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BOARD GENDER DIVERSITY AND FIRM PERFORMANCE

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I here by declare that I have compiled the thesis independently and all works, important standpoints and data by other authors have been properly referenced and the same paper has not been previously presented for grading.

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Abstract

This paper investigates large listed companies from Finland and does gender diversity in board affect their performance. These results will be compared to a previous study made with all listed Finnish companies that had found positive connection between firm performance and board gender diversity. Companies that are used in this study have been taken from Nasdaq OMX Helsinki and years that are examined are 2014 and 2018. To examine the relationship correlation coefficient and regression analysis will be done. Many Previous studies have been done on the same subject with mostly positive connection but there are also negative connections found as well with results that have been ruled out as insignificant. This papers findings will be placed in insignificant category as results that have been found are too weak to be ruled as positive. Findings from this paper will only fit for these companies that are in the study.

Keywords: Gender diversity, firm performance, board of directors, corporate governance.

1. Introduction

“Men take a more fact-based approach to their environment, often scanning for threats and challenges. Women tend to take a more intuitive approach because they perceive people and events more deeply and with greater memory capacity.” (Van Edwards). In the world which feels like getting smaller by the decades due to the digitalization which helps companies to go global markets, has come easier. These aspects drive companies to find an advantage on each other and how to beat their opponents in the field.

Women in company boards are still underrepresented all over the world with holding about 20% of director seats even though they make almost 40% of the work force in many countries (Global 2020). This does not explain with education as for example in US women make 56% of college students (Marcus, 2017).

While company boards are underrepresented by women, this study will try find if there is positive connection with gender diversity in board and firm performance. As the sample size used in this study is small and chosen to use this because the results will be compared to findings from Ruuska (2017) study. So, this papers findings will only fit for this papers data.

In this paper I will go through how women are represented in workforce. How good corporate governance works and what it can bring in the future. Also, agent theory will be examined as when board of directors are chosen it is important that their interests are aligned with the owners and where the company wants to go. Closer look on board of directors and what well assembled can generate and how you can advance yourself with performance measurements.

To examine the problem, this paper will look for Finnish companies' performance with using ROA and ROE as performance measurements and how well are women represented in their boards. To look for a relationship between them correlation coefficient will be done and after that hierarchical regression analysis.

When companies are finding new talent, are they going to limit their options only to one specific group of people? Companies will have a larger pool of candidates to consider when there are no barriers as gender, cultural, racial, religious, age, to choose their candidates who can bring more to the table with their differentiated ideas?

2 Gender Equality in Finland

Finland is considered to be one of the leading countries in gender equality with one of the most notable features being the first country to allow women to have full political rights. This was done in 1906 and in next year there was an election to parliament where 19 women were elected and that was 9.5% of all the members of parliament (Tuomaala). Already in the 1850s, there was a conversation on how important it would be to educate women, but at the time Finland was not even independent and went by Grand Duchy of Finland and was still a very poor country. In the 1850s Alexander II was the ruler in Russia and was liberal towards Finland which helped the country to grow, move towards independence, and fight for rights to everyone. In 1919 women were able to go for employment without their husband's approval and in the second world war when men were in the battlefield, women were working in factories, hospitals and run farms, so when the war ended all women didn't go back to being housewives (Auvinen).

2.1 Jobs for men and women

A long time has gone from the beginning of women starting to work alongside men but there are still differences in which fields do men and women steer to. There is still and might always be so-called jobs for men and jobs for women. In Finland, in 2016 the fields that had a majority of women were health and social services which had 87% of women, Accommodation, and catering business had the second-largest concentration of women with 69% and education was third with 68%. Fields that had the majority of men were construction with 92%, the second was logistics with 81% and in third place came manufacturing with 75%. The most gender-equal field was wholesale and retail and they had 48.6% of women and 51.4% of men (Tilastokeskus, 2018). This shows that fields that have the majority of women tend to be more equal to gender diversity and fields that have more men have fewer women than vice versa.

2.2 Discrimination

In a study by Suomen Ammattiliittojen Keskusjärjestö SAK ry (2014), which is The Central Organisation of Finnish Trade Unions found that women report more discrimination in the workplace and experience more mental and physical violence. In 1986 there was made a law

to prevent discrimination (Tasa-arvolaki 609/1986.). It has changed over time and now its main focus is to prevent discrimination in gender and advance equality between men and women as well as improve women's place in work-life (Tasa-arvolaki 1§).

Tinsley, Wade, Main, and O'reilly (2016) found that there is a possibility for discrimination for female candidates to be appointed on the board but did not find enough evidence for it to be ruled as true. One that they found to help women to get into boards was that the boards that had more women helped to get another woman in.

Discrimination can happen already in the hiring process even though the female participant would get the job. After graduating for job as software engineer women got jobs almost in the same percentage as there were graduates, but the discrimination came with getting hired in lower positions and after working the rates for getting a promotion and moving up the ladder, the rate lowered for women (Isaacs, 1995).

3 Corporate Governance

All the laws that will be discussed and mentioned here are taken from Finnish Hallintolaki (administrative law), (6.6.2003/434) shortened from now on to HL and can be that these are not the same for other countries.

3.1 Rules for Corporate Governance

The laws main idea is to advance good corporate governance and legal protection as well as to advance governments' service quality and productivity (HL Chapter 1 § 1). Officials have to treat everything equally and actions to be taken are unbiased and those have to protect based on juridical system (HL Chapter 2 § 6). The official has to help another official in administrative action within the framework of his jurisdiction and to strive to advance liaison between officials (HL Chapter 2 § 10).

Even though Finnish companies have to follow the rules stated in Hallintolaki (administrative law) (6.6.2003/434), they have to also follow the rules and standards set by the European Parliament. This helps companies to find more foreign investors when everybody is using the

same kind of policies and are more transparent which makes the investors' job easier to find information that is needed to make the crucial decisions. These rules and standards are not always perfect and there is something to improve like for example when the 2008 market crisis happened, the laws for banks were tightened so that something like that could not happen again (Dallas, Pitt-Watson, 2016).

Board of directors and the CEO are responsible for corporate governance and it is their duty to make sure that the companies' surveillance is in order and that the financial management is done properly as well as to have proper transparency on decisions and business that is dealt with (Roima, 2019). "These systems work because they give public companies not only a framework of laws and regulations that establish minimum requirements but also the flexibility to implement customized practices that suit the companies' needs and to modify those practices in light of changing conditions and standards." (Business Roundtable, 2016). Investors, shareholders, officials, companies, etc. all have and know the same general rules and ways to operate the system but it also gives the flexibility to be changed for suitable usage in the given situation. It helps to keep track and follow the needed information. This also lets companies operate on so called grey area when there is no strict laws and companies can use the general rules to their favor. Investors from the western part of Europe in generally do prefer the lesser rules and standards as they state that companies do follow them, but on the eastern side of Europe they liked more strict rules which can be explained by their history and culture preferences (Dallas, Pitt-Watson, 2016)

3.2 Principal-agent problem

When selecting a new board member, it is important that the candidate's interests are aligned with the company, so that there will not be large disagreements that would end in conflicts. The principal-agent problem is also known as agency dilemma and agency theory, where the "agent" is trusted to make decisions for the "principal". The subject has been studied a lot from the first studies and mentions back in 1932 by Berle and Means (Panda, Leepsa, 2017). Economists have been wanting to find solutions for this problem a long time and it is still a relevant and interesting subject to look for. The dilemma occurs when both agent and principal are looking for the best options for themselves and that those are not in line with each other. Another problem that occurs is that it is difficult and/or expensive for the principal. Is to verify and keep track of what the agent has done for the company, or that

those actions are aligned with the goals that the principal has (Eisenhardt 1989). People usually want what is best for themselves and make decisions that are aligned with that. What can be the best for the agent might not be the best for the principal and that is why they should find a way to bring their goals closer to each other. To do so ‘principal’ can offer a performance-based reward. When the company succeeds in something the agent will get payment from that. This when you get the goals to come closer to each other and to make sure that the agent wants the same things as the principal.

In principal-agent problem, the information is treated as a commodity (Eisenhardt, 1989). This puts value on the information and that it can be bought. The principal would like to know everything that the agent does, but these kinds of perfect scenarios are not possible in the real world. The agent can have negative thoughts towards these perfect scenarios because it would control more their work and their own output for the company. These can also lead to downgrading on their performance-based rewards.

The principal-agent problem is good for the company and to the economy for making them evolve and to take the next step to find better solutions. When managers are being pushed by owners to take more risks, the whole economy will move forward, as all want to be ahead of everybody else and make more profit faster. Managers could just become satisfied with the current situation and make sure that the company is just running well. This type of situation can happen more often in markets where there is a monopoly and no one to compete with.

3.3 How to loosen the principal-agent problem

A common example would be that you as the principal have a motor vehicle and you want it fixed. You will take it to a mechanic who is the agent, and in this situation, the agent is much more familiar with the situation. The agent will charge the principal and he can charge approximately because you have not seen how long it has taken to do the job.

People tend to behave rationally and to look out the best options for themselves like when managers have a fixed salary, they want to ensure their company safety by avoiding taking any risks. Which is not ideal for the owners? When they have a salary that is based completely on the company’s success, they will take too many risks to maximize the profit in the short term, which can have a negative effect on the company in the longer term (Boyd,

1994). Every situation have to be evaluated one by one and to try find solutions that would benefit the most for both parties because there is no universal way to deal with this problem.

3.4 Future of Corporate Governance

Dallas, Pitt-Watson (2016) made a research where they interviewed 30 investment practitioners to hear what they would want to have changed to help and assure more safety for investors. They asked what from the participants what were the key things they would want to be changed and one of them was to have the directors accountable and take power from them, with adding that minority shareholders could propose an independent candidate so that the large shareholders couldn't control it all. One that also came up was remuneration which is a subject that comes up now and then. Participants do support to have voted on the amount of pay, but at the same time, they acknowledge that it would be time-consuming and costly.

This remuneration subject was one of the largest news in Finland in 2019 when Posti Group corporation which is the main Finnish postal office and is owned by the Finnish government. Paid its CEO record braking remunerations and at the same, the company was struggling and moving some of the services to Tallinn, Estonia, and at the same were laying off employees as well (Uusi Suomi, 2019).

Future for corporate governance can be "Diversity of all kinds and at all levels" (Nestor, 2018). We have been moving towards a more globalized world all the time and the world has gotten 'smaller' with new technology that connects us to anywhere in the world. Nestor (2018) believes truly that the world will become more diverse, and this is already happening by we see other cultures and how differently they run companies, take the good examples from them, and combine it to own strategy. Diverse boards in large companies represent different cultures and bring out new ideas and strategies that work in different places around the world.

Investors want that minority shareholders would have more strength and influence on decision making in boards that directors cannot just hire and fire people as they please (Dallas, Pitt-Watson 2016). This would also help to get more diverse people in boards as

Creary, McDonnell, Ghai, and Scruggs (2019) showed that the decision making for high positions can be just selecting people you know as it is the easiest way.

4. Board of Directors

All the citations from the law are taken from Finnish governments Limited Liability Companies Act and thus might not be comparable for other countries. All Finnish companies follow the rules set by the Limited Liability Companies Act (Osakeyhtiölaki (624/2006), later OYL).

Companies that are listed in stock, must have a board of directors (OYL Chapter 6 § 1) to oversee the company's management. They are responsible for making sure the accounting is done properly, the CEO is responsible that it is juridically correct and the CEO answers to the board of directors. The Board of directors' main job is to organize the business and then the CEO and other executives will oversee the day to day execution. If the company does not have a CEO the board of directors will also oversee the execution of tasks.

Boards one of the tasks is to create a strategy for the company to follow, the company should have a clear and well-planned idea where it wants to go (Jaskari, 2018). CEO should be able to rely on the board to help him/her and vice versa and this requires good information flow between the two, CEOs' task is to make sure that the plan is executed properly.

4.1. Gender Diversity in Boards

Finland is one of the leading countries in Europe in 2019 to have women on boards, only countries like France, Italy, Sweden, and Germany had more. It should be considered that in France, Italy, and Germany there is made legislation to have more diversity in board. In Finland and Sweden, this diversity has been achieved naturally without any external forces (Keskuskauppakamari 2019). Finland and other Nordic countries have been leading countries in equal rights for men and women for decades and this shows that not all countries need legislations for achieving equality. This makes studying Finnish companies a good candidates as there are more women in boards then in most of the countries.

European Union has also taken a task on helping countries to balance the board gender diversity (European commission, 2012). They started to push the agenda forward for countries because it was thought that the change would not happen without an outside force. First, in 1984 the EU Council adopted recommendation (84/635/EEC), where they recommended member states to take more actions on balancing the gender diversity in both public and private sectors and helping and encouraging women to go for professions where they are underrepresented. In 1996 new recommendation (96/694/EC), came with recommendations for member states to take actions for getting more women in the decision-making process and to promote more transparent information on statistics at how gender diverse different fields are, for example in political, economic, and social spheres.

EWOB Gender Diversity Index 2019 (2019) is a research made by The European Women on Boards to find if EU member states have achieved the mark for women in corporate boards to be 40% as proposed by commission (COM/2012/0614). They had data from 598 companies and 33% of all board members were women. This is close, but it is still not enough, because there were 29% of those companies that had more than 40% and 14% that had less than 20%. This shows that companies are going more towards equal gender diversity in boards, but some has made little or no change. Legislations, laws, and transparency on this matter move these numbers closer to the goal of 40% women in the board of directors. In later part of this study I will go through how close this data is with this study's findings.

Women and men think differently and take different measurements in situations. Byrnes, Miller & Schafer (1999) found that women tend to be more risk-averse in almost every case they studied. When thinking group of people (board of directors) who make decisions for large companies' that operate in different fields, countries and have customers and employees that also are all different, you think that you should also have a diverse board to have different ideas and solutions to answer these demands and problems.

Gender diversity in boards is different across different countries and industries. Lowest in Romania was in financial and insurance where only 9.1% of board members were female and 57.7% of companies' in the same industry had all-male boards (Ionascu, Ionascu, Sacarin & Minu 2015). Highest was in professional, scientific, and technical activities with 29.4% being female board members. Some might think that in a field of construction there would be

fewer female board members because it is stereotypically a “man’s job”, but it did have 23% female board members. There are countries that are far behind others in board diversity, but a lot of countries have been going towards an equal share for many years already. In Finland, there has been steady growth from 2011 to 2019 in women in boards in all Finnish listed companies. In 2011 it was 18% and midway in 2015 it was 24% and in 2019 it was 29%. Every year the largest companies had the most female board members compared to medium and small-sized companies (Keskuskaupakamari, 2019), this might have something to do with having a good image of your company and to be presented as open minded diverse company (Creary, McDonnell, Ghai & Scruggs, 2019).

4.2. Appointing Directors

In this chapter this paper will go through on how board members are selected, appointed and if there are reasons why boards are still not equal as they should be set by European commission (COM/2012/0614). Board of directors are appointed in shareholders’ meetings unless it is instructed in corporate by-laws that the board of administration will make the decisions (OYL Chapter 6 § 9). There has been a conversation on why the same people are on the boards and Chhaochharia & Grinstein (2009) showed that in the US, company As’ CEO sits in company Bs’ board and company Bs’ CEO sits in company As’ board of directors. This also affects the diversity in boards negatively when the directors appoint their friends and acquaintances to boards. It might not have anything to do with discrimination against women, it can be just the ‘easy solution’ to do. They already know the person and think of them as reliable and accomplished in their field. Creary, McDonnell, Ghai, and Scruggs (2019) did research on diversity and board’s performance with questionnaires and got results as “Oh, we have an opening, who do we know?”. They also found that it can be just laziness for finding a new board member.

When deciding on new board members or executives they should always think about what kind of person would fit and where the company wants to go in the future. A new and upcoming company might want to go globally and someone who has expertise in that would be a fine adjustment (Price 2018).

The new board members should also know that they have responsibilities in the company and that there might be legal actions against them if they perform their job carelessly, for

example, if they are responsible for information security and don't pay attention to it and something happens, they are responsible, or if the CEO makes something illegal they might be accomplice and can end in a trial (Lindfors).

One aspect also can be why some companies want female board members is to show for the public and investors that there is no discrimination and to be more appealing. A company that has an only male board of directors can look for outsiders as an old and conservative that does not go well with changes. It can be that the company is doing well and to be one of the best from the industry and be as innovative as the next one, but with an image that your company doesn't select women in board, it is not easy and some companies only want women for their gender and not for their skills. "checking the box", "board members were not able to comment on her expertise — only their desire to have gender diversity on the board" (Creary, McDonnell, Ghai & Scruggs, 2019).

4.3. Committees

Board of directors appoints different committees to do tasks that are in their responsibility, but might not have enough time to do them (Iwasaki), for example, a remuneration committee that task is to make a suitable and tempting remuneration package for the CEO and an audit committee will oversee the function (Laux & Laux 2007). The remuneration package for the CEO usually includes a fixed salary, benefits, and rewards. The rewards in the package can be and usually are linked to the firm's performance so that the CEO will work hard for the company and ensure its improvement and most importantly, makes money for the owners. Problems come when the package is constructed poorly and that the CEO will try to get most out of the package but at the same time it affects negatively to the company's future, for example, if the package is closely linked to short-time performance, the CEO will do decisions that have a good impact on the short term but affects negatively in a long run for the company.

Nagel & Legget (2015) found that there are also external forces that have an effect on CEO pay, they found that other companies' inside 30 miles radius effects in social pressure. If other companies pay more than average to their CEO, it is most likely that other companies inside this 30-mile radius are also likely to pay more than average to their CEO. You would

think that this kind of comparison and maybe even show off would not be part of high-level executives' work and mindset, but apparently, it can be. This also can result from other companies' wanting to have the best CEO and pays more than others and everybody else has to match that they do not lose theirs and if they want to hire a good one as well. One of the aspects that came was also that larger companies pay more than smaller ones and as well riskier, higher growth and better performance companies' pay more as well to their CEOs'.

5. Firm Performance

Performance measurements are crucial for companies, investors, and everybody who wants to have feedback on how they are doing. These measurements help from companies to individuals to advance. Employers can use them to see how well are their employees doing without actually see them do the job, employees can benefit from the information and have progress, “before you can improve something, you have to be able to measure it” (Inman). For a company or any individual the need to improve must use measurements, because, without them, they do not where they are, where they need to be, “The process improvement is not possible without measuring the outcomes.” (Al-Matari, Al-Swidi, Fadzil, 2014).

Company to advance itself, it usually has to make changes, and now in a digital world with business analytics, for example, the changes can happen fast with good information flow. When the world started to digitalize, it was thought that it would be more a commodity than a valuable tool for strategic growth. Business analytics bring much to the company's table, information flow throughout the company, databases, new digital services for customers. Business analytics systems can help companies to change their culture and behaviors (Someh, Shanks, 2015).

For investors, these measurements are crucial, with them they can monitor their portfolio and to seek new investment opportunities. There are several different ways an investor can use performance measurements, lots of it depends on what information they are after (Finra). Investors can find a quick way to earn money and aim for a short term plan and go for a big reward, but this also is very risky, because there will random ups and downs and is not really quite predictable (Kingham, 2018). A good and steady investor should aim for earning the

largest amount possible with the least amount risk, for this the key is to measure volatility risk and for this, they can use for an example a standard deviation (Simple Stock Investing).

5.1 ROA

In this study I will be using performance measurements ROA and ROE. These two measurements were chosen to use because previous studies on same subject has also used them (Ruuska, 2017; Greyfman, Cooper, and Davis, 2018; Erhardt, Werbel, Shrader 2003). Also, this paper will compare its results with Ruuska (2017), so the methodology will be the same and talked later more in this paper.

ROA is a return on assets is profitability measurement where the company sees how well they are making a profit with their assets. It is a good measurement because it does not include taxes where can come different outcomes if we are looking at other fields where can be different tax systems and it cannot be manipulated so easily with tax policies (Alma Talent). ROA can be calculated in multiple ways and there is no universal way to do it. In this study, I will be using the simplified version that is represented in Orbis database as:

$$\text{ROA} = \text{Net Profits} \div \text{Total Assets}$$

5.2 ROE

Profitability measurement ROE is calculated almost the same way but where ROA uses total assets, in ROE I will use only equity. ROE will show how well a company does make a profit with its shareholders' equity. So, investors might like to look more on ROE than ROA, because ROE uses their money and is in way risk-adjusted already (Hannagan, 2008). ROE is represented as:

$$\text{ROE} = \text{Net Profits} \div \text{Shareholders' Equity}$$

6. Literature Review

Gender diversity and diversity overall as a subject is widely studied in different countries, maybe because men and women do have differences, like in their risk-taking as Byrnes, Miller, and Schafer (1999) have proved. Also, having fewer women in top positions in companies and to find what reasons there might be behind it. There are studies that support

the idea that gender diversity in board does affect positively for the firm's performance. Then there are also those that have found negative impacts and studies that have not found any significant correlation between these two. Here I will be going through some of those studies and see what kind of results have come with different analyzing methods and in different countries. First, I will go through studies that have had more positive outcomes and from that to inconclusive and to studies with negative outcomes.

There are many papers that have found positive effects like Greyfman, Cooper, and Davis (2018) who studied how boards gender diversity affects bank performance. They looked at Financial institutions from the US and used ROA and ROE also for performance measurements. Both measurements came with positive values for supporting gender diversity in the board of directors. Risk effects were also studied, and they found that there were not any notable signs that would have come with having a better performance for the banks.

Sanan (2016), who studied listed companies from India, also had positive outcomes that supported diversity in the board, but when the method to analyze was changed, the results were negative and Sanan (2016) argued that this might have happened because "gender diversity is determined simultaneously with firm performance." These show that different methods are valuable for finding a better understanding of the subject.

Erhardt, Werbel, and Shrader (2003) studied US firms and how the percentage of women and minorities in board affects companies' ROA and ROE. Both measurements came with positive values and they argued that if there are conflicts a more diverse board has a wider range of opinions that can be useful.

Using the same methods to study the subject as Erhardt, Werbel, and Shrader (2003), but with using Finnish listed companies. Ruuska (2017), also come to the same conclusion as them that the ROA and ROE both were positive with a more diverse board.

Abubakar and Garba (2018) studied banks from Nigeria where culture is vastly different compared for example to Finland. They also found that an increased number of women on board of the banks has a positive effect on ROE. They argued that banks of Nigeria should have 40% of board members women for better financial performance.

There are also studies that did come up with inconclusive outcomes and Ahonen (2018), who studied listed companies from Finland did come up with positive outcomes, but they were not significant and had to rule it out as inconclusive. For the same outcome also came Carter,

D'Souza, Simkins, and Simpson (2010), but they specified that there was no evidence of negativity. They argued that this might have happened because when bringing new innovative and creative ideas in, others in the group might not like and these are left on the table. Also, it was pointed out by them that these effects happen slowly over multiple years and were not seen by now.

Positive outcomes but having insignificant values came also Rissanen (2017) who studied Finnish listed companies and how diversity in top executives affects performance. She did find significant values when examining different fields and how board diversity affects their performance. The results came from construction which might be a little surprising when examining how men dominate the field is in Finland, having 92% of workers being men (Tilastokeskus, 2018).

Komscha (2010), studied listed Finnish companies and how diversity in board and in top executives' affects companies' performance. She had negative outcomes for companies' performance when having diverse nationalities in both board and top executives' positions. Knight, Pearce, Smith, Olian, Sims, and Flood (1999) also had the same outcomes for top management teams. They had these outcomes because with a more diverse group there will be trouble with agreeing at something, but they also had that in group process a diversity does bring valuable information for strategies.

Study that was made with listed companies from Indonesia and that operated in manufacturing. Found Results that were gender diversity and that there were more women in board it would affect negatively for ROA. They argued that most of these companies are family owned and thus the women that are in board are not selected for their qualifications but for family relations. Although they also found that foreigners in board will have positive effect on company performance and this could be because they are hired for the position because of their qualifications unlike the women (Tarigan Hervindra, and Hatane 2018).

6.1 Hypothesis

After going through different studies and from different parts of the world. This study will do empirical analysis on board diversity and how it affects performance. This study will use as performance measures ROA and ROE, as those are widely used to study companies' performance on other studies (Grefman, Cooper, Davis 2018; Erhard, Werbel, Shrader 2003;

Ruuska 2017). Board diversity will be examined as the percentage of women on the whole board of directors. Ruuska (2017) had studied this subject on Finnish companies and found positive connection between firm performance and gender diversity in board. In this study I will use the same methodology as her, so that this study's results can be compared to the results she has had and so will use similar hypothesis as she had. The two hypothesis will be as:

H0: Board gender diversity has no correlation with firm's performance

H1: Board gender diversity has a correlation with firm's performance

7. Data and Methodology

As this subject has already been studied quite a lot and Ruuska (2017) used all listed Finnish companies and had timestamps 2011 and 2016, her findings were that there is a positive connection between gender diversity in board and firm performance. So, this study will focus on companies that are categorized in large section and see if the outcome is the same as in all the companies.

I examined the data of Finnish listed companies from The Nasdaq Helsinki and used the years 2014 and 2018 as points to look at companies' data. There is a total of 128 companies to this day and those companies have been categorized by book value to small, medium, and large companies. Small companies are all the ones that have book value less than 150 million Euros, medium-sized are all from 150 million to one billion Euros and large ones are all above one billion Euros. This study will focus only on the companies that are in the large category and their Companies' data was gathered from the Orbis database.

The sample size of large companies is 32, two companies are ejected first because those are under the Swedish flag. One company is ejected because during the timeline of 2014 to 2018 it combined with another company and this would have an effect on the measurements, so it is ejected. Another two companies are also ejected because those were not listed in Nasdaq Helsinki in 2014, but later and last two companies that are ejected are due to the fact that there was not enough information available for the study. I was left with a sample size of 25

companies that are under Finnish flag, market value over one billion Euros and have been listed to Nasdaq Helsinki before 2014 and are still listed after 2018.

To measure companies' performance, I will use ROA and ROE to define how well are the companies using their assets to make a profit. These performance measurements were chosen to be used because other papers have used them as well (Ruuska, 2017; Erhardt, Werbel & Shrader 2003). These performance measurements are both taken from the Orbis database and used timestamp of the years 2014 and 2018.

In this study, I will be using correlation analysis to determine and evaluate the relationship between the variables, which also used in in different studies that have examined the same subject (Ruuska, 2017; Erhardt, 2003). Correlation analysis will give us a good view of how well two different variables are connected to each other, if the correlation is weak, it will tell us that they do not affect each other plenty or at all. Visa versa if the correlation is strong, we know that when the other one changes the other will change as well. In Pearson correlation coefficients the values are between -1 and 1. If the value comes out as -1, there is a strong negative correlation between them and it means that when one variable moves in one direction, the other one moves in the opposite direction. When the value is 1 the variables have a strong positive correlation and will move in the same direction when the other variable changes. When the value is 0, there is no correlation at all, and the variables do not affect each other at all. Depending on how strong or weak the correlation is we know how much the change will be.

After this, I will find the significance with P-value and use the confidence of 0.05 to see if the null hypothesis can be rejected. This study will test the hypothesis by testing the relationship of board diversity to ROA 14, ROA 18, ROE 14, and ROE 18. This study uses multiple points because if all of them come out positive, we have a strong relationship, and to rule out that this is not just fluke in a data.

Hierarchical regression analysis will be made last to test *H1: Board gender diversity has a correlation with firm's performance*. This study will use regression analysis because the results will be compared to the results that Ruuska (2017) have found. For using a regression analysis this studies' sample size (25) is normally too small but to have a good comparable to

results this method has been chosen. Findings from this study will only work for this sample that is being examined.

Regression analysis gives a better view of how other variables affect each other and with what coefficient (Feinstein and Thomas, 2002). It will be done in two parts, first dependent variable will be ROA 18 with independent variable being board diversity. I will also use control variables and those will be ROA 14 and board size. Second part will have dependent variable ROE 18 with independent variable board diversity and control variables ROE 14 and board size.

8. Results

	Mean	SD	Median	Min	Max
ROA 14	7.56	10.40	3.92	-6.77	48.63
ROA 18	7.00	5.94	6.37	-0.86	28.80
ROE 14	15.33	17.22	10.44	-20.36	67.03
ROE 18	14.10	9.86	15.05	-2.21	42.72

(Table 1 representing Mean, standard deviation, median, minimum, and maximum values for ROA 14, ROA 18, ROE 14, and ROE18.)

The largest ROA from 2014 was 48.63 and the smallest -6.77 and in 2018 the largest was 28.80 and the smallest -0.86. Mean for ROA 2014 was 7.56 and for 2018 Mean was 7.00, standard deviations were 10.39 for 2014 and 5.94 for 2018. Medians for ROA 14 and ROA 18 were 3.92 and 6.37.

As expected, ROE results are better because there is no debt included in the equation. The largest ROE from 2014 came with 67.03 and the smallest was -20.36. In 2018 the largest was 42.72 and smallest -2.21. Means for 2014 and 2018 were 15.33 and 14.10. Standard deviations were in 2014 17.22 and in 2018 9.86. Medians for ROE 14 and ROE 18 were 10.44 and 15.05.

	Mean	SD	Median	Min	Max
Women	2.76	0.83	3	1	5
Men	5.32	1.18	6	3	7
Size	8.08	1.32	8	6	11
Diversity	0.34	0.09	0.33	0.13	0.5

(Table 2 represents Board structure.)

Board sizes varied from 6 to 11 and had a mean 8.08 with a standard deviation of 1.32. With board diversity, there were none of the companies that would have had a majority of women on board and only two companies had an equal split of men and women. Both of these companies that had equal split also had the smallest board size in sample size and that was 6. The lowest board diversity ratio was 0.13, mean was 0.34 and the standard deviation was 0.09.

	ROA 14	ROA 18	ROE 14	ROE 18	Diversity
ROA 14	1.000				
ROA 18	0.205	1.000			
ROE 14	0.938	0.249	1.000		
ROE 18	0.092	0.927	0.185	1.000	
Diversity	0.228	0.136	0.252	0.132	1.000

(Table 3, Correlation results.)

Correlation results are presented in the table 3. Correlation for ROA 14 and ROA 18 is positive but not quite strong by being only 0.205. ROA 14 and ROE 14 had a very strong correlation with 0.938 and this is not a surprise as the fact they are calculated almost identically by only difference being that ROA includes debt in the equation also. ROA 14 and ROE 18 are positive but extremely frail with only 0.092, there is almost no correlation at all between the two variables. ROA 18 and ROE 14 come out as positive as well bur the correlation is not forceful with only 0.249. ROA 18 and ROE 18 are again like expected extremely strong with the value of 0.927, not quite as strong as ROA 14 and ROE 14, but almost there. ROE 14 and ROE 18 is positive with a weak correlation 0.185. Board Diversity had correlation value 0.228 with ROA 14 and for ROA 18 it was slightly smaller with 0.136.

Board diversity's correlation with ROE 14 and ROE 18 had larger difference between the years than with ROA 14 and ROA 18 with values 0.252 and 0.132.

	Diversity
ROA 14	0.331
ROA 18	0.580
ROE 14	0.278
ROE 18	0.614

(Table 4, correlation coefficient p-values for significance 0.05.)

The null hypothesis was *H0: Board gender diversity has no correlation with firm's performance*. The null hypothesis was tested with significance of correlation coefficient, with a significance of 0.05 as represented in the table 4. Board diversity was examined with ROA 14, ROA 18, ROE 14, and ROE 18. For diversity and ROA 14 the significance came out as 0.331 and thus the null hypothesis cannot be rejected. With ROA 18 the significance was 0.580 and I cannot reject the null hypothesis. With ROE 14 the significance was closest, being 0.278 but I still fail to reject the null hypothesis and ROE 18 had significance of 0.614 which also fails us to reject the null hypothesis. The same outcomes also came that there is a positive correlation but it being insignificant for Ahonen (2018), Carter et al. (2010), Rissanen (2017), and Rampling (2011). This study failed to reject the null hypothesis, but it does not mean that there is no correlation between board gender diversity and firm's performance.

(Dependent variable)	(β)	(t)	(p-value)
ROA 18	4.038	0.866	0.395
(Independent variable)			
Board diversity	8.596	0.657	0.518
(Control variable)			
ROA 14	0.124	0.933	0.361
Board size	-0.426	-0.412	0.685
(Estimated equation)			
R ²	0.018		
Adj R ²	-0.024		
F-stat	0.432		0.518

(Table 5, regression analysis summary ROA 18)

Hierarchical regression analysis was made to test *H1: Board gender diversity has a correlation with firm's performance*. Regression analysis was done in two parts, first part that is represented in table 5, was done with dependent variable ROA 18. Independent variable being Board diversity with control variables ROA 14 and board size. Correlation coefficient (β) for board diversity was positive with a value of 8.596. This can be interpreted as if you increase board diversity by one unit, ROA 18 will increase by 8.596 units. For all variables that are included in the table 5, none of them has significant correlation.

(Dependent variable)	(β)	(t)	(p-value)
ROE 18	9.306	1.203	0.241
(Independent variable)			
Board diversity	13.909	0.641	0.528
(Control variable)			
ROE 14	0.130	0.227	0.336
Board size	-1.419	-0.190	0.412
(Estimated equation)			
R ²	0.018		
Adj R ²	-0.025		
F-stat	0.411		0.528

(Table 6, regression analysis summary ROE 18)

Part two was done with dependent variable being ROE 18 and is represented in table 6. Independent variable was board diversity with control variables ROE 14 and board size. Board diversity had a positive value for (β) of 13.909. Same as in the table 5, p-values came with insignificant values. With these results, I have to reject *H1: Board gender diversity has a correlation with firm's performance*

9. Conclusion

Gender diversity in board and its affects on performance is widely studied subject for trying to understand how diversity could help companies. Even though there are many papers that supports the statement that gender divers' boards are more efficient and bring better performance for companies (Ruuska, 2017; Erhardt, Werbel, Shrader, 2003; Geyfman, Cooper, Davis, 2018; Sanan, 2016) Board of directors still have majority of men (EWOB Gender Diversity Index 2019, 2019). We have come long way from the days when men were the main breadwinners with having women on boards bringing new perspective and ideas to table that helps the companies to grow.

This paper was made to see if the findings are aligned with Ruuska's (2017) Findings as she examined all listed Finnish companies. The data for this study was taken from companies listed in Helsinki Nasdaq. I examined the companies that are categorized as large companies with having market value being over billion Euros. Some companies were left out of the study with some of them being Swedish companies and I examined only companies from Finland. one was left out because they had either combined with other company between the reviewed years and this would have affected the results as well as two for not finding needed information for this study.

This paper used ROA and ROE as the performance measures to see how well companies were doing and compared those to boards diversity. 2014 and 2018 were the selected years to be examined. Correlation coefficient was used to see how these variables reacted to each other. Boards diversity was altogether compared to four different variables for to have better view if there is correlation and how significant it would be.

Results were that with all the variables the board diversity had positive correlation so this study can conclude that there can be a connection between the board diversity and firm's performance. Although the positive results were all very weak and p-value test was done to test the null hypothesis. This study failed to reject the null hypothesis which was that there is no correlation between board diversity and firm performance.

After this *H1: Board gender diversity has a correlation with firm's performance* was tested with hierarchical regression analysis. Having similar outcomes as with correlation coefficient test that results are insignificant, and this paper have no choice but to reject the *H1: Board gender diversity has a correlation with firm's performance* as well. Even though this paper did not find a significant positive connection between firm performance and board gender diversity. There was weak positive connection and not negative which is line with most of the other studies that are reviewed in this paper.

When comparing the regression analysis results to the results that Ruuska (2017) found, there is no similarities in results. Almost only connection in this study's results being that there is positive correlation between firm performance and board diversity, but it was also insignificant unlike her results. She had done similar study on Finnish companies that are listed in Helsinki Nasdaq. She examined all the companies that are listed and found positive results for board diversity and firm performance, so it would be interesting to see is that the results for supporting this is because the board diversity has larger effect for small and medium sized companies in Finland? Also, she had larger sample sizes for regression analysis which can have effect on significance levels.

Out of all European Union countries there are on average 27% women board members in board of directors. Our findings were that in Finnish companies that are categorized in large section (market value over 1 billion) have in average 34% women board members of entire board of directors. These findings support the findings from research made by Keskuskauppakamari (2019) that Finland is in forefront of having balanced boards.

This subject is important and interesting to be examined as there seem to come more positive outcomes for diversity and this hard data could convince people that diversity is a good thing. It brings different cultures closer to each other and people can take the good from all of them. This can advance companies and the people as well when we learn from each other.

Future studies on the subject could take a closer look on why gender diversity in board has these effects on performance. Also, there are studies and news that women attend schools as much or some cases more than men, why still there are differences in equality in board? One that would be inordinately interesting to have new insight is that what kind diverse of board would the most effective for firms' performance? If companies could select automatically group of diverse people that all bring something valuable to the table.

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Appendix 1. Companies data

Company	Board Size	Men	Women	ROA 2014	ROA 2018	ROE 2014	ROE 2018	BDIV
Neste Oyj	9	6	3	0.88	9.44	2.14	16.79	0.33
KEMIRA OYJ	6	3	3	3.92	3.22	7.73	7.41	0.50
Metsä Board Oyj	9	7	2	3.19	8.91	8.14	15.38	0.22
Outokumpu	6	4	2	-6.77	2.17	-20.36	4.73	0.33
Stora Enso	9	6	3	0.77	7.88	1.89	15.05	0.33
UPM-Kymmene	11	6	5	3.61	10.68	6.85	15.26	0.45
Cargotec	10	7	3	1.96	2.91	5.88	7.49	0.30
Huhtamäki	8	5	3	9.76	4.80	15.46	12.26	0.38
KONE	8	5	3	11.88	10.87	36.64	27.29	0.38
Konecranes	8	6	2	5.04	2.85	16.56	7.93	0.25
Metso	8	6	2	5.53	7.01	15.30	16.24	0.25
Uponor	6	3	3	5.35	6.71	12.25	14.93	0.50
Valmet	7	4	3	1.91	5.09	5.69	16.02	0.43
Wärtsilä	8	6	2	6.57	6.37	17.31	15.87	0.25
YIT	7	4	3	2.50	1.12	10.44	3.73	0.43
Fiskars	10	6	4	48.63	4.75	67.03	6.75	0.40
Nokian Renkaat	8	6	2	11.60	14.11	17.25	19.86	0.25
Orion	7	4	3	21.10	28.80	41.04	42.72	0.43
Kesko	7	5	2	2.29	3.72	4.24	7.27	0.29
Sanoma	9	6	3	1.93	8.18	4.85	20.31	0.33
Citycon	8	7	1	2.78	0.36	5.11	0.80	0.13
Nokia	10	6	4	16.44	-0.86	39.94	-2.21	0.40
TietoEVRY	8	6	2	3.39	10.29	7.43	25.53	0.25
Elisa	7	4	3	10.03	11.83	25.6	28.02	0.43
Fortum	8	5	3	14.76	3.76	28.84	6.98	0.38

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