardroom, the dependent variable is divided into five outcome variables (the five scales of *gender and leadership traits*[3]). In summary, the five scales account for the dependent variable (gender stereotyping), and the company type (QC and NQC) accounts for gender balance or gender imbalance which is the independent variable. Other characteristics such as gender, age, and experience as board director will also be accounted for, depending on the possibility to do so in terms of the size of the sample.

By the explanation above, it is clear that the current study design consists of different types of variables. For instance, the different gender and leadership characteristics are ordinal variables, while the gender of the respondents is a categorical variable, and so on. In this situation, the statistical model chosen has to be compatible with the variables under investigation. For this reason, the General Linear Model (GLM) will be used during data analysis with support from explanations given in Taylor (2011) – an online handbook on the application of GLM. GLM is the generalization of the multiple linear regression (MLR) and the factorial ANOVA (F-ANOVA). In an F-ANOVA model, all the *predictors* (explanatory variables) are categorical, and in MLR the predictors can be continuous or categorical. The GLM provides a framework that combines different statistical models that seek to explain a dependent variable by a set of independent variables, which can be categorical or quantitative.

3 See page 36 in this study for the overview table.

In the GLM computation, the interest is often to test the main effect of certain independent variables and the interaction between independent variables. The main effect is the effect of a specific predictor, when ignoring the other predictors in the study design, while the interaction is the effect of one predictor on the outcome variable depending on the value of another predictor. That is, GLM calculates whether the effect of one of the variables differs depending on the level of the other variables.

In order to analyse the interaction effect, it is important to think in terms of *focal* and *moderator predictors*. The focal predictor can be thought of as the variable whose effect on the outcome is thought to be moderated by some other predictor included in the study design. In other words, the focal predictor is the variable of primary interest, whilst the moderator variable may be thought of as the variable of secondary interest because of its potential impact on the effects of the focal predictor. Finally, if any interaction shows to be significant, then *Sidak post hoc comparisons* (Abdi, 2007) can be used to identify which means are significantly.

The computation of ICC and GLM will be conducted separately as to test each of this study's three hypotheses. This separation will be evident in the data analysis chapter 5.

4.7 Reliability and Validity

Reliability and validity are two of the most important concepts to evaluate methodological issues of social research, especially quantitative research (Bryman, 2004). While reliability is concerned with the degree to which the measure is consistent and results are repeatable over time, validity is concerned with the degree to which valid inferences can be drawn from the data (6 and Bellamy, 2012; David and Sutton, 2004).

To start with reliability, it refers to the replicability of a measure and its consistency over time. To be reliable, a measure needs to reflect the constructs that it is trying to measure (Field, 2009). In other words, the scores of an item in a scale rated by the same person need to be the same even when rated at different points in time. In this study, the five scales are composed by many items (gender and leadership traits). To make sure that the items under each instrument really measure the same instrument, the responses should be similar to all items, which means the items are reliable (i.e. homogeneous broadly speaking). If they are not, then these items are not a reliable measure of the instrument (i.e. heterogeneous broadly speaking). One way of ensuring measurement reliability is by applying a test-retest method in which the respondents are asked the same questions at different occasions (David and Sutton, 2004). However, this is often not possible or practical. Instead, internal consistency of an instrument will be assessed by using the coefficient of Alpha Cronbach. The interpretation of the coefficient alpha (α) will be based on Cicchetti (1994), for whom the size of the coefficient alpha only indicates high internal reliability when 0.70 or above.

In regard to validity, the most important criteria are internal validity, external validity, and measurement validity. Internal validity is about structuring the research in such a way that ambiguities in the research findings and in its claims of causality can be reduced (de Vaus, 2001; Bryman, 2004). Internal validity relates to the fit between the data and the beliefs of those that have been studied (David and Sutton, 2004). This means that the research design, including sampling technique and tools for data collection, needs to assure that the claimed relationship between two or more variable is explained by the findings and no other unexplained variables (Leighton, 2010).

According to de Vaus (2001), cross-sectional designs often have weak internal validity because of the difficulty in establishing causality without a time frame. A way of bypassing this problem is by removing differences between groups *post* to the data collection. This is because, in order to know how much variance X causes in Y *ceteris paribus*, we need to control for other *things that may not be equal* by removing as many differences as possible. For instance, in order to establish whether variances in mean ratings given the three conditions (SBD, MBD and FBD) are caused by the independent variable, we can control for confounding variables such as gender, age, and years of experience as board directors. Variance in the ratings of SBDs, MBDs and FBDs may be lower or higher when making sure that respondents are as comparable as possible.

Measurement validity refers to three different aspects of the study design: criterion validity, construct validity, and content validity (6 and Bellamy, 2012; De Vaus, 2001, David and Sutton, 2004). Criterion validity has to do with the alignment of the used measures with other measures or benchmarks widely accepted in the research community. Construct validity involves the conformability of the measure with the original theory. Lastly, content validity refers to the constructs that are used to measure a concept. The measurements in this study replicate the theory and research design of previous studies by making adaptations to a new context and study purpose. For instance, the constructs used in the survey (the 47 leadership traits) are borrowed from the study of Deuhr and Bono (2006), which was constructed on the basis of a piloting survey and previous theories and research, among others Schein (1973; 1975). By basing its design and measurements on other studies, the current study has been able to secure measurement validity.

5. Analysis of results

The survey responses were extracted as a data set from Qualtrics Survey Platform to be analysed in the Statistical Package for the Social Sciences (SPSS). Incomplete responses, responses with no variability in items ratings, and responses in which participants marked as having no board experience, or as belonging to a type of company other than PLC, LTD or POC, were excluded. Lastly, 150 complete responses remained without missing values (81 responses from QC and 69 responses from NQC board directors). Furthermore, as the primary independent variables of interest in this thesis are gender balance (on QC boards) and gender imbalance (on NQC board), the data was filtered in order to exclude responses from QC boards that are not in compliance with the Norwegian quota requirement and NQC boards that are gender balanced (as prescribed by the quota requirement)[4]. 107 responses remained (65 responses from QC and 42 responses from NQC board directors).

The data set was organized in the following way. First the three company types were transformed so that PLC and POC became QC (value = 1), and LTD became NQC (value = 2). This way all variable values from QCs and NQCs could ultimately be separated. The values of the 5-point Likert scale were transformed into: Strongly disagree = 1; somewhat disagree = 2, neither agree nor disagree = 3; somewhat agree = 4; and strong agree = 5. Furthermore, several new variables were computed into the data set: the sum of board seats; the share of women on the boards; and the share of men on the boards, as reported by each respondent. In addition, the three conditions were also inserted as a new variable (labelled "survey") in order to allow computation. The variable survey is composed by the following values: actual female board directors (heron FBDs); actual male board directors (heron MBDs); and successful board directors (heron SBDs). Finally, mean scores of each response to each leadership trait were aggregated, as well as the mean scores of the five scales (agentic, communal, task-oriented, relationship-oriented, and transformational).

See the demographic profile of the sample in the next section.

5.1 Demographic characteristics of the sample

Among the 150 board directors who participated in the survey (complete sample), 81 (54 %) works in QCs (of which 48.1 % are men and 51.9 % are women), and 69 (46 %) works in NQCs (of which 69.6 % are men and 30.4 % are women). In respect to age and experience, the majority of board directors in both samples are 50 years or above (69.1 % in QCs and 49.3 % in NQCs) and have

[4] As the NQC sample became too small when excluding gender balanced boards, the full sample will be used to test hypothesis 3 in which gender stereotyping is examined among male and female responses.

more than 9 years of experience as board directors (59.3 % in QCs and 50.7 % in NQCs). For more details see table 5 below.

Table 5: Demographic profile (final sample)

Category	Sub-category		Frequency	Share within category
All N: 150 100 %	**Gender**	Men	N: 87	58 %
		Women	N: 69	42 %
	Age	24-39 years	N: 17	11.3 %
		40-49 years	N: 43	28.7 %
		50 years and above	N: 90	60 %
	Experience	Less than 3 years	N: 25	16.7 %
		More than 3 years and less 6 years	N: 23	15.3 %
		More than 6 years and less 9 years	N: 19	12.7 %
		More than 9 years	N: 83	55.3 %
	Survey	FBD	N: 50	33.3 %
		MBD	N: 45	30 %
		SBD	N: 5	36.7 %
QC N: 81 54 %	**Gender**	Men	N: 39	48.1 %
		Women	N: 42	51.9 %
	Age	24-39 years	N: 5	6.2 %
		40-49 years	N: 20	24.7 %
		50 years and above	N: 56	69.1 %
	Experience	Less than 3 years	N: 11	13.6 %
		More than 3 years and less 6 years	N: 11	13.6 %
		More than 6 years and less 9 years	N: 11	13.6 %
		More than 9 years	N: 48	59.3 %
	Survey	FBD	N: 29	35.8 %
		MBD	N: 23	28.4 %
		SBD	N: 29	35.8 %
NQC N: 69 46 %	**Gender**	Men	N: 48	69.6 %
		Women	N: 21	30.4 %
	Age	24-39 years	N: 12	17.4 %
		40-49 years	N: 23	33.3 %
		50 years and above	N: 34	49.3 %
	Experience	Less than 3 years	N: 14	20.3 %
		More than 3 years and less 6 years	N: 12	17.4 %
		More than 6 years and less 9 years	N: 8	11.6 %
		More than 9 years	N: 35	50.7 %
	Survey	FBD	N: 21	30.4 %
		MBD	N: 22	31.9 %
		SBD	N: 26	37.7 %

Appendix 3 Frequencies and Cross Tabs (complete sample)

Among the 107 board directors representing gender balanced and gender imbalanced boards (adjusted sample), 65 (60.7%) works in QCs (of which 46.2% are men and 53.8% are women), and 42 (39.3%) works in NQCs (of which 81% are men and 19% are women). In respect to age and experience, the majority of board directors in both samples are 50 years or above (69.2% in QCs and 50% in NQCs) and have more than 9 years of experience as board directors (58.5% in QCs and 54.8% in NQCs). For more details see table 6 below.

Table 6: Demographic profile (adjusted sample)

Category	Sub-category	Groups	Frequency	Share within category
All N: 107 100 %	**Gender**	Men	N: 64	59.8 %
		Women	N: 43	40.2 %
	Age	24-39 years	N: 11	10.3 %
		40-49 years	N: 30	28 %
		50 years and above	N: 66	61.7 %
	Experience	Less than 3 years	N: 18	16.8 %
		More than 3 years and less 6 years	N: 17	15.9 %
		More than 6 years and less 9 years	N: 11	10.3 %
		More than 9 years	N: 861	57 %
	Survey	FBD	N: 29	36.4 %
		MBD	N: 31	29 %
		SBD	N: 37	34.6 %
QC N: 65 60.7 %	**Gender**	Men	N: 30	46.2 %
		Women	N: 35	53.8 %
	Age	24-39 years	N: 3	4.6 %
		40-49 years	N: 17	26.2 %
		50 years and above	N: 45	69.2 %
	Experience	Less than 3 years	N: 10	15.4 %
		More than 3 years and less 6 years	N: 10	15.4 %
		More than 6 years and less 9 years	N: 7	10.8 %
		More than 9 years	N: 438	58.5 %
	Survey	FBD	N: 24	36.9 %
		MBD	N: 18	27.7 %
		SBD	N: 23	35.4 %
NQC N: 42 39.3 %	**Gender**	Men	N: 34	81 %
		Women	N: 8	19 %
	Age	24-39 years	N: 8	19 %
		40-49 years	N: 13	31 %
		50 years and above	N: 21	50 %
	Experience	Less than 3 years	N: 9	19 %
		More than 3 years and less 6 years	N: 7	16.7 %
		More than 6 years and less 9 years	N: 4	9.5 %
		More than 9 years	N: 23	54.8 %
	Survey	FBD	N: 15	35.7 %
		MBD	N: 13	31 %
		SBD	N: 23	33.3 %

Appendix 4 Frequencies and Cross Tabs (gender balance/imbalance)

As can be seen by both tables 5 and 6, the sample sizes become relatively small, when dividing the respondents into groups of gender, age, and experience. As correlation coefficients can easily fluctuate in small sample sizes compared to large samples, correlation studies require a minimum number of observations (Field, 2009). As a rule of thumb, 5-10 participants per variable are necessary in order for statistical calculations to yield reliable results (Ibid.). Thus, when dividing the data set into groups and subgroups, there are not enough participants under each age and experience variable in order to allow comparisons. Both in the complete and adjusted sample, most respondents are grouped in the age group of ≥ 50 and the experience group of > 9 *years*. On this basis, the calculation of *ICC* by including the confounding variables age and experience is not a possibility.

In the current study, further consideration needs to be given to the fact that the three conditions (SBD, MBD and FBD) were randomised, which requires as well a minimum number of observations. See table 7 below for the number of observation available from each group and

subgroup. As a consequence of the small sample size, there are not enough NQC female observations in the adjusted sample in order to reliably test hypothesis 3. Thus, to test hypothesis 3, the complete sample will be used.

Table 7: Survey observation counts

Complete sample				
	QC		NQC	
	Men	Women	Men	Women
FBD	12	17	16	5
MBD	13	10	15	7
SBD	14	15	17	9
Adjusted sample				
	QC		NQC	
	Men	Women	Men	Women
FBD	11	13	12	3
MBD	8	10	10	3
SBD	11	12	12	2

Appendix 5 Survey observations

In respect to board composition, the figures are also intriguing. In the complete QC sample, men account for 58.8% and women account for 41.2%, which is very close to how they are represented in the population (57.9% and 42.1%, respectively). In the complete NQC sample, men account for 69% and women for 31%, which is not a representative picture of the population. According to Statistics Norway (2017), the share of men and women on boards of private companies in Norway are 81.6% and 18.4%, respectively. The high share of female board directors in the NQC sample is perhaps caused by a response bias. In the survey, question 6 asks about gender composition, and one can argue that male participants from boards that are gender imbalanced might have been more reluctant to participate in the survey.

However, in the adjusted sample, the share of female board directors in the NQC comes closer to the share in the population. See table below.

Table 8: Board seats and gender composition

Complete sample	**QC**	**NQC**
Board seats (mean)	6.6	5.8
Men (share)	58.8	69
Women (share)	41.2	31
Adjusted sample	**QC**	**NQC**
Board seats (mean)	6.6	5.7
Men (share)	55.4	77
Women (share)	44.6	23

See Appendix 6 Frequencies

5.2 Reliability of gender and leadership scales

As explained before, the constructs for gender stereotyping are the 47 traits, which can further be divided into five outcome scales: agentic traits and communal traits, representing traditional

gendered characteristics; and task-oriented, relationship-oriented and transformational leadership characteristics.

In order to estimate the reliability (internal consistency) of the five scales, the alpha coefficient of these 47 items is calculated. As mentioned in the methodology chapter, this is done to measure whether the items within each scale actually measure the same phenomenon. Internal consistency can be assessed by the Alpha Cronbach method for which each outcome value has the following interpretations:

Table 9: Alpha Coefficient interpretation

Alpha coefficient values	Internal consistency
0.90 and above	excellent
0.80 – 0.89	good
0.70 – 0.79	fair
Below 0.70	unacceptable

Source: *Cicchetti 1994, p. 286.*

The leadership scales, which are task-oriented ($\alpha = 0.84$), relationship-oriented ($\alpha = 0.82$) and transformational ($\alpha = 0.87$) have *good* significance, which means that their items have high level of internal consistency. However, the gender scales, which are agentic ($\alpha = 0.59$) and communal ($\alpha = 0.48$) characteristics are imprecise and have unacceptable significance. This means that the constructs under these scales do not have internal consistency. One could argue that this is a consequence of the negative connotation in some of the items (e.g. aggressive, forceful in the agentic scale and e.g. passive, submissive in the communal scale), as well as their outdated importance to characterize current leadership traits.

Table 10: Reliability of the five scales

Scales	N	# items	Alpha Cronbach
Agentic characteristics	150	7	.59
Communal characteristics	150	7	.48
Task-oriented leadership	150	10	.84
Relationship-oriented leadership	150	10	.82
Transformational leadership	150	13	.87

Appendix 7 Alpha Cronbach

5.3. Intraclass Correlation and General Linear Model

The next step in the data analysis is to calculate the resemblance between the ratings of the participants in regard to the gender and leadership characteristics of SBDs, MBDs and FBDs. To facilitate the calculation of the ICCs, the mean scores were aggregated into a new file and transposed so that the 47 traits became a string variable (the classes), and the raters became

analogous to the conditions – e.g. all QC male responses to the control condition SBD became one single variable (and so on in regard to the gender conditions FBD and MBD).

As in past research, the ICCs were computed from a randomized groups analyses of variance in which the value of the classes are the mean item ratings of each trait (Duehr and Bono, 2006). In this analysis, the ICC quantifies the degree of absolute agreement in the classes (the 47 traits) between 1) the ratings of SBDs and actual MBDs, and between 2) the ratings of SBD and actual FBDs. According to Cicchetti (1994), the ICC should be interpreted as follows: 0.40 = poor; 0.40 – 0.59 = fair; 0.60 – 0.74 = good; and 0.75 – 1.00 = excellent. Hence, all values that exceed 0.39 will be considered statistically significant ($p < .05$).

Next, the results of the ICC and GLM computation are shown is respect to each hypothesis.

5.2.1 Hypothesis 1 ICC and GLM analyses

H1: Among QC board members, there is less degree of gender stereotyping in respect to leadership characteristics as compared to NQC board members.

ICC ANALYSIS

The null hypothesis here is that ICC=0.39 or less for each level of analysis. When the ICC is significant, it exceeds 0.39 at a 0.05 level, leading to the rejection of the null hypothesis. For H1 to be true, the resemblance between the mean ratings of QC respondents to SBD vs MBD, as well as SBD vs FBD should be at a significant level. Furthermore, the resemblance between the mean ratings of NQC respondents to SBD vs MBD, as well as SBD vs FBD should be at a non-significant level.

Table 11: ICC analysis of all QC and all NQC ratings

Source	*df*	Mean Square	F	*Sig*	*ICC*
QC – All ratings					
SBD vs MBD					
Between items	46	.746	12.236	.000	.914**
Within items	47	.034			
SBD vs FBD					
Between items	46	.714	5.435	.000	.816**
Within items	47	.072			
NQC – All ratings					
SBD vs MBD					
Between items	46	.650	5.313	.000	.812**
Within items	47	.067			
SBD vs FBD					
Between items	46	.758	7.391	.000	.861**
Within items	47	.056			

**. The degree of agreement exceeds significantly 0.29 at 0.01 level.

*. The degree of agreement exceeds significantly 0.29 at 0.05 level.

Appendix 8 ICC analysis of all QC and NQC ratings

Based on table 11, the resemblance between the mean ratings of all respondents (QC and NQC) is significantly higher than 0.39 at level of 1%. This indicates high similarity between the control condition SBD and the two gendered conditions FBD and MBD. In other words, *actual male* and *actual female* board directors are perceived to have similar characteristics to those of *successful broad directors* as rated by respondents from both the QC (SBD vs MBD *ICC*=.914; and SBD vs FBD *ICC*=.816) and NQC (SBD vs MBD *ICC*=.812; and SBD vs FBD *ICC*=.861). The magnitude of these relationships does not vary widely by condition and sample.

Given these results, H1 should be rejected. There is no significant difference in the mean ratings of respondents from QC and NQC when looking at resemblance between the characteristics of SBDs MBDs and FBDs.

GLM – main effects and interaction

The effects model under H1 has gender balance or gender imbalance (represented here by company types QC and NQC) as the focal variable, and the three conditions (SBD, MBD and FBD) as the moderator variable. In other words, the aim here is to test whether the focal variable, moderated by the conditions and further adjusted by gender, can predict the outcome of the five scales.

The null hypothesis here is that there is no statistical significant difference in the variables' means. The null hypothesis is rejected when there is significant difference (p-value is significant at 0.05 level) due to main effect or interaction. If the null hypothesis is rejected, meaning that there is difference, post hoc comparisons can be computed to assess which variables are significant. H1 is true for the scale being analysed when there is significant post hoc comparisons.

Agentic characteristics

As shown in table 12 below, the main effect of company type ($F=0.274$, $p=0.602$, $\eta^2=0.003$), which means that there is no difference among board directors in QC and NQC in relation to how they have rated the items of the **agentic** scale. The interaction between company type and conditions is also not statistically significant ($F=2.919$, $p=0.723$, $\eta^2=0.006$), which means that the relationship between the response variable (**agentic** scale) and the explanatory variable (company type) does not change at moderated by the variable conditions.

However, the main effect of the variable conditions is statistically significant ($F=10.026$, $p=0.000$, $\eta^2=0.167$), which means that there is a difference between how respondents rated the items of the **agentic** scale at the level of at least one condition (SBD, MBD and FBD).

Table 12: H1: Main effects and interaction in agentic scale

Source	SS	*df*	MS	F	P-value	Partial Eta Squared	Observed Power
Company type	.040	1	.040	.274	.602	.003	.081
Conditions	2.919	2	1.459	10.026	.000	.167	.983
Company type × Conditions	.095	2	.047	.325	.723	.006	.101

Appendix 9 Tests of between-subjects effects (HYP 1, Agentic)

To better understand why the variable condition has a statistically significant main effect as an individual predictor, the post hoc comparisons using *Sidak* correction was computed. As shown on table 13, there is a significant difference between the means of FBD vs MBD (p=0.000) and SBD vs FBD (p=0.011) in QC responses to the **agentic** scale. However, there is no significant difference between the means of SBD vs MBD (p=518). This indicates that among QC respondents, the **agentic** characteristics of SBD were rated as closer to the characteristics of MBD.

In regard to NQC responses, there is no statistical significant difference between either pairwise comparisons (see table 14).

Table 13: Pairwise post hoc comparisons in the agentic scale (QC sample)

	Mean difference (I-J)	Std. Error	P-value [b]
Female board director vs. Male board directors	-.466*	.113	.000
Female board director vs. Successful board director	-.322*	.106	.011
Male board directors vs. Successful board directors	.143	.114	.518

*. The mean difference is significant at the 0.05 level.
b. Adjustment for multiple comparisons: Sidak.

Appendix 10 for Post hoc test (HYP1; Agentic; QC)

Table 14: Pairwise post hoc comparisons in the agentic scale (NQC sample)

	Mean difference (I-J)	Std. Error	P-value [b]
Female board director vs. Male board directors	-.361	.158	.082
Female board director vs. Successful board director	-.178	.155	.593
Male board directors vs. Successful board directors	.183	.161	.597

b. Adjustment for multiple comparisons: Sidak.

Appendix 11 Post hoc test (HYP1; Agentic; NQC)

In order to further illustrate the mean differences that were found in the QC pairwise comparisons (table 14), table 15 below shows the QC mean ratings to each **agentic** characteristic under each condition. SBD in general is rated high on analytical ability and ambition, which resemble actual MBD more than actual FBD. On the other end, SBD in general is rated low on dominance or aggressiveness, which resemble actual FBD more than actual MBD.

Table 15: Mean comparisons of conditions in QC ratings to agentic characteristics

Agentic characteristics	Mean FBD	Mean SBD	Mean MBD
Analytical ability	4.08	4.65	4.33
Ambitious	3.75	4.22	4.11
Self-confident	3.83	3.96	4.22
Assertive	3.21	3.48	3.44
Forceful	2.92	3.35	3.50
Dominant	2.29	2.61	3.11
Aggressive	1.88	1.96	2.50

Appendix 12 Descriptive statistics of FBD, MBD and SBD (Agentic; QC)

In summary, these post hoc analyses show that the main effect on the level of conditions is due to statistical significant difference in the mean ratings of FBD and SBD given by QC respondents. This means that QC respondents perceive the agentic characteristics of successful board directors as more similar to the **agentic** characteristics of actual male board directors.

Hence, in respect to the **agentic** scale as outcome variable for the extent of gender stereotyping among board directors from QCs and NQCs, H1 has to be rejected. The main effect of the conditions shows statistical differences within the QC sample and not across samples, as suggested by H1.

Communal characteristics

As shown in table 16 below, the main effects of company type ($F=1.693$, $p=0.196$, $\eta^2=0.017$) and conditions ($F=1.895$, $p=0.156$, $\eta^2=0.037$) are not statistically significant. This means that on the levels of these variables, there is no difference in the mean ratings of QC and NQC in relation to the items of the **communal** scale. Likewise, there is no statistically significant interaction between company type and conditions ($F=0.601$, $p=0.601$, $\eta^2=0.010$).

Table 16: H1: Main effects and interaction in communal scale

Source	SS	*df*	MS	F	P-value	Partial Eta Squared	Observed Power
Company type	.264	1	.264	1.693	.196	.017	.252
Conditions	.592	2	.296	1.895	.156	.037	.386
Company type × Conditions	.160	2	.080	.601	.601	.010	.132

Appendix 13 Tests of between-subjects effects (HYP 1, Communal)

Hence, in respect to the **communal** scale as outcome variable for the extent of gender stereotyping among board directors of QCs and NQCs, H1 has to be rejected.

Task-oriented leadership

As shown in table 17 below, the main effect of company type ($F=1.722$, $p=0.192$, $\eta^2=0.017$) is not statistically significant. This means that on the level of company type, there is no difference in the mean item ratings of the **task-oriented** scale given by QC and NQC respondents. Also, the interaction between company type and conditions is not statistically significant ($F=1.279$, $p=0.283$,

η^2=0.025), which means that the relationship between the response variable (**task-oriented** scale) and the explanatory variable (company type) does not change at the level of the variable conditions.

Table 17: H1: Main effects and interaction in task-oriented scale

Source	SS	*df*	MS	F	P-value	Partial Eta Squared	Observed Power
Company type	.389	1	.389	1.722	.192	.017	.255
Conditions	3.034	2	1.517	6.712	.002	.118	.909
Company type × Conditions	.578	2	.289	1.279	.283	.025	.272

Appendix 14 Tests of between-subjects effects (HYP 1, Task-oriented)

However, the main effect of conditions is statistically significant (F=6.713, p=0.002, η^2=0.118). The post hoc comparisons using *Sidak* shows a significant difference between the mean ratings of FBD vs MBD (p=0.007) and FBD vs SBD (p=0.001) given by QC respondents. However, there is no significant difference between MBD vs SBD (p=0.970). This indicates that QC respondents rated the characteristics of SBD as similar to the characteristics of MBD in the **task-oriented** scale. Again there is no statistical significant difference in NQC responses (see table 19).

Table 18: Post hoc comparisons in the task-oriented scale (QC sample)

	Mean difference (I-J)	Std. Error	P-value [b]
Female board director vs. Male board directors	-.456*	.144	.007
Female board director vs. Successful board director	-.515*	.135	.001
Male board directors vs. Successful board directors	-.058	.144	.970

*. The mean difference is significant at the 0.05 level.
b. Adjustment for multiple comparisons: Sidak.

Appendix 15 Post hoc test (HYP1; Task-oriented; QC)

Table 19: Post hoc comparisons in the task-oriented scale (NQC sample)

	Mean difference (I-J)	Std. Error	P-value [b]
Female board director vs. Male board directors	-.092	.184	.945
Female board director vs. Successful board director	-.285	.181	.326
Male board directors vs. Successful board directors	-.193	.187	.671

b. Adjustment for multiple comparisons: Sidak.

Appendix 16 Post hoc test (HYP1; Task-oriented; NQC)

To further illustrate the mean differences found in the QC pairwise comparisons, table 20 below shows how the QC mean ratings to each **task-oriented** characteristic for each condition. SBD in general is rated high on competence, being skilled in business matter, logic and decisiveness, which resemble actual MBD more than actual FBD. There is a higher resemblance between actual FBD and SBD in general on the traits objective and intelligent.

Table 20: Mean comparisons of conditions in QC ratings to task-oriented characteristics (QC)

Task-oriented leadership	Mean FBD	Mean SBD	Mean MBD
Competent	4.33	4.87	4.78
Skilled in business matters	4.00	4.70	4.44
Logical	3.71	4.39	4.33
Decisive	3.54	4.30	4.11
Objective	4.00	4.26	3.89
Independent	3.92	4.26	4.11
Intelligent	4.04	4.26	4.61
Industrious	3.38	3.96	4.06
Speedy recovery from emotional disturbances	3.38	3.91	3.72
Competitive	3.25	3.78	4.06

Appendix 17 Descriptive statistics of FBD, MBD and SBD (Task-oriented; QC)

In summary, the post hoc analysis shows that QC respondents perceive the **task-oriented** characteristics of SBD as more similar to the **task-oriented** characteristics of MBD. Hence, in respect to the **task-oriented** scale as outcome variable for the extent of gender stereotyping, H1 has to be rejected. The main effect of the conditions shows statistical difference within the QC sample and not across samples, as suggested by H1.

Relationship-oriented and Transformational leadership

As shown in tables 21 and 22 below, the main effects of company type and conditions are not statistically significant in respect to the **relationship-oriented** and **transformational** scales. Likewise, there is no statistically significant interaction between company type and conditions.

Table 21: H1: Main effects and interaction in relationship-oriented scale

Source	SS	df	MS	F	P-value	Partial Eta Squared	Observed Power
Company type	.079	1	.079	.400	.529	.004	.096
Conditions	.035	2	.018	.089	.15	.002	.063
Company type × Conditions	.386	2	.193	.972	.381	.019	.215

Appendix 18 Tests of between-subjects effects (HYP 1, Relationship-oriented)

Table 22: H1: Main effects and interaction in transformational scale

Source	SS	*df*	MS	F	P-value	Partial Eta Squared	Observed Power
Company type	.053	1	.053	0.241	.625	.002	.077
Conditions	.650	2	.325	1.487	.231	.029	.311
Company type × Conditions	.838	2	.419	1.917	.152	.037	.390

Appendix 19 Tests of between-subjects effects (HYP 1, Transformational)

Hence, in respect to the **relationship-oriented** and **transformational** scales as outcome variables for the extent of gender stereotyping among board directors of QCs and NQCs, H1 has to be rejected. There is no statistical significant difference between the mean ratings of board directors of QCs and NQCs, when testing for main effects and interaction of explanatory variables.

5.2.2 Hypothesis 2 ICC and GLM analyses

H2: There is no significant difference between the mean ratings of QC female and male board directors.

ICC ANALYSIS

The null hypothesis here is that *ICC*=0.39 or less for each level of analysis. When the resemblance between the mean ratings is statistically significant, the ICC exceeds 0.39 at a 0.05 level, leading to the rejection of the null hypothesis. In other words, when H2 is true, the resemblance between ratings of QC women and men respondents in relation to SBD vs MBD and SBD vs FBD is at a significant level.

Table 23: ICC analysis of QC responses divided by gender

Source	*df*	Mean Square	F	*Sig*	*ICC*
QC Male responses					
SBD vs MBD					
Between items	46	.658	6.207	.000	.837**
Within items	47	.058			
SBD vs FBD					
Between items	46	.657	2.804	.000	.672**
Within items	47	.129			
QC Female responses					
SBDs vs MBD					
Between items	46	.861	8.005	.000	.871**
Within items	47	.059			
SBD vs FBD					
Between items	46	.799	7.955	.000	.871**
Within items	47	.055			

**. The degree of agreement exceeds significantly 0.29 at 0.01 level.
*. The degree of agreement exceeds significantly 0.29 at 0.05 level

Appendix 20 ICC analysis of QC ratings by gender

Based on table 23, the resemblance between the ratings of QC men and women is significantly higher than 0.39 at level of 0.01. This indicates high similarity between the control condition SBD and the two gendered conditions FBD and MBD. In other words, *actual* MBDs and *actual* FBDs are perceived to have similar characteristics to those of SBDs by QC men (SBD vs MBD *ICC*=.837; and SBD vs FBD *ICC*=.672) and QC women (SBD vs MBD *ICC*=.871; and SBD vs FBD *ICC*=.871).

However, the magnitude of these relationships varies slightly by condition. While women perceive the characteristics of SBDs as similar to those of FBDs (*ICC*=.871) and MBDs (*ICC*=.871), the resembalance between the mean ratings of men to SBDs vs FBDs is lower (*ICC*=.672). This indicates a tendency among QC men to perceive the characteristics of MBDs as more similar to those of SBDs in comparison to FBDs. Notwithstading, H2 is true. There is no significant difference in the mean ratings of QC men and women.

Mains effects – GLM computation

The effects model under H2 has gender as the focal variable, and the three conditions (SBD, MBD and FBD) as the moderator variable. In other words, the aim here is to test whether gender, moderated by the conditions, can predict the outcome of the five scales.

The null hypothesis here is that there is no main effect of gender or interaction between gender and coditions on the outcome of the five scales. The null hypothesis is rejected when there is significant difference (p-value is significant at 0.05 level), meaning that H2 cannot be accepted either.

The Five Scales

The main effect of the independent variables gender and conditions is not statically significant for any of the five scales. This means that there is no difference between how QC men and women board directors have rated the **agentic, communal, task-oriented, relationship-oriented and transformational** scales at the level of gender and conditions. See below tables 24 and 27-30.

The same applies to the interaction effect between gender and conditions, except for a significant interaction in the **agentic** scale. See table 25 for the post hoc comparison and table 26 for an illustration of found statistical difference in the **agentic** scale.

Table 24: H2: Main effects and interaction in agentic scale

Source	SS	*df*	MS	F	P-value	Partial Eta Squared	Observed Power
Gender	.126	1	.126	1.026	.315	.017	.169
Conditions[5]	2.661	2	1.2330	10.820	.000	.268	.987
Conditions × Gender	.817	2	.408	3.322	.043	.101	.607

Appendix 21 Tests of between-subjects effects (HYP 2, Agentic)

As shown on table below, the interaction between gender and condition in the **agentic** scale is due to a significant difference between the mean ratings of men vs women to the gender condition FBD (p=0.008).

Table 25: Post hoc comparisons in the agentic scale (QC sample)

Survey	Gender	Mean difference (I-J)	Std. Error	P-value [b]
FBD	Men vs Women	-.397*	.144	.008
MBD	Men vs Women	.039	.166	.814
SBD	Men vs Women	0.90	.146	.542

*. The mean difference is significant at the 0.05 level.
b. Adjustment for multiple comparisons: Sidak.

Appendix 22 Post hoc comparisons (HYP 2, Agentic)

[5] Given that H2 is interested in any differences given gender, the main effects of conditions alone are not relevant.

As illustrated below on table 26, actual FBD receives higher mean scores from women than from men on being ambitious, analytical ability and self-confident. However, this only shows how men and women rate the FBD condition, which is not relevant unless compared to the condition SBD.

Table 26: Mean scores in the condition FBD given by QC men and women to agentic characteristics

Agentic characteristics	Men	Women
Aggressive	2.13	2.01
Ambitious	3.90	4.11
Analytical Ability	4.17	4.51
Assertive	3.47	3.29
Dominant	2.53	2.71
Forceful	3.23	3.23
Self-confident	3.83	4.11

Appendix 23 Descriptive statistics of FBD, MBD and SBD (Agentic; QC)

Table 27: H2: Main effects and interaction in communal scale

Source	SS	*df*	MS	F	P-value	Partial Eta Squared	Observed Power
Gender	.007	1	.007	.043	.836	.001	.055
Conditions	.094	2	.047	.281	.756	.009	.092
Conditions × Gender	.109	2	.055	.722	.722	.011	.100

Appendix 24 Tests of between-subjects effects (HYP 2, Communal)

Table 28: H2: Main effects and interaction in task-oriented scale

Source	SS	*df*	MS	F	P-value	Partial Eta Squared	Observed Power
Gender	.140	1	.140	.631	.430	.011	.122
Conditions	3.757	2	1.878	8.481	.001	.223	.958
Conditions × Gender	.170	2	.085	.384	.013	.013	.109

Appendix 25 Tests of between-subjects effects (HYP 2, Task-oriented)

Table 29: H2: Main effects and interaction in relationship-oriented scale

Source	SS	*df*	MS	F	P-value	Partial Eta Squared	Observed Power
Gender	.000043	1	.000043	.000	.988	.000	.050
Conditions	.141	2	0.70	.370	.692	.012	.107
Conditions × Gender	.465	2	.232	1.222	.302	.040	.257

Appendix 26 Tests of between-subjects effects (HYP 2, Relationship-oriented)

Table 30: H2: Main effects and interaction in transformational scale

Source	SS	*df*	MS	F	P-value	Partial Eta Squared	Observed Power
Gender	.118	1	.118	.636	.428	.119	.694
Conditions	1.483	2	.741	4.002	.023	.011	.123
Conditions × Gender	.107	2	.053	.288	.751	.010	.095

Appendix 27 Tests of between-subjects effects (HYP 2, Transformational)

Hence, in respect to the **agentic** scale, there was a significant interaction pointing to a significant difference in the ratings of FBD given by men and women. In respect to the **communal, task-oriented, relationship-oriented** and **transformational** scales, there is no statistical significant difference between the mean ratings given by QC men and women, when testing for main effects and interaction. H2 can be accepted, though not in the **agentic** scale.

5.2.3 Hypothesis 3 ICC and GLM analyses

H3: There is less degree of gender stereotyping in respect to leadership characteristics among NQC female board directors in comparison to NQC male board directors.

ICC ANALYSIS

The null hypothesis here is that ICC=0.39 or less for each level of analysis. When the ICC is significant, it exceeds 0.39 at a 0.05 level, leading to the rejection of the null hypothesis. This means that the resemblance between the mean ratings are significant.

For H3 to be true, the resemblance between the mean ratings of NQC women to SBD vs MBD and SBD vs FBD should be at a significant level, while at a non-significant level in the male responses.

Table 31: ICC analysis of NQC responses divided by gender[6]

Source	*df*	Mean Square	F	*Sig*	*ICC*
NQC Male responses					
SBD vs MBD					
Between items	46	.667	5.373	.000	.814**
Within items	47	.068			
SBD vs FBD					
Between items	46	.741	5.766	.000	.826**
Within items	47	.071			
NQC Female responses					
SBD vs MBD					
Between items	46	.604	2.298	.000	.613**
Within items	47	.145			
SBD vs FBD					
Between items	46	1.016	6.255	.000	.838**
Within items	47	.089			

**. The degree of agreement exceeds significantly 0.29 at 0.01 level.
*. The degree of agreement exceeds significantly 0.29 at 0.05 level.

Appendix 28 ICC analysis of NQC ratings by gender

Based on table 31, the resemblance between the ratings of QC men and women is significantly higher than 0.39 at level of 0.01. This indicates high similarity between the control condition SBD and the two gendered conditions FBD and MBD. In other words, *actual* MBDs and *actual* FBDs are perceived to have similar characteristics to those of SBDs by both men (SBD vs MBD

[6] As explained earlier, the NQC sample size becomes too small when adjusted by gender imbalance. For this reason, the complete sample is used to test H3.

ICC=.814; and SBD vs FBD *ICC*=.826) and women (SBD vs MBD *ICC*=.613; and SBD vs FBD *ICC*=.838).

However, the magnitude of these relationships varies slightly by condition. While NQC men perceive the characteristics of SBDs as very similar to those of actual FBDs (*ICC*=.826) and actual MBDs (*ICC*=.814), the correlation between the mean ratings of SBDs vs MBDs given by female respondents is lower (*ICC*=.613). One can argue that this indicates a tendency among NQC women to rate FBDs as having more similar characteristics to those of SBDs in comparison to MBDs.

Nonetheless, H3 is rejected. There is no significant difference in the ratings of NQC men and women when looking at resemblance between the characteristics of SBD vs MBD and SBD vs FBD.

Main Effects – GLM computation

The effects model under H3 has gender as the focal variable, and the three conditions (SBD, MBD and FBD) as the moderator variable. In other words, the aim here is to test whether gender, moderated by the measurement conditions, can predict the outcome of the five scales.

The null hypothesis here is that there is no main effect of gender or interaction between gender and coditions on the outcome of the five scales. The null hypothesis is rejected when there is significant difference (p-value is significant at 0.05 level), meaning that H3 cannot be accepted.

The Five Scales

The main effect of gender is not statically significant for all five scales. This also applies to the interaction between gender and conditions, except for an iteraction in the **communal** scale, which the post hoc comparisons shows (table 34) not to be cause a significant interaction.

Hence, there is no difference between how NQC men and women have rated the **agentic, communal, task-oriented, relationship-oriented and transformational** scales. Se the following tables 32-37 for these results.

Table 32: H3: Main effects and interaction in agentic scale

Source	SS	*df*	MS	F	P- value	Partial Eta Squared	Observed Power
Gender	.490	1	.490	2.027	.159	.031	.289
Conditions	1.064	2	.532	2.200	.119	.065	.433
Conditions × Gender	.003	2	.002	.006	.994	.000	.051

Appendix 29 Tests of between-subjects effects (HYP 3, Agentic)

Table 33: H3: Main effects and interaction in communal scale

Source	SS	*df*	MS	F	P-value	Partial Eta Squared	Observed Power
Gender	.122	1	.122	.669	.417	.011	.127
Conditions	.076	2	.038	.210	.811	.007	.081
Conditions × Gender	1.181	2	.590	3.243	.046	.093	.598

Appendix 30 Tests of between-subjects effects, including post hoc (HYP 3, Communal)

Table 34: H3: Post hoc comparisons for communal (NQC)

Conditions	Gender	Mean Difference (I-J)	Std. Error	P-value[a]
FBD	Men vs Women	0.202	0.219	0.359
MBD	Men vs Women	0.358	0.195	0.072
SBD	Men vs Women	-0.280	0.176	0.116

a. Adjustment for multiple comparisons: Sidak.

See appendix 30

Table 35: H3: Main effects and interaction in task-oriented scale

Source	SS	*df*	MS	F	P-value	Partial Eta Squared	Observed Power
Gender	.709	1	.709	2.963	.090	.045	.396
Conditions	.563	2	.281	1.176	.315	.036	.249
Conditions × Gender	1.138	2	.569	2.380	.101	.070	.464

Appendix 31 for Tests of between-subjects effects (HYP 3, Task-oriented)

Table 36: H3: Main effects and interaction in relationship-oriented scale

Source	SS	*df*	MS	F	P-value	Partial Eta Squared	Observed Power
Gender	.060	1	.060	.316	.576	.005	.086
Conditions	.943	2	.471	2.483	.092	.073	.481
Conditions × Gender	.927	2	.464	2.442	.095	.072	.474

Appendix 32 for Tests of between-subjects effects (HYP 3, Relationship-oriented)

Table 37: H3: Main effects and interaction in transformational scale

Source	SS	*df*	MS	F	P-value	Partial Eta Squared	Observed Power
Gender	0.175	1	0.175	0.790	0.378	0.012	0.141
Conditions	0.909	2	0.454	2.056	0.136	0.061	0.408
Conditions × Gender	1.177	2	0.588	2.662	0.078	0.078	0.510

Appendix 33 for Tests of between-subjects effects (HYP 3, Transformational)

Hence, there is no statistical significant difference between the mean ratings of NQC men and women to the items of all five scales, when testing for main effects and interaction of gender and conditions and H3 is rejected. In the next chapter, the data analysis results presented in this chapter 5 will be summarised and discussed.

6. Discussion of findings and conclusion

In this chapter, the results of the analysis will be discussed on the basis of possible methodological limitations, as well as theoretical explanations reviewed in chapter 3. First, a summary of the findings will be provided in order to answer each of the sub-questions posed in Chapter 1 (6.1). Secondly, limitations of the study will be discussed (6.2), followed by concluding remarks and answer to the research question (6.3).

6.1 Summary of findings

The purpose of this study was to evaluate the effects of the Norwegian gender quota on gender and leadership stereotypes among board directors of quota subjected companies. Given that the gender quota adopted in Norway in 2005 allowed the share of women board directors on boards of PLCs to increase from 4% in 2002 to 42% in 2017, it was postulated that the gender balance the quota stimulated could also have lessened gender stereotypes towards women as leaders in the boardroom.

To study this possible effect, the following research question was posed: *To what extent do gender quotas contribute to changing gender stereotypes towards women as leaders in the boardroom?* This study attempted to answer this research question stepwise by investigating three sub-questions, which are discussed below.

With the **first sub-question**, the aim was to explore *what are the factors that cause underrepresentation of women on corporate boards and what is the evidence that gender quotas address those factors?* To answer this sub-question, the literature offering explanations to women's underrepresentation in leadership and top management positions was studied. The review showed that most explanations can be grouped into supply-side and demand-side barriers. While supply-side barriers concern individual choices and limitations faced by women that hinder their career progress (e.g. identification with expected gender roles and thus lack of career ambition; conflicts between work and family decisions, etc.), demand-side barriers concern gender discrimination and biased perceptions of women' capabilities (e.g. gender stereotypes in relation to women's leadership; lack of or weak laws and regulations that push for gender equality).

Seen as contributing to answering the main research question, a decision was made to put emphasis on studying the demand-side barriers, and more specifically the issue of gender stereotypes. A **second sub-question** aimed to examine *how can attitudes towards women as leaders be examined?* To answer this sub-question, a review of empirical studies was conducted, showing that gender stereotypes in leadership/management have been researched for decades, especially in the fields of social and organizational psychology. An interesting framework called *Think Manager - Think Male*, created by Virginia Schein (1973, 1975), and replicated in several studies over the last three

decades, including a more recent replication by Deuhr and Bono (2006), appeared as having potential to help answer the research question.

Furthermore, to study *attitudes towards women as leaders,* a theoretical framework was developed to establish the relationship between gender stereotypes, the underrepresentation of women in leadership, and how this can be changed by affirmative actions such as minimum gender share requirements. The theoretical framework included theories such as the *lack of fit* model (Heilman, 1997; 2001), the *role congruity theory of prejudice* (Eagly and Karau, 2002), tokenism (Kanter, 1993) and how stereotypes can change (Weber and Crocker, 1983; Schneider, 2004). On the basis of the empirical studies reviewed and the constructed theoretical framework, three hypotheses were defined (see page 31).

To collect data, a survey research was conducted among board directors of Norwegian QCs, as well as board directors of NQCs. The survey sought to investigate board directors' perceptions in relation to the requisite leadership characteristics to be successful board directors. As in Schein's TMTM studies (1973; 1975), participants were asked to rate: how much do you agree hat the following leadership skilss are characteritics for SBDs/ actual MBDs/ actual FBDs.

To each of the three vesions of this question, participants rated 47 different traits on a 5-point Likert scale ranging from *mostly disagree* to *mostly agree*. The 47 leadership traits (as in Deuhr and Bono 2006) included seven agentic and seven communal adjectives, which in the literature is often assumed as gendered traits, as well as 10 task-oriented, 10 relationship-oriented, and 12 transformational adjectives, which is seen to represent more contemporary leadership styles. The research was designed as a cross-sectional study, attempting to make inferences towards the relationship between the gender quota (and the gender balance that it brought about on quota-subjected boards) and a change in gender stereotypes. It was argued that by applying the same survey research on board directors from Norwegian NQCs, which boards are gender imbalanced, group differences would become evident and serve to qualify the postulated relationship between gender balance and less gender stereotyping. The data was analysed using the ICC – a correlation test for absolute agreement between mean ratings – and the GLM – a statistic test that measures main affects and interaction of different independent variables.

Finally, a **third sub-question** enquired: *Is there a relationship between the introduction of gender quotas and a lessening of gender stereotypes towards women board directors in the boardroom?* The answer this sub-question, the data analysis results are summarised below.

In this study, H1 established that given the gender quota and the gender balance that it promoted on the boards of QCs, directors on these boards would show less gender stereotypes relative to board directors of NQCs. However, the ICC analysis of the resemblance between the mean ratings of QC and NQC showed no significant difference. Also the analysis of the main effects and

interation of the independent variables gender balance/imbalance and the three conditions did not produce evidence to confirm the hypothesis. Actually, there was significant difference in the main effect of the conditions, which the post hoc analysis made clear to be a case of statistical difference in the mean ratings of QC board directors to the **agentic** and **task-oriented** scales. This further meant that QC board directors perceive the agentic and task-oriented characteristics of *successful board directors* in general as more similar to the agentic and task-oriented characteristics of *actual male board directors*. Notwithstanding, **H1 is rejected** since there is no evidence for the postulated difference between board directors from gender balanced and board directors from gender imbalanced boards.

Given that H1 was expected to be true, I was also interested in examining whether gender balance would positively affect gender stereotypes among QC male and female board directors to the same extent (H2). The ICC analysis showed no significant resemblance between the mean ratings showed of QC men and women. The analysis of main effects did not show any significant variability in the data, except from a significant interaction between gender and conditions in the **communal** scale, caused by differences in how QC men and women rated the actual FBD condition. Despite that, **H2 can be deemed true.**

Lastly, H3 attempted to examine whether there would be any difference between the mean ratings of NQC male and female board directors. However, the ICC analysis showed no significant difference between the mean ratings of NQC men and women to the leadership characteristics of SBDs vs MDS and SBDs. Also the analysis of the main effects of gender and conditions, including their interaction, showed no significant variability and **H3 is rejected**.

6.2 Limitations of the study

As presented in the section above, respondents from both company groups perceive the requisite characteristics of SBDs in general as similar to the characteristics of actual MBDs and FBDs, thus neither group did gender stereotype the requisite characteristics of SBDs. The difference postulated in H1 and H3 showed to be false, while only H3 is true. Some of the limitations of this study may offer explanations to these results. Firstly, choices made and limits inherent in the method of data collection applied in this study may have had an influence on the results. Secondly, this study also investigated descriptive gender stereotypes and was not constructed to capture prescriptive gender stereotypes. These limitations are further explained below.

6.2.1 Sample size and internal validity

The concerned limitations inherent in the data collection of this study relate to small sample size and weak internal validity.

Firstly, in regard to sample size, the response rate can be seen as a very good outcome for this type of research (23% response rate of survey invitation sent directly to board members via e-mail, and 20% response rate after contacting board members via LinkedIn). However, due to comparison objectives between type of company, condition (SBD, MDB or FBD), and gender, responses had to be grouped into subgroups, decreasing the observation counts under each subcategory. For that reason, it was not possible to advance the analysis by adjusting for confounding variables such as age and years of experience as board director. The consequence of this is decreased internal validity, as respondents could not be made as equal as possible, allowing for more certainty in the claim of statistical significance in their ratings. Another consequences of a small sample size is the fluctuations that can appear in calculating correlation. For instance, there were only 8 NQC female responses, which does not represent a sufficient number of observations when divided into the subgroup "conditions" (MBD=3, FBD=3, and SBD=2). This forced the ICC analysis be computed for the complete sample, hence not adjusting for gender imbalance.

A second concern is related to internal validity. Firstly, non-response bias may have occurred. As presented earlier, the share of women on boards in the complete NQC sample (69 participants) and the adjusted (42 participants) were 31% and 23%, respectively, which is higher than the share of women board directors in the NQC population. This means that the greater the gender balance, the more were board directors willing to participate in the survey, which points to a non-response bias in the form of self-exclusion by participants who were more representative of the population.

Another concern in relation to internal validity is the impossibility to fully distinguish between responses representing the attitudes and perceptions of board directors in gender balanced boards/ QCs and the attitudes and perceptions of board directors in gender imbalanced boards/ NQCs. This is because board directors can serve on different boards. In the survey, respondents were asked to mark which type of company they currently serve as board directors, with the options being PLCS, LTDs and POCs. In case of currently serving on different types of boards, respondents were asked to select the type where they have served the longest. At the time the survey was created, this concern was not reflected upon. A way to bypass it could have been to add an additional question that would allow to identify which responses were given by board members serving on both gender balanced and gender imbalanced boards. That way, it would have been possible to filter the responses given by participants, who serve on both types of company, as well as responses from participants, who serve on only one of each type. However, the consequence remains that it cannot be inferred with certainty that gender stereotypes towards women as leaders in QCs is an effect of the independent variable. In other words, although this study shows that board directors from QCs and NQCs do not gender stereotype the requisite characteristics of SBDs, it cannot be inferred that their perceptions are influenced by and, hence, can be explained by the degree of gender balance or imbalance on the boards that they serve.

6.2.2 Conceptual limitations

Both the *lack of fit* model and the *role congruity theory of prejudice* (theories discussed in chapter 3) distinguish between descriptive (consensual stereotypes about men and women and how they *should be* like) and prescriptive/ injunctive (normative behavioural standards and expectations about men and women and how they ought to/would ideally do) gender stereotypes. The current study could, however, not capture both descriptive and prescriptive stereotypes. According to Heilman (1993) and Eagly and Karau (2002), descriptive stereotypes can result in restricted access of women to leadership roles in comparison to men, while prescriptive stereotypes refers to greater difficulties for women to be evaluated as successful in these roles. When asked to rate the characteristics of SBDs, MBDs and FBDs, participants in this study were giving a *description* of how SBDs in general and actual MBDs and FBDs are, and not how they should behave. Hence, it is a limitation in this study not to have been able to capture prescriptive gender stereotypes.

6.3 Concluding remarks

This sections offers concluding remarks and recommendations for future research.

As postulated in Heilman's (1997, 2001) *lack of fit* model and in Eagly and Karau's (2002) *role congruity theory of prejudice*, the attributes and abilities associated with being a successful leader are similar to gender stereotypes of men and dissimilar from gender stereotypes of women. So when jobs and roles are perceived as masculine, women are perceived as unfit and ill-equipped to perform them. These gender role stereotypes are in this perspective seen as the foundation of gender biases and the root cause of gender discrimination in the treatment of women in organizations. On the basis of these theoretical assumptions, the findings showed **no lack of fit or incongruity** between the traits perceived to be necessary for being SBDs in general and the traits perceived to be characteristic of actual FBDs (nor actual MBDs). This applied to responses given by board directors from both gender balanced and gender imbalanced boards. Thus, the hypothesis that board directors from gender imbalanced boards would show more degree of gender stereotyping in comparison to board directors from gender balanced ones proved to be false.

As discussed above, this thesis only studied descriptive gender stereotypes, and given the data analysis results, it is to be concluded that board directors of Norwegian companies (both QCs and NQCs) **do not describe the requisite traits of SBDs in general in gender stereotypical terms**. This further means that access of women to the boardroom is not expected to be restricted by gender bias; a result that can be assigned to the introduction of the gender quota law on corporate boards. This is because as theorized by Kanter (1993), when there is gender balance, women are more likely to be seen for their abilities and talents. In addition, stereotypes can change, either gradually or more radically, when confronted with new and disconfirming information (Weber and Crocker,

1983; Schneider, 2004). Furthermore, cultural beliefs and stereotypes can change when societal structures change (e.g. labour market reforms, affirmative action) (Ridgeway, 2011), and the introduction of the gender quota in Norway could have engendered such change in organizations and in the society in general.

So in order to answer the main research question on *to what extent do gender quotas contribute to changing gender stereotypes towards women as leaders in the boardroom?,* it is necessary to take into consideration the impossibility of showing a clear separation between the perceptions of board directors of QCs and NQCs (discussed in the previous section) and the lack of *ex ante* data, which was in principle the main challenge. Causality can, therefore, not be inferred. Nonetheless, the relationship between gender quotas and diminishing gender role stereotypes towards women as leader in the boardroom cannot be excluded. There are valid (theoretical) arguments to believe that affirmative action in the form of minimum gender requirements on boards (and other political and economic spheres) has the potential not only to increase the share of women in these spaces, but also provide disconfirming evidence to gender stereotypes about women not being capable to perform leadership positions.

Future research could improve the knowledge of gender stereotypes towards women in leadership by studying the effects of both descriptive and prescriptive gender stereotypes on corporate boards. In addition, future research should conduct cross-country comparisons where gender laws have been adopted to allow the discussion of policy differences across countries and possible effects on gender stereotypes. Lastly, there is a need to produce data on gender stereotypes towards women in various settings, and also in countries where affirmative action is being debated in order to produce data of gender stereotypes among board directors prior to the adoption of such a quota measure, thus allowing *ex ante* and *post* comparisons.

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Appendices

Appendix 1 Survey

Start of Block: Block 1: Descriptive data

Q1 Welcome!
Thank you for your interest in participating in this survey.

My name is Roberta Brito and I am a master student in International Public Management and Public Policy at Erasmus University Rotterdam, Netherlands. For my master thesis, I conduct comparative research on leadership styles. The research is carried out under the supervision of Prof. Dr. A. G. Dijkstra.

The following survey aims to collect information about **leadership styles** among board directors (styremedlemmer) of Norwegian listed/registered companies. I would be very grateful if you would be willing to complete this survey, which takes less than 5 minutes.

The survey is fully anonymous and responses are treated confidentially. Results will never be sent to other parties or used for purposes other than academic. The survey **does not** ask the participant to disclose any insider information. The survey is only about leadership characteristics. All participants will use the same anonymous link, making it impossible for your survey responses to be traced back to you.

Once again, thank you! Your contribution is crucial for making my graduation possible.

Survey explanation:
The survey begins with a few descriptive questions that take less than 1 minute to respond. Then, the main questions are randomized and participants only see **one question each**. In this question, there is a list of traits that I ask you to rate. The list looks long but only takes 2-3 minutes to respond, after which the survey ends.

Q2 Please indicate your gender.

- O Male (1)
- O Female (2)

Q3 Which range includes your age?

- O 24-39 (1)
- O 40-49 (2)
- O 50 and above (3)

Q4 Please indicate your experience as board director.

- O No experience (5)
- O Less than 3 years (1)
- O More than 3 and less than 6 years (2)
- O More than 6 and less than 9 years (3)
- O More than 9 years (4)

1. Skip To: End of Survey If Q4 = 5

Q5 In which type of company are you a board member? If you are currently serving different companies, please mark the one you have served the longest.

- O Publicly Listed Company (Allmennaksjeselskap - ASA) (1)
- O Private Limited Company (Aksjeselskap - AS) (2)
- O Publicly Owned Company (State, municipal or inter-municipal) (4)
- O Other (5)

2. Skip To: End of Survey If Q5 = 5

Q6 How is the current gender composition of your company's board of directors?

Please slide to the right to indicate the number

	0 1 2 3 4 5 6 7 8 9 10
Men (12)	
Women (13)	

End of Block: Block 1: Descriptive data

Start of Block: Block 2

Q7 How much do you agree that the following leadership skills are characteristic for **successful board directors?**

End of Block: Block 2

Start of Block: Block 3

Q8 How much do you agree that the following leadership skills are characteristic for **actual** male board directors?

End of Block: Block 3

Start of Block: Block 4

Q9 How much do you agree that the following leadership skills are characteristic for **actual female board directors**?

End of Block: Block 4

Under question Q7, Q8 and Q9 the following traits were displayed:

	Strongly agree (13)	Somewhat agree (14)	Neither agree nor disagree (15)	Somewhat disagree (16)	Strongly disagree (17)
Aggressive (1)	O	O	O	O	O
Ambitious (2)	O	O	O	O	O
Analytical ability (3)	O	O	O	O	O
Assertive (4)	O	O	O	O	O
Dominant (5)	O	O	O	O	O
Forceful (6)	O	O	O	O	O
Self-confident (7)	O	O	O	O	O
Aware of the feelings of others (8)	O	O	O	O	O
Creative (9)	O	O	O	O	O
Helpful (10)	O	O	O	O	O
Kind (11)	O	O	O	O	O
Passive (12)	O	O	O	O	O
Submissive (13)	O	O	O	O	O
Sympathetic (14)	O	O	O	O	O
Competent (15)	O	O	O	O	O
Competitive (16)	O	O	O	O	O
Decisive (17)	O	O	O	O	O
Independent (18)	O	O	O	O	O
Industrious (19)	O	O	O	O	O
Intelligent (20)	O	O	O	O	O

Logical (21)	O	O	O	O	O
Objective (21)	O	O	O	O	O
Skilled in business matters (23)	O	O	O	O	O
Speedy recovery from emotional disturbances (24)	O	O	O	O	O
Compassionate (25)	O	O	O	O	O
Cooperative (26)	O	O	O	O	O
Fair (27)	O	O	O	O	O
Good listener (28)	O	O	O	O	O
Inclusive (29)	O	O	O	O	O
Intuitive (30)	O	O	O	O	O
Shows appreciation (31)	O	O	O	O	O
Sociable (32)	O	O	O	O	O
Tactful (33)	O	O	O	O	O
Understanding (34)	O	O	O	O	O
Attends to the needs of others (35)	O	O	O	O	O
Considerate (36)	O	O	O	O	O
Considers others' ideas (37)	O	O	O	O	O
Encouraging (38)	O	O	O	O	O
Energetic (39)	O	O	O	O	O
Enthusiastic (40)	O	O	O	O	O
Inspiring (41)	O	O	O	O	O

Open-minded (42)	O	O	O	O	O
Optimistic (43)	O	O	O	O	O
Sense of purpose (44)	O	O	O	O	O
Sincere (45)	O	O	O	O	O
Supportive (46)	O	O	O	O	O
Trustworthy (47)	O	O	O	O	O

Survey Flow

Standard: Block 1: Descriptive data (6 Questions)

Branch: New Branch
If
If In which type of company are you a board member? If you are currently serving different companies... Publicly Listed Company (Allmennaksjeselskap - ASA) Is Selected
And Please indicate your gender. Male Is Selected

BlockRandomizer: 1 - Evenly Present Elements

Block: Block 2 (1 Question)
Block: Block 3 (1 Question)
Block: Block 4 (1 Question)

Branch: New Branch
If
If In which type of company are you a board member? If you are currently serving different companies... Publicly Listed Company (Allmennaksjeselskap - ASA) Is Selected
And Please indicate your gender. Female Is Selected

BlockRandomizer: 1 - Evenly Present Elements

Block: Block 2 (1 Question)
Block: Block 3 (1 Question)
Block: Block 4 (1 Question)

Branch: New Branch
If
If In which type of company are you a board member? If you are currently serving different companies... Private Limited Company (Aksjeselskap - AS) Is Selected
And Please indicate your gender. Male Is Selected

BlockRandomizer: 1 - Evenly Present Elements

Block: Block 2 (1 Question)
Block: Block 3 (1 Question)
Block: Block 4 (1 Question)

Branch: New Branch
If
If In which type of company are you a board member? If you are currently serving different companies... Private Limited Company (Aksjeselskap - AS) Is Selected
And Please indicate your gender. Female Is Selected

BlockRandomizer: 1 - Evenly Present Elements

Block: Block 2 (1 Question)
Block: Block 3 (1 Question)
Block: Block 4 (1 Question)

Branch: New Branch
If
If In which type of company are you a board member? If you are currently serving different companies... Publicly Owned Company (State, municipal or inter-municipal) Is Selected
And Please indicate your gender. Male Is Selected

BlockRandomizer: 1 - Evenly Present Elements

Block: Block 2 (1 Question)
Block: Block 3 (1 Question)
Block: Block 4 (1 Question)

Branch: New Branch
If
If In which type of company are you a board member? If you are currently serving different companies... Publicly Owned Company (State, municipal or inter-municipal) Is Selected

And Please indicate your gender. Female Is Selected

BlockRandomizer: 1 - Evenly Present Elements

Block: Block 2 (1 Question)
Block: Block 3 (1 Question)
Block: Block 4 (1 Question)

Appendix 2 Norwegian corporate governance

Norwegian boards of directors consist generally of non-executive directors, and although executives may also be part of the board, the Norwegian Code of Practice for Corporate Governance suggests that executives should not be part of the board. According to the European Confederation of Directors Associations (ECODA), the board structure for limited companies in Norway is neither a classical one-tier nor a two-tier system (ECODA, 2014). Commonly one-tier systems have one single board composed of both executive and non-executive directors, while two-tier systems have two boards, namely a supervisory body composed of non-executive directors, and a management body composed of executive directors. Instead, boards of directors in Norway have both management and supervisory responsibilities, in relation to the companies' activities and its executive managers/CEOs. The CEO or general manager is appointed by the board and cannot be part of the board. The management of the company is split between the board and the CEO; however, the CEO takes care of day-to-day management tasks in accordance with decisions of the board, while the board has the overall management duty, such as devising strategies, and adopting plans and budgets.

Moreover, board directors are appointed during the Annual General Meeting (AGM) by shareholder alone or by shareholders and employees in case there is Corporate Assembly (Andersen *et al.*, 2013). Unless decided otherwise by employees or the trade union, companies with more than 200 employees must establish a Corporate Assembly to appoint board members and take other board supervisory decisions. A Corporate Assembly has 12 members of which 2/3 are chosen by the shareholders and 1/3 by the employees. In companies with more than 30 employees, employees have the right to board representation. In companies with more than 200 employees, which have chosen not to establish a Corporate Assembly must have employee-elected board members (ECODA, 2014).

Appendix 3 Frequencies and Cross Tabs (complete sample)

```
FREQUENCIES VARIABLES=Company_type Gender Age Experience Survey
  /ORDER=ANALYSIS.
```

Frequencies

Statistics

		Company type	Gender	Age groups	Experience as board director.	Survey
N	Valid	150	150	150	150	150
	Missing	0	0	0	0	0

Frequency Table

Company type

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	QC	81	54.0	54.0	54.0
	NQC	69	46.0	46.0	100.0
	Total	150	100.0	100.0	

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	87	58.0	58.0	58.0
	Female	63	42.0	42.0	100.0
	Total	150	100.0	100.0	

Age groups

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	24-39	17	11.3	11.3	11.3
	40-49	43	28.7	28.7	40.0
	50 and above	90	60.0	60.0	100.0
	Total	150	100.0	100.0	

Experience as board director.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 3 years	25	16.7	16.7	16.7
	More than 3 yrs and less 6 yrs	23	15.3	15.3	32.0
	More than 6 yrs and less 9 yrs	19	12.7	12.7	44.7
	More than 9 yrs	83	55.3	55.3	100.0
	Total	150	100.0	100.0	

Survey

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female board	50	33.3	33.3	33.3
	Male board	45	30.0	30.0	63.3
	Successful board	55	36.7	36.7	100.0
	Total	150	100.0	100.0	

```
CROSSTABS
  /TABLES=Company_type BY Gender Age Experience Survey
  /FORMAT=AVALUE TABLES
  /CELLS=COUNT ROW COLUMN TOTAL
  /COUNT ROUND CELL.
```

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Company type * Gender	150	100.0%	0	0.0%	150	100.0%
Company type * Age groups	150	100.0%	0	0.0%	150	100.0%
Company type * Experience as board director.	150	100.0%	0	0.0%	150	100.0%
Company type * Survey	150	100.0%	0	0.0%	150	100.0%

Company type * Gender Crosstabulation

			Gender		
			Male	Female	Total
Company type	QC	Count	39	42	81
		% within Company type	48.1%	51.9%	100.0%
		% within Gender	44.8%	66.7%	54.0%
		% of Total	26.0%	28.0%	54.0%
	NQC	Count	48	21	69
		% within Company type	69.6%	30.4%	100.0%
		% within Gender	55.2%	33.3%	46.0%
		% of Total	32.0%	14.0%	46.0%
Total		Count	87	63	150
		% within Company type	58.0%	42.0%	100.0%
		% within Gender	100.0%	100.0%	100.0%
		% of Total	58.0%	42.0%	100.0%

Company type * Age groups Crosstabulation

			Age groups			
			24-39	40-49	50 and above	Total
Company type	QC	Count	5	20	56	81
		% within Company type	6.2%	24.7%	69.1%	100.0%
		% within Age groups	29.4%	46.5%	62.2%	54.0%
		% of Total	3.3%	13.3%	37.3%	54.0%
	NQC	Count	12	23	34	69
		% within Company type	17.4%	33.3%	49.3%	100.0%
		% within Age groups	70.6%	53.5%	37.8%	46.0%
		% of Total	8.0%	15.3%	22.7%	46.0%
Total		Count	17	43	90	150
		% within Company type	11.3%	28.7%	60.0%	100.0%
		% within Age groups	100.0%	100.0%	100.0%	100.0%
		% of Total	11.3%	28.7%	60.0%	100.0%

Company type * Experience as board director. Crosstabulation

			Experience as board director.			
			Less than 3 years	More than 3 yrs and less 6 yrs	More than 6 yrs and less 9 yrs	More than 9 yrs
Company type	QC	Count	11	11	11	48
		% within Company type	13.6%	13.6%	13.6%	59.3%
		% within Experience as board director.	44.0%	47.8%	57.9%	57.8%
		% of Total	7.3%	7.3%	7.3%	32.0%
	NQC	Count	14	12	8	35
		% within Company type	20.3%	17.4%	11.6%	50.7%
		% within Experience as board director.	56.0%	52.2%	42.1%	42.2%
		% of Total	9.3%	8.0%	5.3%	23.3%
Total		Count	25	23	19	83
		% within Company type	16.7%	15.3%	12.7%	55.3%
		% within Experience as board director.	100.0%	100.0%	100.0%	100.0%
		% of Total	16.7%	15.3%	12.7%	55.3%

Company type * Experience as board director. Crosstabulation

			Total
Company type	QC	Count	81
		% within Company type	100.0%
		% within Experience as board director.	54.0%
		% of Total	54.0%
	NQC	Count	69
		% within Company type	100.0%
		% within Experience as board director.	46.0%
		% of Total	46.0%
Total		Count	150
		% within Company type	100.0%
		% within Experience as board director.	100.0%
		% of Total	100.0%

Company type * Survey Crosstabulation

			Survey			
			Female board	Male board	Successful board	Total
Company type	QC	Count	29	23	29	81
		% within Company type	35.8%	28.4%	35.8%	100.0%
		% within Survey	58.0%	51.1%	52.7%	54.0%
		% of Total	19.3%	15.3%	19.3%	54.0%
	NQC	Count	21	22	26	69

	% within Company type	30.4%	31.9%	37.7%	100.0%
	% within Survey	42.0%	48.9%	47.3%	46.0%
	% of Total	14.0%	14.7%	17.3%	46.0%
Total	Count	50	45	55	150
	% within Company type	33.3%	30.0%	36.7%	100.0%
	% within Survey	100.0%	100.0%	100.0%	100.0%
	% of Total	33.3%	30.0%	36.7%	100.0%

Appendix 4 Frequencies and Cross Tabs (gender balance/imbalance)

```
FREQUENCIES VARIABLES=Gender Age Experience Company_type Survey
  /ORDER=ANALYSIS.
```

Frequencies

Statistics

		Gender	Age groups	Experience as board director.	Company type	Survey
N	Valid	107	107	107	107	107
	Missing	0	0	0	0	0

Frequency Table

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	64	59.8	59.8	59.8
	Female	43	40.2	40.2	100.0
	Total	107	100.0	100.0	

Age groups

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	24-39	11	10.3	10.3	10.3
	40-49	30	28.0	28.0	38.3
	50 and above	66	61.7	61.7	100.0
	Total	107	100.0	100.0	

Experience as board director.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 3 years	18	16.8	16.8	16.8
	More than 3 yrs and less 6 yrs	17	15.9	15.9	32.7
	More than 6 yrs and less 9 yrs	11	10.3	10.3	43.0
	More than 9 yrs	61	57.0	57.0	100.0
	Total	107	100.0	100.0	

Company type

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	QC	65	60.7	60.7	60.7
	NQC	42	39.3	39.3	100.0
	Total	107	100.0	100.0	

Survey

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female board	39	36.4	36.4	36.4
	Male board	31	29.0	29.0	65.4
	Successful board	37	34.6	34.6	100.0
	Total	107	100.0	100.0	

```
CROSSTABS
  /TABLES=Company_type BY Gender Age Experience Survey
  /FORMAT=AVALUE TABLES
  /CELLS=COUNT ROW COLUMN TOTAL
  /COUNT ROUND CELL.
```

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Company type * Gender	107	100.0%	0	0.0%	107	100.0%
Company type * Age groups	107	100.0%	0	0.0%	107	100.0%
Company type * Experience as board director.	107	100.0%	0	0.0%	107	100.0%
Company type * Survey	107	100.0%	0	0.0%	107	100.0%

Company type * Gender Crosstabulation

			Gender		
			Male	Female	Total
Company type	QC	Count	30	35	65
		% within Company type	46.2%	53.8%	100.0%
		% within Gender	46.9%	81.4%	60.7%
		% of Total	28.0%	32.7%	60.7%
	NQC	Count	34	8	42
		% within Company type	81.0%	19.0%	100.0%
		% within Gender	53.1%	18.6%	39.3%
		% of Total	31.8%	7.5%	39.3%
Total		Count	64	43	107
		% within Company type	59.8%	40.2%	100.0%
		% within Gender	100.0%	100.0%	100.0%
		% of Total	59.8%	40.2%	100.0%

Company type * Age groups Crosstabulation

			Age groups			
			24-39	40-49	50 and above	Total
Company type	QC	Count	3	17	45	65
		% within Company type	4.6%	26.2%	69.2%	100.0%
		% within Age groups	27.3%	56.7%	68.2%	60.7%
		% of Total	2.8%	15.9%	42.1%	60.7%
	NQC	Count	8	13	21	42
		% within Company type	19.0%	31.0%	50.0%	100.0%
		% within Age groups	72.7%	43.3%	31.8%	39.3%
		% of Total	7.5%	12.1%	19.6%	39.3%
Total		Count	11	30	66	107
		% within Company type	10.3%	28.0%	61.7%	100.0%
		% within Age groups	100.0%	100.0%	100.0%	100.0%
		% of Total	10.3%	28.0%	61.7%	100.0%

Company type * Experience as board director. Crosstabulation

			Experience as board director.			
			Less than 3 years	More than 3 yrs and less 6 yrs	More than 6 yrs and less 9 yrs	More than 9 yrs
Company type	QC	Count	10	10	7	38
		% within Company type	15.4%	15.4%	10.8%	58.5%
		% within Experience as board director.	55.6%	58.8%	63.6%	62.3%
		% of Total	9.3%	9.3%	6.5%	35.5%
	NQC	Count	8	7	4	23
		% within Company type	19.0%	16.7%	9.5%	54.8%
		% within Experience as board director.	44.4%	41.2%	36.4%	37.7%
		% of Total	7.5%	6.5%	3.7%	21.5%
Total		Count	18	17	11	61
		% within Company type	16.8%	15.9%	10.3%	57.0%
		% within Experience as board director.	100.0%	100.0%	100.0%	100.0%

	% of Total	16.8%	15.9%	10.3%	57.0%

Company type * Experience as board director. Crosstabulation

			Total
Company type	QC	Count	65
		% within Company type	100.0%
		% within Experience as board director.	60.7%
		% of Total	60.7%
	NQC	Count	42
		% within Company type	100.0%
		% within Experience as board director.	39.3%
		% of Total	39.3%
Total		Count	107
		% within Company type	100.0%
		% within Experience as board director.	100.0%
		% of Total	100.0%

Company type * Survey Crosstabulation

			Survey			
			Female board	Male board	Successful board	Total
Company type	QC	Count	24	18	23	65
		% within Company type	36.9%	27.7%	35.4%	100.0%
		% within Survey	61.5%	58.1%	62.2%	60.7%
		% of Total	22.4%	16.8%	21.5%	60.7%
	NQC	Count	15	13	14	42
		% within Company type	35.7%	31.0%	33.3%	100.0%
		% within Survey	38.5%	41.9%	37.8%	39.3%
		% of Total	14.0%	12.1%	13.1%	39.3%
Total		Count	39	31	37	107
		% within Company type	36.4%	29.0%	34.6%	100.0%
		% within Survey	100.0%	100.0%	100.0%	100.0%
		% of Total	36.4%	29.0%	34.6%	100.0%

Appendix 5 survey observaties

```
COMPUTE filter_$=(Company_type = 1).
VARIABLE LABELS filter_$ 'Company_type = 1 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
CROSSTABS
  /TABLES=Survey BY Gender
  /FORMAT=AVALUE TABLES
  /CELLS=COUNT
  /COUNT ROUND CELL.
```

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Survey * Gender	81	100.0%	0	0.0%	81	100.0%

Survey * Gender Crosstabulation

Count

		Gender		
		Male	Female	Total
Survey	Female board	12	17	29

	Male board	13	10	23
	Successful board	14	15	29
Total		39	42	81

```
COMPUTE filter_$=(Company_type = 2).
VARIABLE LABELS filter_$ 'Company_type = 2 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
CROSSTABS
  /TABLES=Survey BY Gender
  /FORMAT=AVALUE TABLES
  /CELLS=COUNT
  /COUNT ROUND CELL.
```

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Survey * Gender	69	100.0%	0	0.0%	69	100.0%

Survey * Gender Crosstabulation

Count

		Gender		
		Male	Female	Total
Survey	Female board	16	5	21
	Male board	15	7	22
	Successful board	17	9	26
Total		48	21	69

```
COMPUTE filter_$=(Company_type = 1).
VARIABLE LABELS filter_$ 'Company_type = 1 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
CROSSTABS
  /TABLES=Survey BY Gender
  /FORMAT=AVALUE TABLES
  /CELLS=COUNT
  /COUNT ROUND CELL.
```

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Survey * Gender	65	100.0%	0	0.0%	65	100.0%

Survey * Gender Crosstabulation

Count

		Gender		
		Male	Female	Total
Survey	Female board	11	13	24
	Male board	8	10	18
	Successful board	11	12	23
Total		30	35	65

```
COMPUTE filter_$=(Company_type = 2).
VARIABLE LABELS filter_$ 'Company_type = 2 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
```

```
FILTER BY filter_$.
EXECUTE.
CROSSTABS
  /TABLES=Survey BY Gender
  /FORMAT=AVALUE TABLES
  /CELLS=COUNT
  /COUNT ROUND CELL.
```

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Survey * Gender	42	100.0%	0	0.0%	42	100.0%

Survey * Gender Crosstabulation

Count

		Gender		
		Male	Female	Total
Survey	Female board	12	3	15
	Male board	10	3	13
	Successful board	12	2	14
Total		34	8	42

Appendix 6 Frequencies

```
COMPUTE filter_$=(Company_type = 1).
VARIABLE LABELS filter_$ 'Company_type = 1 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
FREQUENCIES VARIABLES=Sum_Board_Seats percent_men percent_women
  /STATISTICS=MEAN
  /ORDER=ANALYSIS.
```

Frequencies

Statistics

		Sum Board Seats	percent_men	percent_women
N	Valid	81	81	81
	Missing	0	0	0
Mean		6.60	58.7881	41.2119

```
COMPUTE filter_$=(Company_type = 2).
VARIABLE LABELS filter_$ 'Company_type = 2 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
FREQUENCIES VARIABLES=Sum_Board_Seats percent_men percent_women
  /STATISTICS=MEAN
  /ORDER=ANALYSIS.
```

Frequencies

Statistics

		Sum Board Seats	percent_men	percent_women
N	Valid	69	69	69
	Missing	0	0	0
Mean		5.86	69.0097	30.9903

```
COMPUTE filter_$=(Company_type = 1).
VARIABLE LABELS filter_$ 'Company_type = 1 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
```

```
FILTER BY filter_$.
EXECUTE.
FREQUENCIES VARIABLES=Total_Board_Seats percent_men percent_women
  /STATISTICS=MEAN
  /ORDER=ANALYSIS.
```

Frequencies

Statistics

		Sum Board Seats	percent_men	percent_women
N	Valid	65	65	65
	Missing	0	0	0
Mean		6.65	55.43	44.57

```
COMPUTE filter_$=(Company_type = 2).
VARIABLE LABELS filter_$ 'Company_type = 2 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
FREQUENCIES VARIABLES=Total_Board_Seats percent_men percent_women
  /STATISTICS=MEAN
  /ORDER=ANALYSIS.
```

Frequencies

Statistics

		Sum Board Seats	percent_men	percent_women
N	Valid	42	42	42
	Missing	0	0	0
Mean		5.71	77.35	22.65

Appendix 7 Alpha Cronbach

```
*Agentic.
RELIABILITY
  /VARIABLES=Aggressive,Ambitious,Analytical,Assertive,Dominant,Forceful,Confident
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /SUMMARY=TOTAL.
```

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	150	100.0
	Excluded[a]	0	.0
	Total	150	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.594	7

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Aggressive	21.75	7.503	.359	.539
Ambitious	19.85	9.178	.210	.588
Analytical ability	19.55	9.913	.083	.620
Assertive	20.49	9.084	.203	.591
Dominant	21.35	7.076	.491	.478
Forceful	20.76	7.325	.523	.471
Self-confident	19.96	9.206	.304	.562

*Communal.

```
RELIABILITY
  /VARIABLES=Aware_feelings, Creative, Helpful, Kind, Passive, Submissive, Sympathetic
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /SUMMARY=TOTAL.
```

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	150	100.0
	Excluded[a]	0	.0
	Total	150	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.484	7

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Aware of the feelings of others	18.92	7.000	.291	.420
Creative	19.07	7.257	.200	.459
Helpful	18.89	6.807	.376	.387
Kind	19.15	6.300	.481	.334
Passive	21.08	7.564	.061	.530
Submissive	20.61	7.192	.105	.515
Sympathetic	19.12	7.261	.216	.452

*Task oriented.

```
RELIABILITY
  /VARIABLES=Competent, Competitive, Decisive, Independent, Industrious,
    Intelligent, Logical, Objective, Skilled, Speedy
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /SUMMARY=TOTAL.
```

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	150	100.0
	Excluded[a]	0	.0
	Total	150	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.842	10

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Competent	35.85	21.119	.556	.826
Competitive	36.68	21.454	.338	.849
Decisive	36.48	20.117	.602	.821
Independent	36.37	20.932	.522	.829

Industrious	36.63	20.813	.525	.828
Intelligent	36.09	20.810	.648	.819
Logical	36.19	19.983	.701	.813
Objective	36.41	20.768	.499	.831
Skilled in business matters	36.09	20.590	.598	.822
Speedy recovery from emotional disturbances	36.63	20.598	.476	.834

*Relationship oriented.

```
RELIABILITY
  /VARIABLES=Compassionate, Cooperative, Fair, listener, Inclusive, Intuitive, appreciation, Sociable, Tactful,
    Understanding
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /SUMMARY=TOTAL.
```

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	150	100.0
	Excluded[a]	0	.0
	Total	150	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.816	10

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Compassionate	35.31	16.364	.261	.824
Cooperative	34.66	15.394	.527	.798
Fair	34.65	14.443	.636	.785
Good listener	34.76	14.466	.508	.800
Inclusive	34.83	14.211	.627	.785
Intuitive	35.25	15.479	.399	.811
Shows appreciation	35.06	14.849	.572	.792
Sociable	35.06	15.681	.409	.809
Tactful	35.08	15.282	.463	.804
Understanding	35.13	14.787	.597	.790

*Transformational.

```
RELIABILITY
  /VARIABLES=Attends, Considerate, Considers_ideas, Encouraging, Energetic, Enthusiastic,
    Inspiring, Open_minded, Optimistic, Sense, Sincere, Supportive, Trustworthy
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /SUMMARY=TOTAL.
```

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	150	100.0
	Excluded[a]	0	.0
	Total	150	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.868	13

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Attends to the needs of others	48.11	30.370	.350	.870
Considerate	47.77	30.113	.487	.861
Considers others' ideas	47.35	30.067	.458	.863
Encouraging	47.49	28.480	.631	.853
Energetic	47.56	28.168	.642	.852
Enthusiastic	47.63	28.650	.562	.857
Inspiring	47.55	27.444	.752	.845
Open-minded	47.35	28.780	.546	.858
Optimistic	47.84	30.296	.364	.869
Sense of purpose	47.51	28.788	.544	.858
Sincere	47.49	28.708	.576	.856
Supportive	47.57	29.468	.590	.856
Trustworthy	47.01	29.584	.509	.860

Appendix 8 ICC analysis of all QC and NQC ratings

```
RELIABILITY
  /VARIABLES=QC_all_MBD QC_all_SBD
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /STATISTICS=ANOVA
  /ICC=MODEL(ONEWAY) CIN=95 TESTVAL=0.29.
```

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	47	100.0
	Excluded[a]	0	.0
	Total	47	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.954	2

ANOVA

		Sum of Squares	df	Mean Square	F	Sig
Between People		34.323	46	.746		
Within People	Between Items	.002	1	.002	.044	.835
	Residual	1.576	46	.034		
	Total	1.578	47	.034		
Total		35.901	93	.386		

Grand Mean = 3.8693

Intraclass Correlation Coefficient

	Intraclass Correlation	95% Confidence Interval		F Test with True Value .29			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.914	.851	.951	12.236	46	47	.000
Average Measures	.955	.920	.975	15.784	46	47	.000

One-way random effects model where people effects are random.

```
RELIABILITY
  /VARIABLES=QC_all_SBD QC_all_FBD
```

```
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA
/STATISTICS=ANOVA
/ICC=MODEL(ONEWAY) CIN=95 TESTVAL=0.29.
```

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	47	100.0
	Excluded[a]	0	.0
	Total	47	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.946	2

ANOVA

		Sum of Squares	df	Mean Square	F	Sig
Between People		32.826	46	.714		
Within People	Between Items	1.619	1	1.619	41.882	.000
	Residual	1.778	46	.039		
	Total	3.396	47	.072		
Total		36.223	93	.389		

Grand Mean = 3.7420

Intraclass Correlation Coefficient

	Intraclass Correlation	95% Confidence Interval		F Test with True Value .29			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.816	.693	.893	5.435	46	47	.000
Average Measures	.899	.819	.943	7.011	46	47	.000

One-way random effects model where people effects are random.

```
RELIABILITY
  /VARIABLES=NQC_all_SBD NQC_all_MBD
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /STATISTICS=ANOVA
  /ICC=MODEL(ONEWAY) CIN=95 TESTVAL=0.29.
```

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	47	100.0
	Excluded[a]	0	.0
	Total	47	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.895	2

ANOVA

		Sum of Squares	df	Mean Square	F	Sig
Between People		29.908	46	.650		
Within People	Between Items	.025	1	.025	.364	.550
	Residual	3.141	46	.068		
	Total	3.166	47	.067		
Total		33.074	93	.356		

Grand Mean = 3.7102

Intraclass Correlation Coefficient

	Intraclass Correlation	95% Confidence Interval		F Test with True Value .29			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.812	.687	.891	5.313	46	47	.000
Average Measures	.896	.815	.942	6.853	46	47	.000

One-way random effects model where people effects are random.

```
RELIABILITY
  /VARIABLES=NQC_all_SBD NQC_all_FBD
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /STATISTICS=ANOVA
  /ICC=MODEL(ONEWAY) CIN=95 TESTVAL=0.29.
```

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	47	100.0
	Excluded[a]	0	.0
	Total	47	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.924	2

ANOVA

		Sum of Squares	df	Mean Square	F	Sig
Between People		34.865	46	.758		
Within People	Between Items	.012	1	.012	.215	.645
	Residual	2.640	46	.057		
	Total	2.653	47	.056		
Total		37.518	93	.403		

Grand Mean = 3.7150

Intraclass Correlation Coefficient

	Intraclass Correlation	95% Confidence Interval		F Test with True Value .29			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.861	.765	.920	7.391	46	47	.000
Average Measures	.926	.867	.958	9.534	46	47	.000

One-way random effects model where people effects are random.

Appendix 9 Tests of between-subjects effects (HYP 1, Agentic)

```
UNIANOVA Agentic BY Gender Company_type Survey
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Gender)
  /EMMEANS=TABLES(Company_type)
  /EMMEANS=TABLES(Survey)
  /EMMEANS=TABLES(Company_type*Survey)
  /PRINT=ETASQ HOMOGENEITY OPOWER
  /CRITERIA=ALPHA(.05)
  /DESIGN=Gender Company_type Survey Company_type*Survey.
```

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
Gender	1	Male	64
	2	Female	43

Company type	1	QC	65
	2	NQC	42
Survey	1	Female board	39
	2	Male board	31
	3	Successful board	37

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Agentic characteristics

F	df1	df2	Sig.
1.034	11	95	.423

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.[a]

a. Design: Intercept + Gender + Company_type + Survey + Company_type * Survey

Tests of Between-Subjects Effects

Dependent Variable: Agentic characteristics

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	3.890[a]	6	.648	4.453	.000	.211
Intercept	1091.650	1	1091.650	7499.119	.000	.987
Gender	.516	1	.516	3.544	.063	.034
Company_type	.040	1	.040	.274	.602	.003
Survey	2.919	2	1.459	10.026	.000	.167
Company_type * Survey	.095	2	.047	.325	.723	.006
Error	14.557	100	.146			
Total	1241.224	107				
Corrected Total	18.447	106				

Tests of Between-Subjects Effects

Dependent Variable: Agentic characteristics

Source	Noncent. Parameter	Observed Power[b]
Corrected Model	26.720	.980
Intercept	7499.119	1.000
Gender	3.544	.462
Company_type	.274	.081
Survey	20.052	.983
Company_type * Survey	.650	.101
Error		
Total		
Corrected Total		

a. R Squared = .211 (Adjusted R Squared = .164)

b. Computed using alpha = .05

Estimated Marginal Means

1. Gender

Dependent Variable: Agentic characteristics

Gender	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Male	3.339	.048	3.244	3.435
Female	3.491	.064	3.365	3.617

2. Company type

Dependent Variable: Agentic characteristics

Company type	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
QC	3.394	.048	3.299	3.489
NQC	3.436	.064	3.309	3.563

3. Survey

Dependent Variable: Agentic characteristics

Survey	Mean	Std. Error	95% Confidence Interval

			Lower Bound	Upper Bound
Female board	3.193	.064	3.066	3.319
Male board	3.603	.070	3.465	3.742
Successful board	3.449	.066	3.318	3.580

4. Company type * Survey

Dependent Variable: Agentic characteristics

Company type	Survey	Mean	Std. Error	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
QC	Female board	3.131	.078	2.976	3.285
	Male board	3.595	.090	3.416	3.773
	Successful board	3.456	.080	3.298	3.614
NQC	Female board	3.255	.101	3.054	3.456
	Male board	3.612	.108	3.398	3.826
	Successful board	3.442	.106	3.232	3.652

Appendix 10 Post hoc test (HYP1; Agentic; QC)

```
COMPUTE filter_$=(Company_type = 1).
VARIABLE LABELS filter_$ 'Company_type = 1 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
ONEWAY Agentic BY Survey
  /MISSING ANALYSIS
  /POSTHOC=SIDAK ALPHA(0.05).
```

Oneway

ANOVA

Agentic characteristics

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.461	2	1.230	9.252	.000
Within Groups	8.245	62	.133		
Total	10.705	64			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Agentic characteristics

Sidak

(I) Survey	(J) Survey	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Female board	Male board	-.46627*	.11370	.000	-.7453	-.1872
	Successful board	-.32272*	.10641	.011	-.5838	-.0616
Male board	Female board	.46627*	.11370	.000	.1872	.7453
	Successful board	.14355	.11476	.518	-.1381	.4252
Successful board	Female board	.32272*	.10641	.011	.0616	.5838
	Male board	-.14355	.11476	.518	-.4252	.1381

*. The mean difference is significant at the 0.05 level.

Appendix 11 Post hoc test (HYP1; Agentic; NQC)

```
COMPUTE filter_$=(Company_type = 2).
VARIABLE LABELS filter_$ 'Company_type = 2 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
ONEWAY Agentic BY Survey
  /MISSING ANALYSIS
```

/POSTHOC=SIDAK ALPHA(0.05).

Oneway

ANOVA

Agentic characteristics

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.913	2	.457	2.608	.087
Within Groups	6.828	39	.175		
Total	7.741	41			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Agentic characteristics

Sidak

(I) Survey	(J) Survey	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Female board	Male board	-.36190	.15856	.082	-.7575	.0336
	Successful board	-.17823	.15549	.593	-.5661	.2097
Male board	Female board	.36190	.15856	.082	-.0336	.7575
	Successful board	.18367	.16117	.597	-.2184	.5857
Successful board	Female board	.17823	.15549	.593	-.2097	.5661
	Male board	-.18367	.16117	.597	-.5857	.2184

Appendix 12 Descriptive statistics of FBD, MBD and SBD (Agentic; QC)

```
COMPUTE filter_$=(Company_type = 1).
VARIABLE LABELS filter_$ 'Company_type = 1 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
DESCRIPTIVES VARIABLES=Aggressive Ambitious Analytical Assertive Dominant Forceful Confident
  /STATISTICS=MEAN STDDEV MIN MAX.
```

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Analytical ability	65	2	5	4.35	.738
Ambitious	65	2	5	4.02	.838
Self-confident	65	2	5	3.98	.599
Assertive	65	1	5	3.37	.720
Forceful	65	1	5	3.23	.915
Dominant	65	1	4	2.63	.928
Aggressive	65	1	4	2.08	1.035
Valid N (listwise)	65				

```
COMPUTE filter_$=(Company_type = 1 & Survey = 1).
VARIABLE LABELS filter_$ 'Company_type = 1 & Survey = 1 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
DESCRIPTIVES VARIABLES=Aggressive Ambitious Analytical Assertive Dominant Forceful Confident
  /STATISTICS=MEAN STDDEV MIN MAX.
```

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Analytical ability	24	2	5	4.08	.776
Self-confident	24	3	5	3.83	.565
Ambitious	24	2	5	3.75	.737
Assertive	24	2	4	3.21	.588

Forceful	24	1	4	2.92	.881
Dominant	24	1	4	2.29	.908
Aggressive	24	1	4	1.88	.947
Valid N (listwise)	24				

```
COMPUTE filter_$=(Company_type = 1 & Survey = 2).
VARIABLE LABELS filter_$ 'Company_type = 1 & Survey = 2 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
DESCRIPTIVES VARIABLES=Aggressive Ambitious Analytical Assertive Dominant Forceful Confident
  /STATISTICS=MEAN STDDEV MIN MAX.
```

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Analytical ability	18	2	5	4.33	.767
Self-confident	18	2	5	4.22	.732
Ambitious	18	2	5	4.11	.900
Forceful	18	1	5	3.50	.924
Assertive	18	2	5	3.44	.705
Dominant	18	2	4	3.11	.676
Aggressive	18	1	4	2.50	1.043
Valid N (listwise)	18				

```
COMPUTE filter_$=(Company_type = 1 & Survey = 3).
VARIABLE LABELS filter_$ 'Company_type = 1 & Survey = 3 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
DESCRIPTIVES VARIABLES=Aggressive Ambitious Analytical Assertive Dominant Forceful Confident
  /STATISTICS=MEAN STDDEV MIN MAX.
```

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Analytical ability	23	3	5	4.65	.573
Ambitious	23	3	5	4.22	.850
Self-confident	23	3	5	3.96	.475
Assertive	23	1	5	3.48	.846
Forceful	23	1	5	3.35	.885
Dominant	23	1	4	2.61	.988
Aggressive	23	1	4	1.96	1.065
Valid N (listwise)	23				

Appendix 13 Tests of between-subjects effects (HYP 1, Communal)

```
UNIANOVA Communal BY Gender Company_type Survey
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Gender)
  /EMMEANS=TABLES(Company_type)
  /EMMEANS=TABLES(Survey)
  /EMMEANS=TABLES(Company_type*Survey)
  /PRINT=ETASQ HOMOGENEITY OPOWER
  /CRITERIA=ALPHA(.05)
  /DESIGN=Gender Company_type Survey Company_type*Survey.
```

Univariate Analysis of Variance

Between-Subjects Factors

	Value Label	N

Gender	1	Male	64
	2	Female	43
Company type	1	QC	65
	2	NQC	42
Survey	1	Female board	39
	2	Male board	31
	3	Successful board	37

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Communal characteristics

F	df1	df2	Sig.
.902	11	95	.541

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.[a]

a. Design: Intercept + Gender + Company_type + Survey + Company_type * Survey

Tests of Between-Subjects Effects

Dependent Variable: Communal characteristics

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.894[a]	6	.149	.954	.460	.054
Intercept	968.177	1	968.177	6199.432	.000	.984
Gender	.083	1	.083	.533	.467	.005
Company_type	.264	1	.264	1.693	.196	.017
Survey	.592	2	.296	1.895	.156	.037
Company_type * Survey	.160	2	.080	.512	.601	.010
Error	15.617	100	.156			
Total	1134.429	107				
Corrected Total	16.511	106				

Tests of Between-Subjects Effects

Dependent Variable: Communal characteristics

Source	Noncent. Parameter	Observed Power[b]
Corrected Model	5.724	.362
Intercept	6199.432	1.000
Gender	.533	.112
Company_type	1.693	.252
Survey	3.790	.386
Company_type * Survey	1.024	.132
Error		
Total		
Corrected Total		

a. R Squared = .054 (Adjusted R Squared = -.003)

b. Computed using alpha = .05

Estimated Marginal Means

1. Gender

Dependent Variable: Communal characteristics

Gender	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Male	3.247	.050	3.148	3.345
Female	3.186	.066	3.055	3.316

2. Company type

Dependent Variable: Communal characteristics

Company type	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
QC	3.271	.050	3.172	3.369
NQC	3.162	.066	3.030	3.293

3. Survey

Dependent Variable: Communal characteristics

Survey	Mean	Std. Error	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Female board	3.264	.066	3.133	3.394
Male board	3.276	.072	3.132	3.420
Successful board	3.109	.068	2.973	3.244

4. Company type * Survey

Dependent Variable: Communal characteristics

Company type	Survey	Mean	Std. Error	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
QC	Female board	3.288	.081	3.128	3.448
	Male board	3.305	.093	3.120	3.490
	Successful board	3.219	.082	3.055	3.382
NQC	Female board	3.239	.105	3.031	3.447
	Male board	3.247	.112	3.025	3.469
	Successful board	2.999	.110	2.781	3.216

Appendix 14 Tests of between-subjects effects (HYP 1, Task-oriented)

```
UNIANOVA Task BY Gender Company_type Survey
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Gender)
  /EMMEANS=TABLES(Company_type)
  /EMMEANS=TABLES(Survey)
  /EMMEANS=TABLES(Company_type*Survey)
  /PRINT=ETASQ HOMOGENEITY OPOWER
  /CRITERIA=ALPHA(.05)
  /DESIGN=Gender Company_type Survey Company_type*Survey.
```

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
Gender	1	Male	64
	2	Female	43
Company type	1	QC	65
	2	NQC	42
Survey	1	Female board	39
	2	Male board	31
	3	Successful board	37

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Task-oriented leadership

F	df1	df2	Sig.
1.513	11	95	.139

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.[a]

a. Design: Intercept + Gender + Company_type + Survey + Company_type * Survey

Tests of Between-Subjects Effects

Dependent Variable: Task-oriented leadership

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	4.845[a]	6	.808	3.573	.003	.177
Intercept	1505.045	1	1505.045	6660.275	.000	.985
Gender	.075	1	.075	.332	.566	.003
Company_type	.389	1	.389	1.722	.192	.017
Survey	3.034	2	1.517	6.713	.002	.118
Company_type * Survey	.578	2	.289	1.279	.283	.025
Error	22.597	100	.226			

Total	1746.650	107				
Corrected Total	27.442	106				

Tests of Between-Subjects Effects

Dependent Variable: Task-oriented leadership

Source	Noncent. Parameter	Observed Power[b]
Corrected Model	21.441	.942
Intercept	6660.275	1.000
Gender	.332	.088
Company_type	1.722	.255
Survey	13.425	.909
Company_type * Survey	2.557	.272
Error		
Total		
Corrected Total		

a. R Squared = .177 (Adjusted R Squared = .127)
b. Computed using alpha = .05

Estimated Marginal Means

1. Gender

Dependent Variable: Task-oriented leadership

Gender	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Male	3.981	.060	3.863	4.100
Female	4.039	.079	3.882	4.196

2. Company type

Dependent Variable: Task-oriented leadership

Company type	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
QC	4.076	.060	3.958	4.194
NQC	3.944	.080	3.786	4.102

3. Survey

Dependent Variable: Task-oriented leadership

Survey	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Female board	3.785	.079	3.627	3.942
Male board	4.058	.087	3.885	4.231
Successful board	4.187	.082	4.024	4.351

4. Company type * Survey

Dependent Variable: Task-oriented leadership

Company type	Survey	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
QC	Female board	3.752	.097	3.559	3.944
	Male board	4.208	.112	3.985	4.430
	Successful board	4.268	.099	4.072	4.465
NQC	Female board	3.817	.126	3.567	4.068
	Male board	3.908	.135	3.641	4.175
	Successful board	4.106	.132	3.844	4.368

Appendix 15 Post hoc test (HYP1; Task-oriented; QC)

```
COMPUTE filter_$=(Company_type = 1).
VARIABLE LABELS filter_$ 'Company_type = 1 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
ONEWAY Task BY Survey
```

/MISSING ANALYSIS
/POSTHOC=SIDAK ALPHA(0.05).

Oneway

ANOVA

Task-oriented leadership

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.665	2	1.833	8.488	.001
Within Groups	13.386	62	.216		
Total	17.051	64			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Task-oriented leadership
Sidak

(I) Survey	(J) Survey	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Female board	Male board	-.45694*	.14488	.007	-.8125	-.1014
	Successful board	-.51540*	.13558	.001	-.8481	-.1827
Male board	Female board	.45694*	.14488	.007	.1014	.8125
	Successful board	-.05845	.14623	.970	-.4173	.3004
Successful board	Female board	.51540*	.13558	.001	.1827	.8481
	Male board	.05845	.14623	.970	-.3004	.4173

*. The mean difference is significant at the 0.05 level.

Appendix 16 Post hoc test (HYP1; Task-oriented; NQC)

COMPUTE filter_$=(Company_type = 2).
VARIABLE LABELS filter_$ 'Company_type = 2 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
ONEWAY Task BY Survey
/MISSING ANALYSIS
/POSTHOC=SIDAK ALPHA(0.05).

Oneway

ANOVA

Task-oriented leadership

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.610	2	.305	1.281	.289
Within Groups	9.286	39	.238		
Total	9.896	41			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Task-oriented leadership
Sidak

(I) Survey	(J) Survey	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Female board	Male board	-.09231	.18491	.945	-.5536	.3690
	Successful board	-.28571	.18133	.326	-.7381	.1666
Male board	Female board	.09231	.18491	.945	-.3690	.5536
	Successful board	-.19341	.18795	.671	-.6623	.2755
Successful board	Female board	.28571	.18133	.326	-.1666	.7381
	Male board	.19341	.18795	.671	-.2755	.6623

Appendix 17 Descriptive statistics of FBD, MBD and SBD (Task-oriented; QC)

```
COMPUTE filter_$=(Company_type = 1 & Survey = 3).
VARIABLE LABELS filter_$ 'Company_type = 1 & Survey = 3 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
DESCRIPTIVES VARIABLES=Competent Competitive Decisive Independent Industrious Intelligent Logical
    Objective Skilled Speedy
  /STATISTICS=MEAN STDDEV MIN MAX.
```

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Competent	23	4	5	4.87	.344
Skilled in business matters	23	4	5	4.70	.470
Logical	23	3	5	4.39	.583
Decisive	23	2	5	4.30	.822
Objective	23	3	5	4.26	.689
Independent	23	3	5	4.26	.689
Intelligent	23	3	5	4.26	.619
Industrious	23	3	5	3.96	.638
Speedy recovery from emotional disturbances	23	3	5	3.91	.793
Competitive	23	2	5	3.78	.736
Valid N (listwise)	23				

```
COMPUTE filter_$=(Company_type = 1 & Survey = 1).
VARIABLE LABELS filter_$ 'Company_type = 1 & Survey = 1 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
DESCRIPTIVES VARIABLES=Competent Competitive Decisive Independent Industrious Intelligent Logical
    Objective Skilled Speedy
  /STATISTICS=MEAN STDDEV MIN MAX.
```

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Competent	24	2	5	4.33	.868
Intelligent	24	3	5	4.04	.751
Objective	24	3	5	4.00	.722
Skilled in business matters	24	2	5	4.00	.885
Independent	24	3	5	3.92	.717
Logical	24	2	5	3.71	.859
Decisive	24	2	5	3.54	.779
Speedy recovery from emotional disturbances	24	2	5	3.38	.711
Industrious	24	2	5	3.38	.770
Competitive	24	1	5	3.25	1.032
Valid N (listwise)	24				

```
COMPUTE filter_$=(Company_type = 1 & Survey = 2).
VARIABLE LABELS filter_$ 'Company_type = 1 & Survey = 2 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
DESCRIPTIVES VARIABLES=Competent Competitive Decisive Independent Industrious Intelligent Logical
    Objective Skilled Speedy
```

/STATISTICS=MEAN STDDEV MIN MAX.

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Competent	18	4	5	4.78	.428
Intelligent	18	4	5	4.61	.502
Skilled in business matters	18	4	5	4.44	.511
Logical	18	2	5	4.33	.767
Decisive	18	3	5	4.11	.676
Independent	18	2	5	4.11	.758
Competitive	18	3	5	4.06	.639
Industrious	18	3	5	4.06	.639
Objective	18	2	5	3.89	.758
Speedy recovery from emotional disturbances	18	3	5	3.72	.752
Valid N (listwise)	18				

Appendix 18 Tests of between-subjects effects (HYP 1, Relationship-oriented)

```
UNIANOVA Relationship BY Gender Company_type Survey
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Gender)
  /EMMEANS=TABLES(Company_type)
  /EMMEANS=TABLES(Survey)
  /EMMEANS=TABLES(Company_type*Survey)
  /PRINT=ETASQ HOMOGENEITY OPOWER
  /CRITERIA=ALPHA(.05)
  /DESIGN=Gender Company_type Survey Company_type*Survey.
```

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
Gender	1	Male	64
	2	Female	43
Company type	1	QC	65
	2	NQC	42
Survey	1	Female board	39
	2	Male board	31
	3	Successful board	37

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Relationship-oriented leadership

F	df1	df2	Sig.
1.645	11	95	.099

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.[a]

a. Design: Intercept + Gender + Company_type + Survey + Company_type * Survey

Tests of Between-Subjects Effects

Dependent Variable: Relationship-oriented leadership

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.474[a]	6	.079	.398	.879	.023
Intercept	1365.137	1	1365.137	6870.235	.000	.986
Gender	.047	1	.047	.235	.629	.002
Company_type	.079	1	.079	.400	.529	.004
Survey	.035	2	.018	.089	.915	.002
Company_type * Survey	.386	2	.193	.972	.382	.019

Error	19.870	100	.199			
Total	1589.840	107				
Corrected Total	20.344	106				

Tests of Between-Subjects Effects

Dependent Variable: Relationship-oriented leadership

Source	Noncent. Parameter	Observed Power[b]
Corrected Model	2.385	.160
Intercept	6870.235	1.000
Gender	.235	.077
Company_type	.400	.096
Survey	.178	.063
Company_type * Survey	1.944	.215
Error		
Total		
Corrected Total		

a. R Squared = .023 (Adjusted R Squared = -.035)
b. Computed using alpha = .05

Estimated Marginal Means

1. Gender

Dependent Variable: Relationship-oriented leadership

Gender	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Male	3.842	.056	3.731	3.953
Female	3.796	.074	3.649	3.944

2. Company type

Dependent Variable: Relationship-oriented leadership

Company type	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
QC	3.849	.056	3.738	3.960
NQC	3.789	.075	3.641	3.937

3. Survey

Dependent Variable: Relationship-oriented leadership

Survey	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Female board	3.845	.074	3.697	3.992
Male board	3.802	.082	3.639	3.964
Successful board	3.811	.077	3.658	3.964

4. Company type * Survey

Dependent Variable: Relationship-oriented leadership

Company type	Survey	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
QC	Female board	3.789	.091	3.609	3.970
	Male board	3.869	.105	3.660	4.078
	Successful board	3.888	.093	3.703	4.072
NQC	Female board	3.900	.118	3.665	4.135
	Male board	3.734	.126	3.484	3.984
	Successful board	3.734	.124	3.488	3.979

Appendix 19 Tests of between-subjects effects (HYP 1, Transformational)

```
UNIANOVA Transformational BY Gender Company_type Survey
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Gender)
```

```
/EMMEANS=TABLES(Company_type)
/EMMEANS=TABLES(Survey)
/EMMEANS=TABLES(Company_type*Survey)
/PRINT=ETASQ HOMOGENEITY OPOWER
/CRITERIA=ALPHA(.05)
/DESIGN=Gender Company_type Survey Company_type*Survey.
```

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
Gender	1	Male	64
	2	Female	43
Company type	1	QC	65
	2	NQC	42
Survey	1	Female board	39
	2	Male board	31
	3	Successful board	37

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Transformational leadership

F	df1	df2	Sig.
1.254	11	95	.264

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.[a]

a. Design: Intercept + Gender + Company_type + Survey + Company_type * Survey

Tests of Between-Subjects Effects

Dependent Variable: Transformational leadership

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1.899[a]	6	.316	1.447	.204	.080
Intercept	1470.750	1	1470.750	6725.247	.000	.985
Gender	.069	1	.069	.316	.575	.003
Company_type	.053	1	.053	.241	.625	.002
Survey	.650	2	.325	1.487	.231	.029
Company_type * Survey	.838	2	.419	1.917	.152	.037
Error	21.869	100	.219			
Total	1702.698	107				
Corrected Total	23.768	106				

Tests of Between-Subjects Effects

Dependent Variable: Transformational leadership

Source	Noncent. Parameter	Observed Power[b]
Corrected Model	8.682	.540
Intercept	6725.247	1.000
Gender	.316	.086
Company_type	.241	.077
Survey	2.973	.311
Company_type * Survey	3.834	.390
Error		
Total		
Corrected Total		

a. R Squared = .080 (Adjusted R Squared = .025)

b. Computed using alpha = .05

Estimated Marginal Means

1. Gender

Dependent Variable: Transformational leadership

Gender	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Male	3.936	.059	3.820	4.053
Female	3.992	.078	3.837	4.146

2. Company type

Dependent Variable: Transformational leadership

Company type	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
QC	3.988	.059	3.872	4.105
NQC	3.940	.078	3.784	4.095

3. Survey

Dependent Variable: Transformational leadership

Survey	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Female board	3.892	.078	3.737	4.047
Male board	3.927	.086	3.757	4.097
Successful board	4.073	.081	3.913	4.234

4. Company type * Survey

Dependent Variable: Transformational leadership

Company type	Survey	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
QC	Female board	3.793	.096	3.603	3.982
	Male board	4.040	.110	3.821	4.259
	Successful board	4.133	.098	3.939	4.326
NQC	Female board	3.991	.124	3.744	4.238
	Male board	3.814	.132	3.551	4.076
	Successful board	4.014	.130	3.757	4.272

Appendix 20 ICC analysis of QC ratings by gender

```
RELIABILITY
  /VARIABLES=QC_Male_MBD QC_Male_SBD
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /STATISTICS=ANOVA
  /ICC=MODEL(ONEWAY) CIN=95 TESTVAL=0.29.
```

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	47	100.0
	Excluded[a]	0	.0
	Total	47	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.912	2

ANOVA

		Sum of Squares	df	Mean Square	F	Sig
Between People		30.272	46	.658		
Within People	Between Items	.078	1	.078	1.343	.252
	Residual	2.665	46	.058		
	Total	2.743	47	.058		
Total		33.014	93	.355		

Grand Mean = 3.8702

Intraclass Correlation Coefficient

Intraclass Correlation	95% Confidence Interval		F Test with True Value .29			
	Lower Bound	Upper Bound	Value	df1	df2	Sig

Single Measures	.837	.726	.906	6.207	46	47	.000
Average Measures	.911	.841	.950	8.007	46	47	.000

One-way random effects model where people effects are random.

```
RELIABILITY
  /VARIABLES=QC_Male_SBD QC_Male_FBD
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /STATISTICS=ANOVA
  /ICC=MODEL(ONEWAY) CIN=95 TESTVAL=0.29.
```

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	47	100.0
	Excluded[a]	0	.0
	Total	47	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.883	2

ANOVA

		Sum of Squares	df	Mean Square	F	Sig
Between People		30.242	46	.657		
Within People	Between Items	2.541	1	2.541	33.155	.000
	Residual	3.525	46	.077		
	Total	6.066	47	.129		
Total		36.308	93	.390		

Grand Mean = 3.6770

Intraclass Correlation Coefficient

	Intraclass Correlation	95% Confidence Interval		F Test with True Value .29			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.672	.480	.802	2.804	46	47	.000
Average Measures	.804	.649	.890	3.617	46	47	.000

One-way random effects model where people effects are random.

```
RELIABILITY
  /VARIABLES=QC_Female_MBD QC_Female_SBD
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /STATISTICS=ANOVA
  /ICC=MODEL(ONEWAY) CIN=95 TESTVAL=0.29.
```

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	47	100.0
	Excluded[a]	0	.0
	Total	47	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.932	2

ANOVA

	Sum of Squares	df	Mean Square	F	Sig

Between People		39.585	46	.861		
Within People	Between Items	.097	1	.097	1.659	.204
	Residual	2.684	46	.058		
	Total	2.781	47	.059		
Total		42.366	93	.456		

Grand Mean = 3.8704

Intraclass Correlation Coefficient

	Intraclass Correlation	95% Confidence Interval		F Test with True Value .29			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.871	.781	.926	8.005	46	47	.000
Average Measures	.931	.877	.962	10.327	46	47	.000

One-way random effects model where people effects are random.

```
RELIABILITY
  /VARIABLES=QC_Female_SBD QC_Female_FBD
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /STATISTICS=ANOVA
  /ICC=MODEL(ONEWAY) CIN=95 TESTVAL=0.29.
```

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	47	100.0
	Excluded[a]	0	.0
	Total	47	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.957	2

ANOVA

		Sum of Squares	df	Mean Square	F	Sig
Between People		36.744	46	.799		
Within People	Between Items	1.022	1	1.022	29.838	.000
	Residual	1.576	46	.034		
	Total	2.597	47	.055		
Total		39.342	93	.423		

Grand Mean = 3.7982

Intraclass Correlation Coefficient

	Intraclass Correlation	95% Confidence Interval		F Test with True Value .29			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.871	.780	.926	7.955	46	47	.000
Average Measures	.931	.876	.961	10.262	46	47	.000

One-way random effects model where people effects are random.

Appendix 21 Tests of between-subjects effects (HYP 2, Agentic)

```
COMPUTE filter_$=(Company_type = 1).
VARIABLE LABELS filter_$ 'Company_type = 1 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
UNIANOVA Agentic BY Gender Survey
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Gender)
```

```
/EMMEANS=TABLES(Survey)
/EMMEANS=TABLES(Gender*Survey)
/PRINT=ETASQ HOMOGENEITY OPOWER
/CRITERIA=ALPHA(.05)
/DESIGN=Gender Survey Gender*Survey.
```

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
Gender	1	Male	30
	2	Female	35
Survey	1	Female board	24
	2	Male board	18
	3	Successful board	23

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Agentic characteristics

F	df1	df2	Sig.
1.369	5	59	.249

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.[a]

a. Design: Intercept + Gender + Survey + Gender * Survey

Tests of Between-Subjects Effects

Dependent Variable: Agentic characteristics

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter
Corrected Model	3.451[a]	5	.690	5.614	.000	.322	28.068
Intercept	732.048	1	732.048	5953.937	.000	.990	5953.937
Gender	.126	1	.126	1.026	.315	.017	1.026
Survey	2.661	2	1.330	10.820	.000	.268	21.639
Gender * Survey	.817	2	.408	3.322	.043	.101	6.645
Error	7.254	59	.123				
Total	753.388	65					
Corrected Total	10.705	64					

Tests of Between-Subjects Effects

Dependent Variable: Agentic characteristics

Source	Observed Power[b]
Corrected Model	.987
Intercept	1.000
Gender	.169
Survey	.987
Gender * Survey	.607
Error	
Total	
Corrected Total	

a. R Squared = .322 (Adjusted R Squared = .265)

b. Computed using alpha = .05

Estimated Marginal Means

1. Gender

Dependent Variable: Agentic characteristics

Gender	Mean	Std. Error	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Male	3.351	.065	3.222	3.481
Female	3.440	.060	3.321	3.560

2. Survey

Dependent Variable: Agentic characteristics

Survey	Mean	Std. Error	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Female board	3.120	.072	2.977	3.264
Male board	3.605	.083	3.439	3.772
Successful board	3.462	.073	3.315	3.608

3. Gender * Survey

Dependent Variable: Agentic characteristics

Gender	Survey	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Male	Female board	2.922	.106	2.711	3.134
	Male board	3.625	.124	3.377	3.873
	Successful board	3.506	.106	3.295	3.718
Female	Female board	3.319	.097	3.124	3.513
	Male board	3.586	.111	3.364	3.808
	Successful board	3.417	.101	3.214	3.619

Appendix 22 Post hoc comparisons (HYP 2, Agentic)

```
UNIANOVA Agentic BY Gender Survey
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /POSTHOC=Gender Survey(SIDAK)
  /EMMEANS=TABLES(Gender)
  /EMMEANS=TABLES(Survey)
  /EMMEANS=TABLES(Gender*Survey)
 /EMMEANS TABLES(Gender*Survey) COMPARE(Gender) ADJ(SIDAK)
  /PRINT=ETASQ HOMOGENEITY OPOWER
  /CRITERIA=ALPHA(.05)
  /DESIGN=Gender Survey Gender*Survey.
```

Pairwise Comparisons

Dependent Variable: Agentic characteristics

Survey	(I) Gender	(J) Gender	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
						Lower Bound	Upper Bound
Female board	Male	Female	-.397*	.144	.008	-.684	-.109
	Female	Male	.397*	.144	.008	.109	.684
Male board	Male	Female	.039	.166	.814	-.294	.372
	Female	Male	-.039	.166	.814	-.372	.294
Successful board	Male	Female	.090	.146	.542	-.203	.383
	Female	Male	-.090	.146	.542	-.383	.203

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Sidak.

Appendix 23 Descriptive statistics of FBD, MBD and SBD (Agentic; QC)

```
COMPUTE filter_$=(Company_type = 1 & Gender = 1).
VARIABLE LABELS filter_$ 'Company_type = 1 & Gender = 1 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
DESCRIPTIVES VARIABLES=Aggressive Ambitious Analytical Assertive Dominant Forceful Confident
  /STATISTICS=MEAN STDDEV MIN MAX.
```

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Aggressive	30	1	4	2.13	1.137
Ambitious	30	2	5	3.90	.923
Analytical ability	30	2	5	4.17	.874
Assertive	30	2	5	3.47	.629
Dominant	30	1	4	2.53	.973
Forceful	30	1	5	3.23	.817

Self-confident	30	2	5	3.83	.592
Valid N (listwise)	30				

```
COMPUTE filter_$=(Company_type = 1 & Gender = 2).
VARIABLE LABELS filter_$ 'Company_type = 1 & Gender = 2 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
DESCRIPTIVES VARIABLES=Aggressive Ambitious Analytical Assertive Dominant Forceful Confident
  /STATISTICS=MEAN STDDEV MIN MAX.
```

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Aggressive	35	1	4	2.03	.954
Ambitious	35	2	5	4.11	.758
Analytical ability	35	3	5	4.51	.562
Assertive	35	1	5	3.29	.789
Dominant	35	1	4	2.71	.893
Forceful	35	1	5	3.23	1.003
Self-confident	35	3	5	4.11	.583
Valid N (listwise)	35				

Appendix 24 Tests of between-subjects effects (HYP 2, Communal)

```
COMPUTE filter_$=(Company_type = 1).
VARIABLE LABELS filter_$ 'Company_type = 1 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
UNIANOVA Communal BY Gender Survey
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Gender)
  /EMMEANS=TABLES(Survey)
  /EMMEANS=TABLES(Gender*Survey)
  /PRINT=ETASQ HOMOGENEITY OPOWER
  /CRITERIA=ALPHA(.05)
  /DESIGN=Gender Survey Gender*Survey.
```

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
Gender	1	Male	30
	2	Female	35
Survey	1	Female board	24
	2	Male board	18
	3	Successful board	23

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Communal characteristics

F	df1	df2	Sig.
.911	5	59	.480

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.[a]

a. Design: Intercept + Gender + Survey + Gender * Survey

Tests of Between-Subjects Effects

Dependent Variable: Communal characteristics

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter
Corrected Model	.212[a]	5	.042	.255	.936	.021	1.276
Intercept	678.101	1	678.101	4072.723	.000	.986	4072.723
Gender	.007	1	.007	.043	.836	.001	.043
Survey	.094	2	.047	.281	.756	.009	.562
Gender * Survey	.109	2	.055	.328	.722	.011	.656
Error	9.823	59	.166				
Total	703.347	65					
Corrected Total	10.036	64					

Tests of Between-Subjects Effects

Dependent Variable: Communal characteristics

Source	Observed Power[b]
Corrected Model	.108
Intercept	1.000
Gender	.055
Survey	.092
Gender * Survey	.100
Error	
Total	
Corrected Total	

a. R Squared = .021 (Adjusted R Squared = -.062)

b. Computed using alpha = .05

Estimated Marginal Means

1. Gender

Dependent Variable: Communal characteristics

Gender	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Male	3.258	.075	3.107	3.408
Female	3.279	.069	3.140	3.418

2. Survey

Dependent Variable: Communal characteristics

Survey	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Female board	3.282	.084	3.114	3.449
Male board	3.307	.097	3.113	3.501
Successful board	3.216	.085	3.045	3.386

3. Gender * Survey

Dependent Variable: Communal characteristics

Gender	Survey	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Male	Female board	3.234	.123	2.988	3.480
	Male board	3.357	.144	3.068	3.646
	Successful board	3.182	.123	2.936	3.428
Female	Female board	3.330	.113	3.103	3.556
	Male board	3.257	.129	2.999	3.515
	Successful board	3.250	.118	3.014	3.486

Appendix 25 Tests of between-subjects effects (HYP 2, Task-oriented)

```
UNIANOVA Task BY Gender Survey
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Gender)
  /EMMEANS=TABLES(Survey)
  /EMMEANS=TABLES(Gender*Survey)
  /PRINT=ETASQ HOMOGENEITY OPOWER
  /CRITERIA=ALPHA(.05)
```

/DESIGN=Gender Survey Gender*Survey.

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
Gender	1	Male	30
	2	Female	35
Survey	1	Female board	24
	2	Male board	18
	3	Successful board	23

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Task-oriented leadership

F	df1	df2	Sig.
3.339	5	59	.010

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.[a]

a. Design: Intercept + Gender + Survey + Gender * Survey

Tests of Between-Subjects Effects

Dependent Variable: Task-oriented leadership

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter
Corrected Model	3.984[a]	5	.797	3.598	.007	.234	17.990
Intercept	1053.571	1	1053.571	4757.060	.000	.988	4757.060
Gender	.140	1	.140	.631	.430	.011	.631
Survey	3.757	2	1.878	8.481	.001	.223	16.961
Gender * Survey	.170	2	.085	.384	.683	.013	.768
Error	13.067	59	.221				
Total	1090.110	65					
Corrected Total	17.051	64					

Tests of Between-Subjects Effects

Dependent Variable: Task-oriented leadership

Source	Observed Power[b]
Corrected Model	.898
Intercept	1.000
Gender	.122
Survey	.958
Gender * Survey	.109
Error	
Total	
Corrected Total	

a. R Squared = .234 (Adjusted R Squared = .169)

b. Computed using alpha = .05

Estimated Marginal Means

1. Gender

Dependent Variable: Task-oriented leadership

Gender	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Male	4.027	.087	3.853	4.201
Female	4.121	.080	3.961	4.281

2. Survey

Dependent Variable: Task-oriented leadership

Survey	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Female board	3.745	.096	3.552	3.938
Male board	4.206	.112	3.983	4.430
Successful board	4.270	.098	4.074	4.467

3. Gender * Survey

Dependent Variable: Task-oriented leadership

Gender	Survey	Mean	Std. Error	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Male	Female board	3.636	.142	3.352	3.920
	Male board	4.163	.166	3.830	4.495
	Successful board	4.282	.142	3.998	4.566
Female	Female board	3.854	.131	3.593	4.115
	Male board	4.250	.149	3.952	4.548
	Successful board	4.258	.136	3.986	4.530

Appendix 26 Tests of between-subjects effects (HYP 2, Relationship-oriented)

```
UNIANOVA Relationship BY Gender Survey
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Gender)
  /EMMEANS=TABLES(Survey)
  /EMMEANS=TABLES(Gender*Survey)
  /PRINT=ETASQ HOMOGENEITY OPOWER
  /CRITERIA=ALPHA(.05)
  /DESIGN=Gender Survey Gender*Survey.
```

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
Gender	1	Male	30
	2	Female	35
Survey	1	Female board	24
	2	Male board	18
	3	Successful board	23

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Relationship-oriented leadership

F	df1	df2	Sig.
1.844	5	59	.118

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.[a]

a. Design: Intercept + Gender + Survey + Gender * Survey

Tests of Between-Subjects Effects

Dependent Variable: Relationship-oriented leadership

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter
Corrected Model	.601[a]	5	.120	.632	.676	.051	3.159
Intercept	940.648	1	940.648	4946.462	.000	.988	4946.462
Gender	4.286136E-5	1	4.286136E-5	.000	.988	.000	.000
Survey	.141	2	.070	.370	.692	.012	.740
Gender * Survey	.465	2	.232	1.222	.302	.040	2.444
Error	11.220	59	.190				
Total	972.590	65					
Corrected Total	11.821	64					

Tests of Between-Subjects Effects

Dependent Variable: Relationship-oriented leadership

Source	Observed Power[b]
Corrected Model	.214
Intercept	1.000
Gender	.050
Survey	.107
Gender * Survey	.257

Error		
Total		
Corrected Total		

a. R Squared = .051 (Adjusted R Squared = -.030)
b. Computed using alpha = .05

Estimated Marginal Means

1. Gender

Dependent Variable: Relationship-oriented leadership

Gender	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Male	3.848	.081	3.687	4.010
Female	3.850	.074	3.702	3.999

2. Survey

Dependent Variable: Relationship-oriented leadership

Survey	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Female board	3.785	.089	3.606	3.964
Male board	3.880	.103	3.673	4.087
Successful board	3.883	.091	3.701	4.065

3. Gender * Survey

Dependent Variable: Relationship-oriented leadership

Gender	Survey	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Male	Female board	3.755	.131	3.491	4.018
	Male board	4.000	.154	3.691	4.309
	Successful board	3.791	.131	3.528	4.054
Female	Female board	3.815	.121	3.573	4.057
	Male board	3.760	.138	3.484	4.036
	Successful board	3.975	.126	3.723	4.227

Appendix 27 Tests of between-subjects effects (HYP 2, Transformational)

```
COMPUTE filter_$=(Company_type = 1).
VARIABLE LABELS filter_$ 'Company_type = 1 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
UNIANOVA Transformational BY Survey Gender
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Survey)
  /EMMEANS=TABLES(Gender)
  /EMMEANS=TABLES(Gender*Survey)
  /PRINT=ETASQ HOMOGENEITY OPOWER
  /CRITERIA=ALPHA(.05)
  /DESIGN=Survey Gender Gender*Survey.
```

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
Survey	1	Female board	24
	2	Male board	18
	3	Successful board	23
Gender	1	Male	30
	2	Female	35

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Transformational leadership

F	df1	df2	Sig.
1.745	5	59	.138

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.[a]

a. Design: Intercept + Survey + Gender + Survey * Gender

Tests of Between-Subjects Effects

Dependent Variable: Transformational leadership

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter
Corrected Model	1.693[a]	5	.339	1.829	.121	.134	9.143
Intercept	1009.513	1	1009.513	5450.420	.000	.989	5450.420
Survey	1.483	2	.741	4.002	.023	.119	8.005
Gender	.118	1	.118	.636	.428	.011	.636
Survey * Gender	.107	2	.053	.288	.751	.010	.576
Error	10.928	59	.185				
Total	1044.024	65					
Corrected Total	12.621	64					

Tests of Between-Subjects Effects

Dependent Variable: Transformational leadership

Source	Observed Power[b]
Corrected Model	.585
Intercept	1.000
Survey	.694
Gender	.123
Survey * Gender	.094
Error	
Total	
Corrected Total	

a. R Squared = .134 (Adjusted R Squared = .061)

b. Computed using alpha = .05

Estimated Marginal Means

1. Survey

Dependent Variable: Transformational leadership

Survey	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Female board	3.788	.088	3.611	3.964
Male board	4.044	.102	3.840	4.248
Successful board	4.131	.090	3.952	4.311

2. Gender

Dependent Variable: Transformational leadership

Gender	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Male	3.945	.079	3.786	4.104
Female	4.031	.073	3.884	4.177

3. Gender * Survey

Dependent Variable: Transformational leadership

Gender	Survey	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Male	Female board	3.699	.130	3.440	3.959
	Male board	4.058	.152	3.753	4.362
	Successful board	4.077	.130	3.817	4.337
Female	Female board	3.876	.119	3.637	4.115
	Male board	4.031	.136	3.758	4.303
	Successful board	4.186	.124	3.937	4.434

Appendix 28 ICC analysis of NQC ratings by gender

```
RELIABILITY
  /VARIABLES=NQC_Male_MBD NQC_Male_SBD
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /STATISTICS=ANOVA
  /ICC=MODEL(ONEWAY) CIN=95 TESTVAL=0.29.
```

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	47	100.0
	Excluded[a]	0	.0
	Total	47	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.900	2

ANOVA

		Sum of Squares	df	Mean Square	F	Sig
Between People		30.680	46	.667		
Within People	Between Items	.152	1	.152	2.291	.137
	Residual	3.059	46	.066		
	Total	3.211	47	.068		
Total		33.892	93	.364		

Grand Mean = 3.7612

Intraclass Correlation Coefficient

	Intraclass Correlation	95% Confidence Interval		F Test with True Value .29			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.814	.690	.892	5.373	46	47	.000
Average Measures	.898	.817	.943	6.931	46	47	.000

One-way random effects model where people effects are random.

```
RELIABILITY
  /VARIABLES=NQC_Male_SBD NQC_Male_FBD
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /STATISTICS=ANOVA
  /ICC=MODEL(ONEWAY) CIN=95 TESTVAL=0.29.
```

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	47	100.0
	Excluded[a]	0	.0
	Total	47	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.905	2

ANOVA

	Sum of Squares	df	Mean Square	F	Sig
Between People	34.086	46	.741		

Within People	Between Items	.070	1	.070	.993	.324
	Residual	3.254	46	.071		
	Total	3.324	47	.071		
Total		37.410	93	.402		

Grand Mean = 3.6936

Intraclass Correlation Coefficient

	Intraclass Correlation	95% Confidence Interval		F Test with True Value .29			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.826	.708	.899	5.766	46	47	.000
Average Measures	.905	.829	.947	7.438	46	47	.000

One-way random effects model where people effects are random.

```
RELIABILITY
  /VARIABLES=NQC_Female_SBD NQC_Female_MBD
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /STATISTICS=ANOVA
  /ICC=MODEL(ONEWAY) CIN=95 TESTVAL=0.29.
```

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	47	100.0
	Excluded[a]	0	.0
	Total	47	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.801	2

ANOVA

		Sum of Squares	df	Mean Square	F	Sig
Between People		27.785	46	.604		
Within People	Between Items	1.261	1	1.261	10.475	.002
	Residual	5.539	46	.120		
	Total	6.800	47	.145		
Total		34.585	93	.372		

Grand Mean = 3.7541

Intraclass Correlation Coefficient

	Intraclass Correlation	95% Confidence Interval		F Test with True Value .29			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.613	.400	.764	2.298	46	47	.003
Average Measures	.760	.572	.866	2.964	46	47	.000

One-way random effects model where people effects are random.

```
RELIABILITY
  /VARIABLES=NQC_Female_SBD NQC_Female_FBD
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /STATISTICS=ANOVA
  /ICC=MODEL(ONEWAY) CIN=95 TESTVAL=0.29.
```

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	47	100.0
	Excluded[a]	0	.0
	Total	47	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.919	2

ANOVA

		Sum of Squares	df	Mean Square	F	Sig
Between People		46.738	46	1.016		
Within People	Between Items	.397	1	.397	4.803	.034
	Residual	3.805	46	.083		
	Total	4.202	47	.089		
Total		50.940	93	.548		

Grand Mean = 3.9350

Intraclass Correlation Coefficient

	Intraclass Correlation	95% Confidence Interval		F Test with True Value .29			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.838	.728	.906	6.255	46	47	.000
Average Measures	.912	.843	.951	8.068	46	47	.000

```
RELIABILITY
  /VARIABLES=NQC_Male_MBD NQC_Male_SBD
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /STATISTICS=ANOVA
  /ICC=MODEL(ONEWAY) CIN=95 TESTVAL=0.3.
```

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	47	100.0
	Excluded[a]	0	.0
	Total	47	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.900	2

ANOVA

		Sum of Squares	df	Mean Square	F	Sig
Between People		30.680	46	.667		
Within People	Between Items	.152	1	.152	2.291	.137
	Residual	3.059	46	.066		
	Total	3.211	47	.068		
Total		33.892	93	.364		

Grand Mean = 3.7612

Intraclass Correlation Coefficient

	Intraclass Correlation	95% Confidence Interval		F Test with True Value .3			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.814	.690	.892	5.256	46	47	.000
Average Measures	.898	.817	.943	6.833	46	47	.000

One-way random effects model where people effects are random.

```
RELIABILITY
  /VARIABLES=NQC_Male_SBD NQC_Male_FBD
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /STATISTICS=ANOVA
```

/ICC=MODEL(ONEWAY) CIN=95 TESTVAL=0.3.

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	47	100.0
	Excluded[a]	0	.0
	Total	47	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.905	2

ANOVA

		Sum of Squares	df	Mean Square	F	Sig
Between People		34.086	46	.741		
Within People	Between Items	.070	1	.070	.993	.324
	Residual	3.254	46	.071		
	Total	3.324	47	.071		
Total		37.410	93	.402		

Grand Mean = 3.6936

Intraclass Correlation Coefficient

	Intraclass Correlation	95% Confidence Interval		F Test with True Value .3			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.826	.708	.899	5.641	46	47	.000
Average Measures	.905	.829	.947	7.333	46	47	.000

One-way random effects model where people effects are random.

```
RELIABILITY
  /VARIABLES=NQC_Female_SBD NQC_Female_MBD
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /STATISTICS=ANOVA
  /ICC=MODEL(ONEWAY) CIN=95 TESTVAL=0.3.
```

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	47	100.0
	Excluded[a]	0	.0
	Total	47	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.801	2

ANOVA

		Sum of Squares	df	Mean Square	F	Sig
Between People		27.785	46	.604		
Within People	Between Items	1.261	1	1.261	10.475	.002
	Residual	5.539	46	.120		
	Total	6.800	47	.145		
Total		34.585	93	.372		

Grand Mean = 3.7541

Intraclass Correlation Coefficient

Intraclass	95% Confidence Interval	F Test with True Value .3

	Correlation	Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.613	.400	.764	2.248	46	47	.003
Average Measures	.760	.572	.866	2.922	46	47	.000

One-way random effects model where people effects are random.

```
RELIABILITY
  /VARIABLES=NQC_Female_SBD NQC_Female_FBD
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /STATISTICS=ANOVA
  /ICC=MODEL(ONEWAY) CIN=95 TESTVAL=0.3.
```

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	47	100.0
	Excluded[a]	0	.0
	Total	47	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.919	2

ANOVA

		Sum of Squares	df	Mean Square	F	Sig
Between People		46.738	46	1.016		
Within People	Between Items	.397	1	.397	4.803	.034
	Residual	3.805	46	.083		
	Total	4.202	47	.089		
Total		50.940	93	.548		

Grand Mean = 3.9350

Intraclass Correlation Coefficient

	Intraclass Correlation	95% Confidence Interval		F Test with True Value .3			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.838	.728	.906	6.119	46	47	.000
Average Measures	.912	.843	.951	7.955	46	47	.000

One-way random effects model where people effects are random.

Appendix 29 Tests of between-subjects effects (HYP 3, Agentic)

```
COMPUTE filter_$=(Company_type = 2).
VARIABLE LABELS filter_$ 'Company_type = 2 (FILTER)'.
VALUE LABELS filter_$ 0 'Not Selected' 1 'Selected'.
FORMATS filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE.
UNIANOVA Agentic BY Gender Survey
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Gender)
  /EMMEANS=TABLES(Survey)
  /EMMEANS=TABLES(Gender*Survey)
  /PRINT=ETASQ HOMOGENEITY OPOWER
  /CRITERIA=ALPHA(.05)
  /DESIGN=Gender Survey Gender*Survey.
```

Univariate Analysis of Variance

Between-Subjects Factors

	Value Label	N

Gender	1	Male	48
	2	Female	21
Survey	1	Female board	21
	2	Male board	22
	3	Successful board	26

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Agentic characteristics

F	df1	df2	Sig.
.765	5	63	.578

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.[a]

a. Design: Intercept + Gender + Survey + Gender * Survey

Tests of Between-Subjects Effects

Dependent Variable: Agentic characteristics

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter
Corrected Model	1.848[a]	5	.370	1.529	.194	.108	7.644
Intercept	677.036	1	677.036	2800.416	.000	.978	2800.416
Gender	.490	1	.490	2.027	.159	.031	2.027
Survey	1.064	2	.532	2.200	.119	.065	4.400
Gender * Survey	.003	2	.002	.006	.994	.000	.013
Error	15.231	63	.242				
Total	831.122	69					
Corrected Total	17.079	68					

Tests of Between-Subjects Effects

Dependent Variable: Agentic characteristics

Source	Observed Power[b]
Corrected Model	.501
Intercept	1.000
Gender	.289
Survey	.433
Gender * Survey	.051
Error	
Total	
Corrected Total	

a. R Squared = .108 (Adjusted R Squared = .037)

b. Computed using alpha = .05

Estimated Marginal Means

1. Gender

Dependent Variable: Agentic characteristics

Gender	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Male	3.381	.071	3.239	3.523
Female	3.568	.110	3.347	3.789

2. Survey

Dependent Variable: Agentic characteristics

Survey	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Female board	3.367	.126	3.115	3.619
Male board	3.668	.113	3.443	3.893
Successful board	3.389	.101	3.186	3.591

3. Gender * Survey

Dependent Variable: Agentic characteristics

Gender	Survey	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Male	Female board	3.277	.123	3.031	3.522
	Male board	3.581	.127	3.327	3.835

	Successful board	3.286	.119	3.047	3.524
Female	Female board	3.457	.220	3.018	3.897
	Male board	3.755	.186	3.384	4.126
	Successful board	3.492	.164	3.165	3.820

Appendix 30 Tests of between-subjects effects, including post hoc (HYP 3, Communal)

```
UNIANOVA Communal BY Gender Survey
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Gender)
  /EMMEANS=TABLES(Survey)
  /EMMEANS=TABLES(Gender*Survey)
  /EMMEANS TABLES(Survey*Gender) COMPARE(Gender) ADJ(SIDAK)
  /PRINT=ETASQ HOMOGENEITY OPOWER
  /CRITERIA=ALPHA(.05)
  /DESIGN=Gender Survey Gender*Survey.
```

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
Gender	1	Male	48
	2	Female	21
Survey	1	Female board	21
	2	Male board	22
	3	Successful board	26

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Communal characteristics

F	df1	df2	Sig.
1.189	5	63	.325

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.[a]

a. Design: Intercept + Gender + Survey + Gender * Survey

Tests of Between-Subjects Effects

Dependent Variable: Communal characteristics

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter
Corrected Model	1.384[a]	5	.277	1.521	.196	.108	7.607
Intercept	578.926	1	578.926	3181.023	.000	.981	3181.023
Gender	.122	1	.122	.669	.417	.011	.669
Survey	.076	2	.038	.210	.811	.007	.420
Gender * Survey	1.181	2	.590	3.243	.046	.093	6.487
Error	11.466	63	.182				
Total	735.408	69					
Corrected Total	12.850	68					

Tests of Between-Subjects Effects

Dependent Variable: Communal characteristics

Source	Observed Power[b]
Corrected Model	.499
Intercept	1.000
Gender	.127
Survey	.081
Gender * Survey	.598
Error	
Total	
Corrected Total	

a. R Squared = .108 (Adjusted R Squared = .037)
b. Computed using alpha = .05

Estimated Marginal Means

1. Gender

Dependent Variable: Communal characteristics

Gender	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Male	3.260	.062	3.136	3.383
Female	3.166	.096	2.975	3.358

2. Survey

Dependent Variable: Communal characteristics

Survey	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Female board	3.158	.109	2.940	3.376
Male board	3.240	.098	3.045	3.435
Successful board	3.241	.088	3.065	3.417

3. Gender * Survey

Dependent Variable: Communal characteristics

Gender	Survey	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Male	Female board	3.259	.107	3.046	3.472
	Male board	3.419	.110	3.199	3.639
	Successful board	3.101	.103	2.894	3.308
Female	Female board	3.057	.191	2.676	3.438
	Male board	3.061	.161	2.739	3.383
	Successful board	3.381	.142	3.097	3.665

4. Survey * Gender

Estimates

Dependent Variable: Communal characteristics

Survey	Gender	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Female board	Male	3.259	.107	3.046	3.472
	Female	3.057	.191	2.676	3.438
Male board	Male	3.419	.110	3.199	3.639
	Female	3.061	.161	2.739	3.383
Successful board	Male	3.101	.103	2.894	3.308
	Female	3.381	.142	3.097	3.665

Pairwise Comparisons

Dependent Variable: Communal characteristics

Survey	(I) Gender	(J) Gender	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
						Lower Bound	Upper Bound
Female board	Male	Female	.202	.219	.359	-.235	.639
	Female	Male	-.202	.219	.359	-.639	.235
Male board	Male	Female	.358	.195	.072	-.032	.748
	Female	Male	-.358	.195	.072	-.748	.032
Successful board	Male	Female	-.280	.176	.116	-.632	.071
	Female	Male	.280	.176	.116	-.071	.632

Based on estimated marginal means
a. Adjustment for multiple comparisons: Sidak.

Univariate Tests

Dependent Variable: Communal characteristics

Survey		Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Female board	Contrast	.155	1	.155	.852	.359	.013
	Error	11.466	63	.182			
Male board	Contrast	.611	1	.611	3.358	.072	.051
	Error	11.466	63	.182			

Successful board	Contrast	.462	1	.462	2.537	.116	.039
	Error	11.466	63	.182			

Univariate Tests

Dependent Variable: Communal characteristics

Survey		Noncent. Parameter	Observed Power[a]
Female board	Contrast	.852	.149
	Error		
Male board	Contrast	3.358	.438
	Error		
Successful board	Contrast	2.537	.348
	Error		

Each F tests the simple effects of Gender within each level combination of the other effects shown. These tests are based on the linearly ind
pairwise comparisons among the estimated marginal means.

a. Computed using alpha = .05

Appendix 31 for Tests of between-subjects effects(HYP 3, Task-oriented)

```
UNIANOVA Task BY Gender Survey
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Gender)
  /EMMEANS=TABLES(Survey)
  /EMMEANS=TABLES(Gender*Survey)
  /PRINT=ETASQ HOMOGENEITY OPOWER
  /CRITERIA=ALPHA(.05)
  /DESIGN=Gender Survey Gender*Survey.
```

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
Gender	1	Male	48
	2	Female	21
Survey	1	Female board	21
	2	Male board	22
	3	Successful board	26

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Task-oriented leadership

F	df1	df2	Sig.
2.438	5	63	.044

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.[a]

a. Design: Intercept + Gender + Survey + Gender * Survey

Tests of Between-Subjects Effects

Dependent Variable: Task-oriented leadership

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter
Corrected Model	2.712[a]	5	.542	2.268	.058	.153	11.338
Intercept	917.717	1	917.717	3836.988	.000	.984	3836.988
Gender	.709	1	.709	2.963	.090	.045	2.963
Survey	.563	2	.281	1.176	.315	.036	2.352
Gender * Survey	1.138	2	.569	2.380	.101	.070	4.760
Error	15.068	63	.239				
Total	1121.780	69					
Corrected Total	17.780	68					

Tests of Between-Subjects Effects

Dependent Variable: Task-oriented leadership

Source	Observed Power[b]

Corrected Model	.697
Intercept	1.000
Gender	.396
Survey	.249
Gender * Survey	.464
Error	
Total	
Corrected Total	

a. R Squared = .153 (Adjusted R Squared = .085)
b. Computed using alpha = .05

Estimated Marginal Means

1. Gender

Dependent Variable: Task-oriented leadership

Gender	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Male	3.933	.071	3.792	4.074
Female	4.158	.110	3.938	4.377

2. Survey

Dependent Variable: Task-oriented leadership

Survey	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Female board	4.023	.125	3.773	4.273
Male board	3.943	.112	3.720	4.167
Successful board	4.170	.101	3.968	4.371

3. Gender * Survey

Dependent Variable: Task-oriented leadership

Gender	Survey	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Male	Female board	3.706	.122	3.462	3.951
	Male board	3.987	.126	3.734	4.239
	Successful board	4.106	.119	3.869	4.343
Female	Female board	4.340	.219	3.903	4.777
	Male board	3.900	.185	3.531	4.269
	Successful board	4.233	.163	3.908	4.559

Appendix 32 for Tests of between-subjects effects (HYP 3, Relationship-oriented)

```
UNIANOVA Relationship BY Gender Survey
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Gender)
  /EMMEANS=TABLES(Survey)
  /EMMEANS=TABLES(Gender*Survey)
  /PRINT=ETASQ HOMOGENEITY OPOWER
  /CRITERIA=ALPHA(.05)
  /DESIGN=Gender Survey Gender*Survey.
```

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
Gender	1	Male	48
	2	Female	21
Survey	1	Female board	21
	2	Male board	22
	3	Successful board	26

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Relationship-oriented leadership

F	df1	df2	Sig.
1.869	5	63	.112

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.[a]

a. Design: Intercept + Gender + Survey + Gender * Survey

Tests of Between-Subjects Effects

Dependent Variable: Relationship-oriented leadership

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter
Corrected Model	1.414[a]	5	.283	1.490	.206	.106	7.449
Intercept	852.956	1	852.956	4493.583	.000	.986	4493.583
Gender	.060	1	.060	.316	.576	.005	.316
Survey	.943	2	.471	2.483	.092	.073	4.965
Gender * Survey	.927	2	.464	2.442	.095	.072	4.884
Error	11.958	63	.190				
Total	1054.300	69					
Corrected Total	13.372	68					

Tests of Between-Subjects Effects

Dependent Variable: Relationship-oriented leadership

Source	Observed Power[b]
Corrected Model	.490
Intercept	1.000
Gender	.086
Survey	.481
Gender * Survey	.474
Error	
Total	
Corrected Total	

a. R Squared = .106 (Adjusted R Squared = .035)

b. Computed using alpha = .05

Estimated Marginal Means

1. Gender

Dependent Variable: Relationship-oriented leadership

Gender	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Male	3.867	.063	3.741	3.993
Female	3.933	.098	3.737	4.128

2. Survey

Dependent Variable: Relationship-oriented leadership

Survey	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Female board	4.030	.112	3.807	4.253
Male board	3.719	.100	3.520	3.918
Successful board	3.951	.090	3.772	4.130

3. Gender * Survey

Dependent Variable: Relationship-oriented leadership

Gender	Survey	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Male	Female board	3.900	.109	3.682	4.118
	Male board	3.867	.112	3.642	4.091
	Successful board	3.835	.106	3.624	4.046
Female	Female board	4.160	.195	3.771	4.549
	Male board	3.571	.165	3.242	3.900
	Successful board	4.067	.145	3.776	4.357

Appendix 33 for Tests of between-subjects effects (HYP 3, Transformational)

```
UNIANOVA Transformational BY Gender Survey
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Gender)
  /EMMEANS=TABLES(Survey)
  /EMMEANS=TABLES(Gender*Survey)
  /PRINT=ETASQ HOMOGENEITY OPOWER
  /CRITERIA=ALPHA(.05)
  /DESIGN=Gender Survey Gender*Survey.
```

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
Gender	1	Male	48
	2	Female	21
Survey	1	Female board	21
	2	Male board	22
	3	Successful board	26

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Transformational leadership

F	df1	df2	Sig.
2.242	5	63	.061

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.[a]

a. Design: Intercept + Gender + Survey + Gender * Survey

Tests of Between-Subjects Effects

Dependent Variable: Transformational leadership

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter
Corrected Model	1.489[a]	5	.298	1.347	.256	.097	6.736
Intercept	880.921	1	880.921	3985.604	.000	.984	3985.604
Gender	.175	1	.175	.790	.378	.012	.790
Survey	.909	2	.454	2.056	.136	.061	4.112
Gender * Survey	1.177	2	.588	2.662	.078	.078	5.324
Error	13.925	63	.221				
Total	1079.172	69					
Corrected Total	15.413	68					

Tests of Between-Subjects Effects

Dependent Variable: Transformational leadership

Source	Observed Power[b]
Corrected Model	.445
Intercept	1.000
Gender	.141
Survey	.408
Gender * Survey	.510
Error	
Total	
Corrected Total	

a. R Squared = .097 (Adjusted R Squared = .025)

b. Computed using alpha = .05

Estimated Marginal Means

1. Gender

Dependent Variable: Transformational leadership

Gender	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound

Male	3.908	.068	3.772	4.043
Female	4.019	.106	3.808	4.230

2. Survey

Dependent Variable: Transformational leadership

Survey	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Female board	4.150	.120	3.909	4.391
Male board	3.835	.108	3.620	4.050
Successful board	3.905	.097	3.712	4.099

3. Gender * Survey

Dependent Variable: Transformational leadership

Gender	Survey	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Male	Female board	3.885	.118	3.650	4.119
	Male board	3.933	.121	3.691	4.176
	Successful board	3.905	.114	3.677	4.133
Female	Female board	4.415	.210	3.995	4.836
	Male board	3.736	.178	3.381	4.091
	Successful board	3.906	.157	3.593	4.219