Linkages between gender diversity and firm performance

Discussion and causation beyond prior studies and fundamental literature

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Abstract

This research project investigates the relationships between diversity and firm performance for a people-dependent, Professional Services, and product-dependent, Energy Services, sector. The introduction indicated an inequality of gender-diversity and partially opposing characteristics of the sectors as a point of motivation for the study to take place. By performing a regression analysis, this paper investigates the relationships between diversity metrics, such as the proportion of women in board and executive leadership positions, and financial firm performance metrics, such as Return-on-Assets and Return-on-Sales. Consequently, the authors were able to reject the hypotheses favouring positive relationships for the Professional Services sector and reject the hypotheses favouring no relationships for the Energy Services sector. Following the analysis, the authors were then able to establish a foundation for a discussion to take place. Within the areas of knowledge pertaining to Management Studies and Organisational Behaviour, several insights assisted the authors in establishing the drivers and barriers for these relationships to take place. Furthermore, several implications were established for firms within the industries pertaining to the people-dependent and product-dependent sectors. The discussion and study concluded that the Professional Services sector had less dependencies on capital requirements and physical assets to generate profits, and an insignificant benefit from gender-diversity. For the Energy Services sector, it was found that it had greater dependencies on capital requirements and physical assets to generate profits, and an equally insignificant ability to benefit from gender-diversity. Finally, several recommendations and implications were stated which generally benefited the Professional Services sector over the Energy Services sector for short-term growth and long-term survivability through the ability to foster and harvest the benefits of diversity.

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1. Introduction

1.1 Motivation

Gender disparity is not only a moral and social concern, but more importantly a significant economic burden. On average, less than 15% of top management positions are held by women. This was the result of a study by McKinsey (& Company) in 2020, which examined the gender distribution in top management across 1,000 companies from 15 different countries worldwide. Including countries like the United States, Denmark, India, Norway, and Japan, representing a variety of different cultures (McKinsey & Company, 2020).

Therefore, it shows diversity has still not progressed to the point where the number of women and men, the amount of people from different cultures and the age distribution of employees in top management and board of directors at most companies is equal. Consequently, problems of discrimination, inequitable wage and outright discrimination against minorities arise. Despite the fact that society is slowly changing into a more equal one, there is a clear preference to appoint people from the majority instead of minorities in leadership positions, be it for reasons such as possible family planning, or the concern, from the male perspective, that women might reveal more competence as a leader. Yet it is clear from many sources that women possess special characteristics that can be of elementary importance for managing and strengthening a company successfully and hence affect the financial and so overall profitability of an industry (Sexton & Bowman-Upton, 1990). The purpose of this study is to examine the relationship between the gender composition of top management and board of directors, and the financial performance of companies and to draw awareness to the importance of women in top management.

However, this study not only aims to uncover the importance of diversified leaders for the overall performance, but additionally compares how diversity impacts two completely different sectors. This study will look at a people-dependent sector and a product-dependent sector and statistically compare their relationship to diversity and financial performance. People-dependent, (Professional Services Sector) because the main outcome is a service, and the customer is partly a co-creator of it. Additionally, people working in that sector address non-routine issues, which make the output differentiated from case to case. The Energy Services sector which is considered to be product-dependent, includes up- (oil, gas exploration/production) mid- (transport and storage) and downstream (product preparation and usage) oil and gas segments and utilities. It is considered to be product-dependent as the main output is a product and it is a routinized process mainly done by machines, not people. Furthermore, buyers consider buying from one of the companies, operating in the Energy Services sector, based on the

product price and convenience and not on the people doing the work. Companies that belong to the Professional Services sector are banking, consultancies, insurances, audits, and legal services. The motivation for the sector comes from the fact that the importance of the people behind the company transfers to the final product - the service. Similarly, in projects or legal matters, the exchange and creative ingenuity of employees contributes to better performance. This is not to say that financial service clients navigate between the competition based solely on employee diversity but also a vast array of criteria, however the aspect becomes more significant for the two described sectors. Here we see it as a particular distinction that a positive connection between diversified employees in management and board of directors, and the financial performance of the sector can be recognized.

While in the Professional Services sector, the choice of employees has a direct effect on the end-product, this is not so much in the Energy Services sector. Diversity doesn't play a fundamental role in the final product for Energy companies. The materials and technical processes remain the same, regardless of gender. The only thing that can be considered here is that innovative processes in the Energy Services sector are positively influenced by diversity. However, production itself is considered to be equally solid regardless of diversity in this sector. We then assume that there is little or no correlation between diversity and financial performance in the Energy Services sector.

Thus, our motivation is to prove that especially for companies such as those within the Professional Services sector, where certain qualities such as creativity, conflict management, group- and innovative thinking are essential, diversity contributes to better financial performance. The purpose of using a second, product-dependent sector as a comparison is to increase credibility for the importance of gender diversity in the people-dependent sector. Even though diversity should play a significant role in every industry and in every company, just for the sake of equality, we want to point out with this study that gender diversity should not be an obligation for companies, but an opportunity to increase the overall performance. If the hypotheses are confirmed, this applies directly to companies in the Professional Services sector, where the biggest difference can be observed and hence can be a motivation for companies to pay more attention to gender equality in their top management and beyond.

In the interest of the researchers, it is also of personal interest to observe a new link between the consensus of several studies and their own results. In addition, there is a personal motivation to combine one's own knowledge with a possible new link to further strengthen a possible confirmation of the thesis. The most important purpose, however, is to shed light on this topic and emphasise scientific grounds for companies to increase their quota of women and thus contribute to more equality, if it is confirmed that diversity and financial performance are correlated.

1.2 Consensus & Theoretical Domains

Literature on the subject of firm diversity and firm performance is extensive in its body of knowledge. Studies have been conducted in European countries such as Turkey (Solakoglu & Demir, 2016; Kılıç & Kuzey, 2016), United Kingdom (Brahma et al., 2020; Shehata et al., 2017), Spain (Reguera-Alvarado et al., 2015), Portugal (Schwab et al., 2015), Denmark (Opstrup & Villadsen, 2014), France (Dang & Nguyen, 2018) Germany (Kunze et al., 2010), and the Czech Republic (Hedija & Němec, 2020), as well as comparatively between Germany and Austria (Velte, 2016). Some have taken place in the Middle-Eastern countries such as Egypt (Ramadan & Hassan, 2021; Desoky & Mousa, 2013) and generally Islamic countries (Ali & Azmi, 2016). Some have taken place in Asian countries such as Hong Kong (McGuinness, 2016), the UAE (Kamal Hassan & Saadi Halbouni, 2013), India (Kagzi & Guha, 2018), Indonesia (Sutarti et al., 2021), Japan (Tanikawa & Jung, 2016), and South Korea (Tanikawa et al., 2017) and as well as comparatively between India and Singapore (Duppati et al., 2019). Some have taken place in the United States of America (Song et al., 2020; Miller & del Carmen Triana, 2009; Roberson & Hyeon Jeong Park, 2007). Some extend their research to international borders with their extensive data samples and partly in the format of meta-analysis (Pekovic & Vogt, 2020; Simionescu et al., 2021; Pucheta-Martínez et al., 2018; Perryman et al., 2016; Hongberg & Bui, 2013; Li et al., 2011). And others extend their research to discuss others results and construct frameworks (Askarany & Spraakman, 2020; Galbreath, 2016; Campbell & Mínguez-Vera, 2007; Schwab et al., 2015).

The different metrics of diversity studied have pertained to areas such as, but not limited to, gender, age, and race (See Table 1). By utilising different performative metrics and methodical approaches, said studies have concluded that there can be found positive relationships between diversity and firm financial performance, with certain mixed and insignificant results but nevertheless positive. The studies base their reasoning and discussion of the relationships on several theories such as agency theory, critical mass theory, resource dependency theory, stakeholder theory, social identity theory, and upper echelons theory. In this body of knowledge, there is a consensus that the link between diversity and firm performance is positively correlated. However, there is the exception of Shehata (et al., 2017), Hedija & Němec (2020), Homberg & Bui (2013) and Ali & Azmi (2016) which found insignificant relationships. And Kunze (et al., 2010), Tanikawa & Jung (2016), Tanikawa (et al., 2017) and Shehata (et al., 2017) which found negative relationships. For further examination of prior studies' content, literature, and outcome, see Table 1, and for legend and descriptive variables see Table 2.

Table 1: Review of prior literature on diversity and firm performance

Author(s), Year of publishing	Period	Data Sample	Country	Diversity Variable	Firm Variable	Econometric Methodology	Financial Measures	Theoretical Discussion	Results
Song et al., 2020	1993 - 2018	320 firm-year observations from the EDGAR system	United States of America	Gender; Age	Board of Directors	OLS	Tobin's Q	Statistical Discussion	Positive; Inconclusive
Brahma et al., 2020	2005 - 2016	12,820 public firms listed on FTSE100	United Kingdom	Gender	Board of Directors	OLS, GMM Regression	ROA; Tobin's Q	Critical Mass	Positive
Dang & Nguyen, 2018	2009 - 2011	105 firms listed on SPF 120	France	Gender	Board of Directors	Quantile Regression; OLS; 2SLS	ROA; Tobin's Q	Statistical Discussion	Positive
Desoky & Mousa, 2013	2009 - 2009	99 most active firms listed on EGX-100 Index	Egypt	Seven Ownership Variables	Ownership Concentration	OLS; 2SLS	ROA; ROE	Statistical Discussion	Positive
Duppati et al., 2019	2005 - 2015	4,675 firms listed on SGX Mainboard; 15,774 firms listed on NSE	Singapore; India	Gender	Board of Directors	Quantile Regression; Panel Regression	ROA; Tobin's Q	Resource Dependency	Positive
Kamal Hassan & Saadi Halbouni, 2013	2008 - 2008	95 financial and non-financial (e.g., industrial) firms from ES&CMA	United Arab Emirates	N/A	Board of Directors	Cross-Section Regression	ROA; ROE; Tobin's Q	Statistical Discussion	Positive
Kılıç & Kuzey, 2016	2008 - 2012	149 non-financial firms listed on BIST Index	Turkey	Gender	Board of Directors	Instrumental Variables Regression	ROA; ROE; ROS	Agency; Resource Dependency	Positive
Li et al., 2011	2002 - 2007	338 International Insurance Firms	International	Age	Across Organisation	OLS	ROA; Employee Productivity	Statistical Discussion; Strategic Discussion	Positive
McGuinness, 2016	2005 - 2009	269 privately controlled and state-backed firm IPOs	Hong Kong	Gender	Board of Directors	OLS	ROA; SOA	Statistical Discussion	Positive
Miller & del Carmen Triana, 2009	2002 - 2005	326 firms listed on the Fortune 500 Index	United States of America	Race	Board of Directors	OLS	ROI; ROS	Signalling Theory; Statistical Discussion	Positive
Opstrup & Villadsen, 2014	2008 - 2012	Undisclosed amount of firms within 91 municipalities	Denmark	Gender	Top Management Team	GLS Regression	Operating Result; Budget Overrun	Statistical Discussion	Positive
Pekovic & Vogt, 2020	2003 - 2013	3,371 firms on country-specific stock exchanges	International	Gender	Board of Directors	Author's own model	Tobin's Q	Agency; Resource Dependency; Stakeholder; Upper Echelons	Positive
Perryman et al., 2016	1992 - 2012	2566 non-financial and non-utilities firms listed on undisclosed database	International	Gender	Top Management Team	OLS	Tobin's Q	Agency; Upper Echelons	Positive
Pucheta-Martínez et al., 2018	1975 - 2017	Prior literature	International	Gender	Board of Directors	N/A	N/A	Agency; Stakeholder	Positive
Ramadan & Hassan, 2021	2014 - 2016	211 non-financial firms listed on EGX Index	Egypt	Gender	Board of Directors	OLS; 2SLS	ROA; AUR; Tobin's Q	Agency; Resource Dependency	Positive
Reguera-Alvarado et al., 2015	2005 - 2009	125 non-financial firms listed on MADX	Spain	Gender	Board of Directors	2-stage Instrumental Variables Regression	Tobin's Q	Agency; Resource Dependency; Stakeholder	Positive
Roberson & Hyeon Jeong Park, 2007	1998 - 2003	97 firms listed on Fortune magazine's annual lists	United States of America	Race	Top Management Team	Linear Regression	Revenue; Net Income; Book-to-Market value of common equity	Statistical Discussion; Financial Discussion	Positive
Schwab et al., 2015	1986 - 2000	243 financial firms from Portuguese Ministry of Work and Social Solidarity	Portugal	Gender	Top Management Team	Linear Regression	Annual Sales Per Employee	Social Identity	Positive
Simionescu et al., 2021	2009 - 2020	71 IT companies listed on S&P's 500	International	Gender	Board of Directors	OLS	ROA; PER	Agency; Resource Dependency; Upper Echelons	Positive
Solakoglu & Demir, 2016	2002 - 2006	89 public firms listed on BIST-100 Index	Turkey	Gender	Board of Directors	2SLS	ROA; ROE	Agency	Positive
Sutarti et al., 2021	2010 - 2016	40 Commercial Banks registered with Bank Indonesia, excluding development banks	Indonesia	Age	Top Management Team	OLS	ROA; ROE	Upper Echelons; Statistical Discussion	Positive
Velte, 2016	2010 - 2014	204 firms listed on the Prime Standard of Frankfurt and Vienna Stock Exchange	Germany; Austria	Gender	Board of Directors	Linear Regression	ESG	Agency; Stakeholder	Positive
Ali & Azmi, 2016	2005 - 2013	Malaysian Banks Islamic	Islamic Countries	Religion	Board of Directors	GMM	ROA	Statistical Discussion	No Effect
Kunze et al., 2010	2008	128 Small to Medium Sized Enterprises	Germany	Age	Across Organisation	SEM	Growth; ROA; Employee Retention, Fluctuation, Productivity	Similarity-Attraction; Social Identity; Self Categorization; Social Exchange	Negative
Shehata et al., 2017	2005 - 2013	34,798 Small to Medium Sized Enterprises	United Kingdom	Gender; Age	Board of Directors	OLS	ROA; Tobin's Q	Agency; Resource Dependency	Negative
Tanikawa & Jung, 2016	2010 - 2012	744 Manufacturing Firm TMTs	Japan	Age	Top Management Team	Multiple Hierarchical Regression	ROA; ROE	Statistical Discussion	Negative
Tanikawa et al., 2017	2010; 2012; 2014	867 Manufacturing firms from KISLINE database	South Korea	Age	Top Management Team	Multiple Hierarchical Regression	ROA; ROE	Statistical Discussion	Negative
Kagzi & Guha, 2018	2010 - 2014	126 Firms listed on the National Stock Exchange, excluding Financial Firms	India	Gender; Tenure; Age; Education	Board of Directors	GMM	Tobin's Q	Resource Dependency; Financial Discussion	Insignificant; Insignificant; Positive; Negative
Hedija & Němec, 2020	2008 - 2015	1,000 Travel Agencies & Tour Operators	Czech Republic	Gender	Top Management Team	OLS- and RE-regression	ROA; ROS	Agency; Critical Mass; Resource Dependency; Upper Echelons	Insignificant
Homberg & Bui, 2013	2000 - 2010	200 Estimates from 53 Empirical Studies	International	Gender; Education	Top Management Team	MRA	ROE; ROI	Statistical Discussion	Inconclusive

Table 2: Legend and Variable Description

Abbreviation	Full name	Definition
2SLS	Two-Stage Least Square	Regression method of analysis similar to OLS but eliminates errors and unknowns by re-correlating those variables with variables uncorrelated with the errors.
Adj. R2	Adjusted R-Squared	Same as R2 (see above); Corellation Coefficient that is not restricted to occur within zero and one.
Advanced Company Level		A company's general gender performance (women ratio in management; women ratio across company, maternity leave, gender pay gaps, etc.)
Advanced DEI Focus	Advanced Diversity, Equity and Inclusion Focus	A company's general focus on DEI via policies, training, public availability, DEI-focused officers, CEO, and if part of executives, DEI listed on website.
Advanced Total Gender		A company's gender performance across Board Gender Score, Executive Gender Score, and Advanced Company Level
ANOVA	Analysis of Variance Method	A method in which a series of test is conducted to test correlation between two variables.
AUR	Asset Utilization Ratio	Total Revenue / Total Assets.
Board Gender Score		A company's gender performance on board level (women ratio v. country women ratio)
Board Woman Ratio	Board Woman Ratio - Calculated	Metric that indicates the proportion of which the Board of Directors consists of Women Directors.
EBIT	Earnings Before Interest and Taxes	Net Income + Interest + Taxes.
ESG	Environmental, Social & Corporate Governance	An area of focus of which organisations can be measured on their social goals present beyond profit-maximising.
Executive Gender Score		A company's gender performance on executive level (women ratio v. country women ratio)
Executives Woman Ratio	Executives Woman Ratio - Calculated	Metric that indicates the proportion of which the Top Management Team Executives consists of Women Executives.
GLS	Generalized Least Squares	Regression method of analysis that estimates unknown parameters and relationships when a correlation between residuals is present.
GMM	Generalized Method of Moments	Statistical method to produce estimates of unknown parameters to increase reliability of data
MRA	Meta Regression Analysis	Regression Method of Analysis that estimates the relationship between independent variables and dependent variable across a set of prior regression results
OLS	Ordinary Least Square	Regression method of analysis that estimates the relationship between one or more independent variables and one dependent variable.
PER	Price-to-Earnings Per Share	Stock Price / Earnings Per Share.
R2	R-Squared (or R^2, Corellation Coefficient)	Indicates how much of the variability in the Dependent Variable (y) by the Independent Variable (x).
RE	Random Effects Estimator	Regression method of analysis which disregards assumed correlations and allows for uncontrolled data variability.
ROA	Return-on-Assets	EBIT / Total Assets.
ROE	Return-on-Equity	EBIT / Equity.
ROI	Return-on-Investment	EBIT / Invested Capital.
ROS	Return-on-Sales	EBIT / Revenue.
SE	Standard Error	How much the sample can vary within the given confidence level (e.g., 95% - 0.95) if the sample was collected again.
SEM	Structural Equation Modelling	Regression Method of Analysis that incorporates elements of visual representation between variables
SOA	Sales-on-Assets	Revenue / Total Assets.
Tobin's Q	James Tobin's "Q" Ratio	Physical Assets Market Value / Physical Assets Replacement Value.

Studies on the subject of diversity and firm performance base their deduction and discussion on several theories pertaining to management studies (i.e., agency theory; resource dependency theory; stakeholder theory; etc.), organisational behaviour (i.e., social identity theory; upper echelons theory; critical mass theory; etc.), and more. In the case of this paper's deduction and discussion, the authors find several theories within those said fields of study relevant to obtain a meaningful outcome. This is pertaining to bodies of knowledge of *Management Studies* and *Organisational Behaviour*. A select number of theories have been extracted from these bodies of knowledge and will be applied in a meaningful way as a point of discussion and deduction.

1.3 Problem Formulation, Research Question & Hypotheses

As there is an apparent inequality of gender-diversity and opposing characteristics between the two sectors in focus, the following research question and hypotheses have been formulated:

Research Question*: Is there a relationship between gender-diversity and firm performance, and to what extent is it significant for people- and product-dependent sectors? And if so, can additional knowledge benefit the discussion of prior studies and establish a causation?*

Hypothesis 1*: Executives Gender Score has a positive relationship with firm performance in the Professional Services sector.*

Hypothesis 2*: Board Gender Score has a positive relationship with firm performance in the Professional Services sector.*

Hypothesis 3*: Executives Gender Score has no relationship with firm performance in the Energy Services sector.*

Hypothesis 4*: Board Gender Score has no relationship with firm performance in the Energy Services sector.*

2. Literature Review

2.1 Theories from Consensus

Agency Theory

Agency theory approaches the situation of how to control agents (i.e., managers) to ensure they act within the best interests of the principals (i.e., owners). The method of achieving this compliance is through contracts that specify goals to reach and measures to apply to actions, which results in monitoring said actions and rewarding performance that achieves certain goals. Agency problems, such as information asymmetry, can occur when the information available to principals used to measure the outcomes (i.e., profitability) of agents is easily manipulated by agents (Hatch & Cunliffe, 2013). Along with Resource Dependency theory, Agency theory is seen as a fundamental reason for a positive link

between firm gender (e.g., board, management, top management) diversity and firm financial performance. Several authors have investigated this link and utilised it in a variety of ways. Simionescu (et al., 2021) established lower agency costs associated with greater gender diversity through an increased focus on transparency and creativity. This is further proven by Reguera-Alvarado (et al., 2015) as agency theory "*suggests that increased diversity benefits firm performance*" (Reguera-Alvarado et al., 2015, pg. 339), and by Ramadan & Hassan (2021) and Shehata (et al., 2017).

Critical Mass Theory

Critical Mass theory, as introduced by Kanter (1977a, 1977b), states that if a board of directors include two or more women as board members, then the effect of tokenism is less noticeable. Tokenism is the result of the effect of too few women in a group that renders them differentiated from the rest of the group members. There are negative effects that take place when the group is "*Skewed*" in the sense of there being a dominant sub-group (*Dominants*) and a submissive sub-group (*Tokens*) (i.e., dominant makes up most of the group), which effects are worsened when the "*token's social category is physically obvious [gender] (...) and the token's social type (...) is new [in the setting]*" (Kanter, 1977b, pg. 969). These negative effects consist of, but are not limited to, "*expending extra effort, and facing stresses*" which are unique to the Tokens i.e., women (Kanter, 1977b, pg. 988). Further studies on the subject show that three or more women on a board of directors (or 30%) dampens the effect of tokenism and in turn benefits the firm performance (Konrad & Kramer, 2006; Konrad et al., 2008; Torchia et al., 2011; Joecks et al., 2012; Liu et al., 2014). Hedija & Němec (2020) applied Critical Mass theory as a means to quantitatively control for variables with the number three. Consequently, the authors arrived at a positive relationship between gender diversity in leadership and firm performance in the Czech Republic, especially for those firms with greater than three (or 30%) executive bodies being a woman (Hedija & Němec, 2020, pg. 176). Similar to Hedija & Němec (2020), Brahma (et al., 2020) investigates the board gender diversity and firm performance by also applying the number three as a change in correlation. As with Veronika, Brahma arrived at the same result with a strong correlation and support to critical mass theory (Brahma et al., 2020, pg. 5715).

Resource Dependency Theory

According to Reitz (et al., 1979), Resource Dependency theory states that, based on a firm's relationship with the external environment, certain firms garner more power than others. In other words, how dependent the firm is to resources alters its power-relationships with its surrounding environment (Hatch & Cunliffe, 2013). Furthermore, Wijethilake (*et al.*, 2015) suggests that general characteristics (e.g., composition; size) of the board of directors can represent resources for the firm to take advantage of. The authors continue to establish several other characteristics of the board of directors affecting the

firm's performance, such as its activities and diversity. In Kılıç & Kuzey (2016) study of the effect of board gender diversity and firm performance in Turkey, the author applied Resource Dependency theory deductively to arrive at hypotheses favouring a positive link. Consequently, the hypothesis of a positive link was proven, and several factors were said to be the reason, among which the Resource Dependency theory (Kılıç & Kuzey, 2016, pg. 449). Similar to Kilic (2016), Ramadan & Hassan (2021) conducted a study investigating the link in Egypt which applied Resource Dependency theory to arrive at hypotheses and discuss the findings, and ultimately arrived at the same conclusion (Ramadan & Hassan, 2021, pg. 294).

Stakeholder Theory

Stakeholder theory, according to Freeman (2015) and introduced in 1984, states that the firm should not only focus on maximising the wealth and position of the shareholders, but also set focus on its stakeholders. Freeman sees the stakeholders as anyone affected by the organisation's actions (Freeman, 2015, pg. 46), such as, but not limited to, employees, investors, governments, and the environment. In that regard, the firm is seen as a responsible actor in society that should not only focus on the betterment of its shareholders but rather its environment as a whole. Pucheta-Martínez (et al., 2018) used Stakeholder theory to develop a visual framework of how gender-control of the board of directors through satisfaction of all affected stakeholders leads to greater financial reporting quality, Corporate Social Responsibility disclosure and firm performance. Galbreath (2016) utilised Stakeholder theory to establish hypotheses for a study on board gender diversity and firm performance. Through Stakeholder theory, the association between board gender diversity and firm performance is indirectly linked through the willingness of the board to satisfy all stakeholders, such as CSR, which in turn benefits financial performance.

Social Identity Theory

According to Ashforth & Mael (1989), Social Identity Theory (SIT) states that people classify themselves (and others) into a variety of social groups such as Organisational membership, Religious affiliation, Gender, and Age. People classify themselves into these groups based on their values and perspectives of the environment around them. In turn, SIT serves the functions of systematising definitions of others and defining oneself in the social environment (Ashforth & Mael, 1989). In search of the reasons and dynamics of managerial gender diversity (MGD) and firm performance, Schwab et al. (2015), argues that SIT suggests that low levels of MGD inhibits negative effects on firm performance and those effects diminish as MGD increases as divergent thinking follows. The authors continue to conclude that the right utilisation of SIT and Tokenism can help firms move towards greater levels of MGD and as such greater levels of firm performance.

Signalling Theory

Signalling theory, introduced by Spence (1973), suggests that buyers and sellers on a market possess asymmetric information, and as such, the buyers will look for signals that portray the sellers' productive capacity with the aim to reduce their uncertainty. In other words, stakeholders will interpret signals such as firm reputation from firms to evaluate their intended actions (i.e., buy, sell, trade). Miller & del Carmen Triana (2009) applied Signalling theory to arrive at several hypotheses in his study of boardroom diversity and firm performance in which the author argued that buyers are affected by a firm's signal to the market regarding its boardroom diversity. This, in turn, proves the theory of Signalling in the way that buyers seek signals that portray the sellers' (i.e., firm's) productive capacity.

Upper Echelons Theory

According to Hamdrick (D. C., 2007), Upper Echelons Theory suggests that top management view their circumstances (i.e., threats, opportunities, etc.) through a personal lens of their own experiences, values, and personalities. In other words, the firm can be said to reflect the actions, experiences, values, and personalities of its top management. On the subject of gender diversity and firm performance, Upper Echelons theory has been applied to establish that the personal characteristics of women in top management possess many of the same personal skills and traits that their male counterparts possess, and that women do not stand at a disadvantage solely for their gender (Simionescu et al., 2021, pg. 4). Upper Echelons theory has furthermore been applied for the benefit of a discussion establishing that women in top management's values are in line with ethical and moral behaviour resulting in greater focus on Corporate Social Responsibility reports, and philanthropic and community actions (Pekovic & Vogt, 2020, pg. 1103).

2.2 Management Studies

According to Barney, research on sources of sustained competitive advantage have been heavily focused on external analysis centred on environmental models of competitive advantage and industry attractiveness (Barney, 1991). With Porter's *Five Forces Model* focusing on assessing the company's competitive environment to evaluate business strategy, moderate emphasis has been paid on the relationship between a firm's internal resources and capabilities, and strategy (Barney, 1991). In his works, Barney examines the link between companies' resources and its sustainable competitive advantage giving rise to a new strategic management framework establishing a Resource-Based View (RBV).

Unlike the environmental models of competitive advantage, the two main assumptions pursuant to RBV, are resource heterogeneity and resource immobility. According to Barney, firms within the same

industry can have different resources they control and varying strategies they pursue (Barney, 1991, pg. 101). Secondly, unlike in the external perspective, it is assumed that the resources can't be mobile which allows for long-term heterogeneity. Therefore, companies operating within the same industries can have a sustained competitive advantage due to their unique resources and capabilities which allow them for superior value creation and appropriation.

In his article Barney puts a strong emphasis on superior firm performance via establishing a sustained competitive advantage. He outlines that there exists a difference between competitive advantage and sustained competitive advantage with the latter allowing the firm to establish a strategy where "*other firms are unable to duplicate the benefits of this strategy*" (Barney, 1991, pg. 102). In order to achieve the above-mentioned advantage, Barney outlines four main resource attributes a company needs. The resources need to be valuable, rare, imperfectly imitable, and non-substitutable. Firm's ability to apply and capitalise on these resources is crucial for the company to achieve profitability and gain a sustained long-term competitive advantage.

The resource-based theory of competitive advantage can be of great influence when discussing the link between a company's diversity and financial performance (Shrader, 1997). One of the resource types outlined by Barney are human capital resources that include insights of individual managers, training, experience, judgement, intelligence, and relationships (Barney, 1991, pg. 101). Resources valuable for a given entity can be valuable only if they are applied together, as "*bundles of valuable resources" (Barney, 1991, pg. 106)*. This suggests that even if companies operating in the same industry possess similar physical resources, their unique human capital and bundling of their resources can allow them for a sustained competitive advantage.

One of the pioneers who has further analysed how the Resource Based View can help achieve competitive advantage is Grant. In his article published in 1991 he laid foundations for the implications of resource-based theory for strategy formulation (Grant, 1991). A profound focus is put on the role of capabilities and their role in achieving extraordinary performance. The capability here is treated as "*a capacity for a team of resources to perform some task or activity*" (Grant, 1991, pg. 119.). Therefore, it is not only a matter of possessing the right bundle of resources but also leveraging them in a way that creates the most value. Capabilities have a significant human aspect to them involving various patterns of coordination between people themselves and people and other resources (Grant, 1991, pg. 122).

It is tremendously important to examine the capabilities as human-dependent. How a given set of resources is used to perform tasks or activities will be mostly contingent on strategic planning of the company that is influenced by the most powerful individuals deciding on how resources are leveraged.

This group is of the highest prominence when setting overarching goals and comprises top management team executives and board management who constitute the highest company hierarchy.

In his work Grant points out four main characteristics that determine a company's competitive advantage: durability, transparency, transferability and replicability of resources and capabilities.

The durability of a firm's capabilities plays a great role in ensuring the above-mentioned advantage. With companies being able to rethink and change how they use resources it becomes increasingly important to manage them accordingly. Being equipped with personnel who can strategically assess and manage resources as they become inadequate, or obscure can prove to be of key value when determining a company's competitive advantage. Lack of transparency is another key characteristic that allows a given firm to sustain its competitive advantage (Grant, 1991). In this regard, transparency is the ease of pinpointing at specific resources that make the business perform better than its peers. The same has to be done when looking at capabilities if one wants to comprehend where a company's superior performance comes from. Firms that comprise various resources and capabilities are more difficult to imitate than those who create an appropriate value from few dominant resources.

High transferability of resources and capabilities allows companies to mimic and adopt the sources of superior advantage faster and limit how long a given firm can enjoy their competitive advantage position. There are a few factors that influence how easily they can be acquired and implemented in a given company, such as, geographical immobility, imperfect information, firm-specific resources and immobility of capabilities (Grant, 1991).   Replicability is a crucial characteristic that will determine whether a given company can maintain its competitive advantage. While resources are often identified as easy to replicate these are most often practises and highly complex organisational routines that allow for maintaining long-term competitive advantage. This indicates that in the two investigated sectors the resources controlled don't play the major role, but the unique modus operandi fostered by a firm.

Human resources and how they are leveraged, are the most relevant in the context of TMT and Board diversity and are fundamentally important when discussing a firm's appropriability of rents that allows for generation of positive returns (Grant, 1991). A special emphasis is put on Professional Service companies where the dependence on human skills is uniquely important (Grant, 1991, pg. 128). This can serve as a great starting point to look further into how human resources and specific factors within affect the company's ability to appropriate value and how these intangible resources importance can vary throughout industries.

2.3 Organisational Behaviour

Social Identity Theory

As introduced above, social identity theory describes the independent classification of individuals into different social groups. These groups are distinguished by organisational membership, religious affiliation, gender, and age cohort. According to Ashfort and Mael, this automated categorization is done for two reasons. Reason one is the ordering of the social environment, whereby people are given a reason to systematically classify others. In addition, social classification serves the purpose of allowing individuals to establish themselves in the social environment based on their own perceived desires. The aforementioned categories are formed by the individuals themselves and are based on their own values and tastes. The categories are defined by the individual's already existing personal characteristics.

Based on the social identity theory, the self-concept of an individual consists of personal and social identity. The personal identity includes the uniqueness of attributes such as body features, capabilities, psychological aspects, and individual preferences. The social identity includes the group classification. Hence, social identification can be defined as the sense of belonging to a human group, or the feeling of oneness with a human group. According to Ashforth and Mael, an organisation serves as a responder to the question of social identification. In addition, any social or group identification will improve the relationship between group and individual. They also say that any kind of association within an organisation can increase social identity (Ashforth and Mael, 1989).

How Diversity Works

Based on Phillips (Philips, 2014), diversity strengthens creative thinking, reinforces better decision-making, and encourages problem-solving. She argues that it is not exclusively about bringing different opinions and beliefs together, but that the participants of a diversified group participate with differing expectations. Phillips points out that there is an expectation that people will have to intensify their work, discussion, and deliberation in order to reach a common ground. According to her, when only people from one group, e.g., one Gender, same age, same background etc. work in a group, participants generally expect to reach consensus in less time and with less effort. If a person from the minority joins the group, the participants automatically assume that it will be a more) difficult process to come to an agreement. According to Phillips, this belief changes behaviour and ultimately results in more innovative and focused work, which in turn leads to a better outcome.

Phillips introduces the topic of informational diversity by arguing that participants in a diversified group contribute different information and thus bring different perspectives to a common project, which in turn results in better overall performance. Phillips based her findings on a study by Christian Deszö and David Ross on gender diversity in top management and the financial performance and "innovation

intensity" of various US firms. The result is that companies that focus on innovation are generally financially stronger if the top management includes women (Deszö & Ross, 2012).

The article makes it particularly clear that diversity is especially beneficial where there is a focus on innovation. This is supported by the argument that multiple perspectives, but sometimes only a brief link to diversity, can influence the way of thinking and lead to a more intensive consideration of the topic (Phillips, 2014).

Managing The Influence of National Culture
Based on Geert Hofstede's study, the national culture of an organisation can be divided into four dimensions. The different dimensions are each depicted as a pair in a grid. The first, power distance, is the level to which the participants of a culture are willing to accept that power, wealth, and prestige are unfairly distributed. The first dimension shares the first grid with the second dimension Uncertainty Avoidance, which is the extent to which members of a culture accept uncertainty. The second grid includes dimension three Individualism (vs. Collectivism), which encompasses the extent to which members of a culture expect to act independently of other individuals, and dimension four Masculinity (vs. femininity). The fourth dimension includes the level of separation between gender groups within a culture. Hofstede's culture model serves as an indicator of how far a national culture has developed in the various dimensions, or at what point the respective country is. The values are given on a scale between 1-100. A value below 50 indicates a low level of the respective dimension, while a value above 50 corresponds to a high level. Additionally, all dimensions include corresponding issues to the extent of the dimension. For example, the fourth dimension, Masculinity vs. femininity, in addition to indicating the level to which a country is considered masculine, i.e., focus on competition and achievement, or feminine, i.e., focus on quality of life, also includes the impacts on society (Hofstede et al, 2010).

2.4 Upper Echelons Theory
One of the most relevant managerial theories for this study is the upper Echelons Theory first coined by Hambrick and Mason in 1984. With organisational outcomes being dependent on the personal characteristics of top-level management the theory can serve as a great start to further investigate how those traits and demographic profiles can affect a firm's performance. According to Mason and Hambrick, firm's executives undertake their actions based on personalised interpretation of the strategic decisions they must make. Via personalised interpretation it is meant that the executives are affected by their experiences, personalities and values when making decisions. The theory is based on the proposition of bounded rationality (Hambrick, 2007). With this premise in mind, it's suggested that individuals who face complex and uncertain situations are not equipped with the same knowledge

framework and the situation can be subject to interpretation. Therefore, it can be derived that companies facing strategic situations being led by their top executives are prone to biases and dispositions. Additionally, another profound suggestion made in the article indicates that leadership of a given entity can't be analysed through the prism of individual top managers, rather it should be viewed as a shared activity taking into consideration the top management team and looking collectively at their capabilities, cognitions, and interactions.

Amongst some of the characteristics outlined in the theory age, career experience, formal education, socioeconomic background, financial position, and group heterogeneity have been considered. Although the theory did not investigate gender parity it is worthwhile to closer examine the findings made on group heterogeneity and how this has been suggested to affect firms' performance. With high homogeneity, meaning little to no dispersion within a managerial group, comes inferior decision making when approaching nonroutine problems (Hambrick, Mason, 1984). The same finding has been confirmed by Filley, House and Kerr where novel problem solving is best tackled by heterogeneous groups with diversity of knowledge, background and opinion being of great value and enhancing groupthink. Nonetheless, the study also found that group homogeneity can positively affect organisational performance where routine problem-solving is addressed, meaning that for standardised dilemmas uniform groups perform better (Filley, et. al. 1976).

It's important to acknowledge that the theory has been moderated repeatedly after it was first published in 1984. In subsequent studies done in relation to the suggested upper echelon theory it has been verified that top management team composition has an impact on organisational outcomes (Bantel, Jackson, 1989). The moderation of the theory published by Hambrick in 2007 further suggests that demographic profiles of executives are highly related to strategy and performance outcomes (Hambrick, 2007).

3. Methodology

Starting with Nordic firms as the sample for this study, the study was substituted with companies from the United States of America. This is done for the simple reason that the sample size with Nordic firms would not have resulted in a valid sample size to sufficiently represent the population. In addition, the structure of this paper is based on former studies that have dealt with related issues, hence, this study has been tested for transferability.

In total, data on 174 US-based companies from the Professional Services sector and the Energy Services sector were collected and serve as the foundation for a successful implementation of the statistical

study. All public companies traded on US-based stock exchanges (e.g., New York Stock Exchange, etc.). The data is from 2019, which was deliberately chosen to have as few deviations as possible in the financial performance of the companies due to the Covid-19 pandemic, Russian war in Ukraine causing increased volatility in the stock market and related socio-economic impacts. Thus, data from 2019 were used uniformly. A more detailed description of the data sample is given in section 4.1.

3.1 Gender Diversity Measures

The collection of data on diversity was done through data shared by Denominator (Denominator, 2022). The company provides diversity, equity, and inclusion (DEI) data & scores on more than 1.7 million public and private companies around the world. The data is collected at board level, executive level and company level (middle management, all employees) across 15+ DEI dimensions such as Gender, Race/Ethnicity, Age, Sexuality, Diversity, Education, Nationality, Health, etc. Data is also translated into scores calibrated towards country-level realities.

We deliberately chose to study the effect of women on the board of directors and women as top management team executives. There are several reasons for this decision. First of all, both are positions in the company that have an influential impact on the direction in which the company develops, have a particularly high decision-making power and can therefore have an impact on the financial performance of the company. In addition, both positions are male-dominated (McKinsey & Company, 2020). The purpose of this study is to raise awareness that women in these positions can have a positive impact on the company. Thus, we want to show that positions in top management and on the board can be an opportunity for companies if they are assigned to women. In addition, it was deliberately decided to examine not only women on boards, but also top management team executives to uncover possible differences between the two positions, and to analyse extensively in which positions women can make the most difference in the company. In addition, it is interesting for the study to see if there is a significant difference between women on the board and in top management on the financial performance.

In addition to looking at women ratio on board and top management we also included a companywide Gender performance score from Denominator called Advanced Total Gender. This score looks at how well a company performs on the Gender-dimension across the entire company. This is hence an aggregated score across board level, executive level, middle management, all employees, and other metrics such as gender pay gap, maternity leave, anti-sexual harassment, woman employee resource groups, etc.

Finally we also look at a more general DEI focus score from Denominator called Advanced DEI Focus which measures what policies, programs and initiatives a company has taken across DEI in general. This score essentially looks at metrics like if company has a DEI policy, if it is publicly available, if company has DEI officer, if it is a full time position, if position is part of executive team, and more general things like if company reports DEI data, has C-level pay linked to DEI performance etc.

3.2 Financial Performance Measures

Data on the financial performance of the companies in the Professional Services and Energy Services sector were obtained through Standard & Poor's *Capital IQ* (S&P Capital IQ, 2022). The database provided us with data on firm financial statements such as income statements and balance sheets. Data required for calculating the performance measures were sourced from the financial statements, which can be found in table 2. As we see the management as an indicator for gender-diversity and being responsible for how well the firm performs i.e., yields a profit, and the purpose of any firm to maximise the profit of its shareholders, we then utilise profitability as a firm performance measure. The metrics Return-on-Assets (ROA) and Return-on-Sales (ROS) are profitability metrics that measure different aspects of a firm's profitability in regards to their assets and sales. We deliberately chose these two indicators because they give strong insights about the financial performance of the respective company.

The decision to use ROA as a profitability indicator is based on the fact that it is a measurement metric that provides comprehensive information on the extent to which a company is profitable in relation to its total assets. In other words, ROA is a measure of a firm's "*success in earning a return for all providers of capital*" (Porter & Norton, 2018, pg. 659). Thus, ROA represents the degree to which the companies under investigation are able to effectively use their assets to drive profit, or in other words, what earnings are made from investing capital. A high ROA indicates an organisation that invests more efficiently with capital and thus achieves profits. This is particularly interesting for us to observe, as we are investigating whether and to what extent the amount of women on the board and top management actually have an effect on financial performance.

In addition to the ROA indicator, the ROS metric was chosen to explore the impact of gender diversity on the financial performance of the organisations. ROS was deliberately chosen because it provides insights into how much profit is produced per dollar of sales. In other words, ROS is a measure of "*earnings before payments to creditors*" (Porter & Norton, 2018, pg. 660). Thus, a high ROS for statistical analysis shows us that the financial performance of the company is at an effective level whereas a low ROS indicates that the firm is operating inefficiently.

Since both ROA and ROS can be influenced by the decisions of the board and top management, the two profitability measures were deliberately chosen to see whether there is a positive correlation between the percentage of women in these decision-making positions and the metrics ROA and ROS, and thus with the general financial performance of the companies and the two sectors. Furthermore, as we see the purpose of any firm to be maximisation of profit for its shareholders, firm performance will be considered as the degree of profitability within the firm.

3.3 Statistical Analysis

A statistical analysis is carried out with the collected data, which is intended to test the four hypotheses described in 1.3. Hence, statistical analyses for the data sets of the two sectors are carried out (Professional Services and Energy Services sector) and compared with each other. This aims to examine whether there are significant differences between the two sectors and whether the percentage of women on the board and management has a positive correlation with the ROA and ROS, for the Professional Services sector, as well as the percentage of women on boards and management shows a weak or insignificant correlation with the ROA and ROS, for the Energy Services sector.

Slopes of the regression trend lines can be thought of as the relationship between the dependent and independent variables. Herein, the overall trend of the line, i.e., being positive or negative, indicates the direction and thus relationship. Additionally, correlations, or R^2, indicate the reliability of these slopes, for which a value less than 0.005 shows a very-low relationship, and a slope greater than 0.005 but less than or equal to 0.010 show a low relationship. Any values greater than 0.010 but less than 0.015 are found to have a medium relationship. Consequently, values greater than 0.015 but less than or equal to 0.020 show a high relationship, and a value greater than 0.020 show a very-high relationship. The relationships can be noted in the following table (Table 3).

Table 3: Relationship Intervals

Relationship	Intervals
Very Low	$x \leq 0.005$
Low	$0.005 < x \leq 0.010$
Medium	$0.010 < x < 0.015$
High	$0.015 > x \geq 0.020$
Very High	$x \geq 0.020$

In order to be able to measure this extensively, it was decided to first carry out a descriptive analysis of the data. The purpose of this is to present the large amount of data in a clear and concise manner (Table

4). The descriptive statistics are based on the collected data and contain information about the mean, standard error, median, standard deviation, minimum and maximum. This is then measured on the financial performance measures as well as on diversity measures. This information is given for both sectors to be examined. A detailed description of the descriptive statistics can be found in Section 4.2.

The regression consists of an explanatory variable of interest, x, denoting gender performance score, while the responsive variable is a measure of financial performance with the equation following the general structure for each industry:

$$Y = alpha + beta * gender\ performance\ score$$

3.4 Quality of Data

Sources of reliable databases, such as Denominator or CapitalIQ, ensured the quality of the data. External validity was ensured according to the Central Limit Theorem by the presence of at least 30 companies in each of the two samples for both sectors. Accordingly, the samples can be regarded as representative for the population. Nevertheless, the 30 companies each comprise only a small percentage of the actual population of US-based companies listed on the US stock exchange. Accordingly, the sample size is discussed in the limitations of the study. This paper has been tested for transferability, as the structure is derived from previous research studies that have dealt with the same issue. We have uniformly chosen to use the thresholds of the slope of the regression trend line as a benchmark and throughout the paper to identify the meanings of the values on the trendline. Thus, this study is tested for internal consistency reliability.

4. Analysis

4.1 Describing Data Sample

The sample for the data analysis comprises companies publicly traded on the US stock exchange in 2019. The company names have been obtained from a stock universe provided by Diversity, Equity, & Inclusion data provider Denominator that offers fact-based data and scores on Diversity, Equity, & Inclusion. The total data sample comprises 174 companies, 75 in the *Professional Services industry* (i.e., Finance Services Sector) and 99 in the Energy sector (i.e., Energy Services Sector), categorised as such by Denominator. The data sample looks at companies that have been publicly traded on US-based stock exchanges in 2019.

The data sample analysed in the study was limited to 2019 due to the outbreak of the Covid pandemic which followed a worldwide economic recession that greatly influenced the operations of US

enterprises. The Energy Services sector has been severely influenced by the outbreak of covid caused by slowdown in the economy, the same is applicable for the Professional Services sector which depends on various prospering industries for which knowledge-based services are offered. Therefore, with global Gross Domestic Product (GDP) annual growth being equal to -3.3% for 2020 it has been decided that the study will examine the relationship of various diversity metrics' financial performance of US listed companies for 2019 solely (World Bank, 2020).

The average number of women on boards for Professional Service firms and Energy Services sector was 31.8% and 26.9%, respectively, and the average percentage of women in top executives was 26.1% for the Professional Services sector and 20.8% for Energy Services sector (See Figure 1 & 2).

Figure 1: Board Woman Ratio Between the Energy Services and Professional Services sector
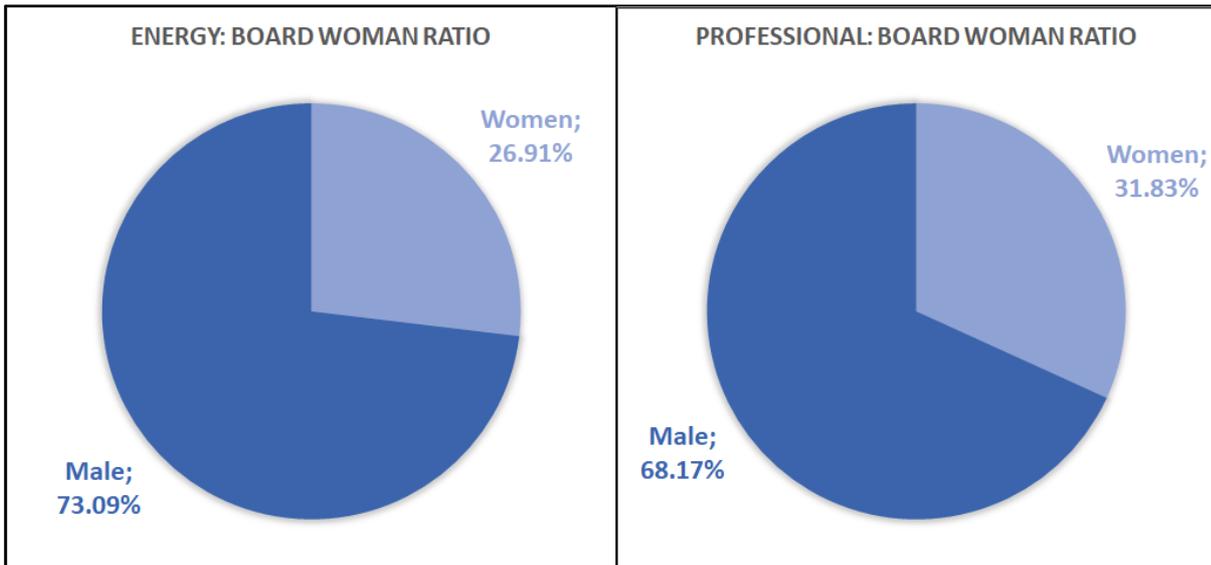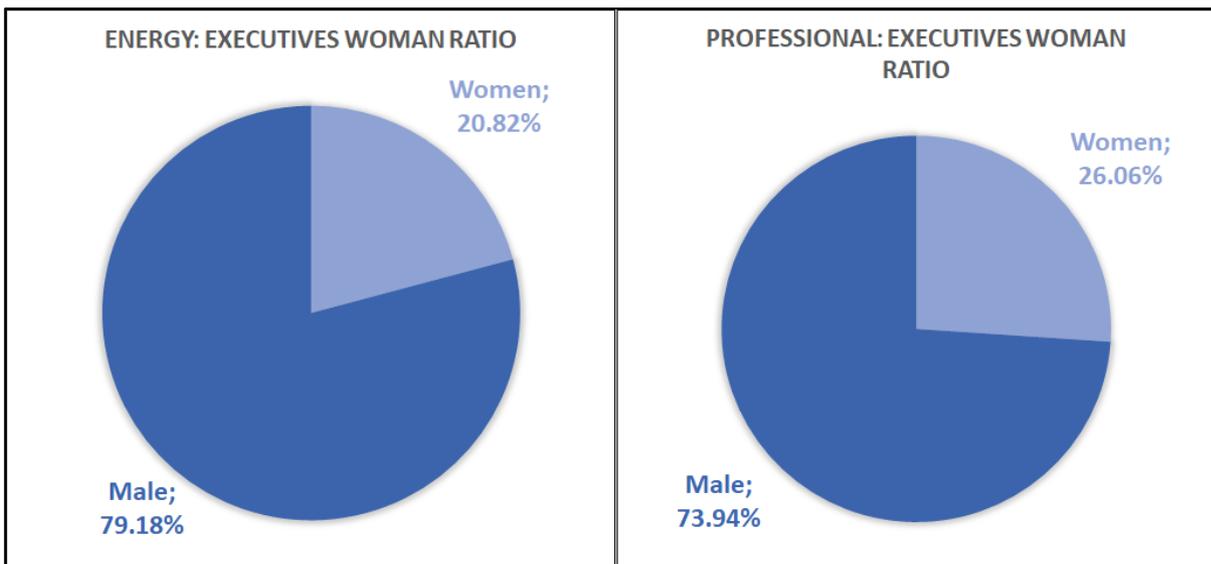

Figure 2: Executive Woman Ratio Between the Energy Services and Professional Services sector

4.2 Regression Analysis

To achieve the most detailed and clear presentation of the Professional Services sector and the Energy Services sector, the data sample sets are presented in two descriptive statistics. These serve through Table 4 to simplify and improve the presentation of the large amount of data from the 75 companies in the Professional Services sector and the 99 companies in the Energy Services sector. Both represent the mean, standard error, standard deviation, minimum and maximum of the data sets consisting of the financial metrics ROA and ROS, as well as the diversity metrics Board and Executive Woman Ratio, Board and Executive Gender Score, Advanced Total Gender and Advanced DEI Focus. This information is

available for both sectors and serves the additional purpose of comparing them more concisely in order to obtain the most significant results possible and to visualise the data sets.

Table 4: Descriptive Statistics

Energy Services Sector

	Board Woman Ratio	Board Gender Score	Executives Woman Ratio	Executive Gender Score	Advanced Total Gender	Advanced DEI Focus	ROA	ROS
Mean	26.906	53.304	20.821	41.458	35.133	41.091	0.023	0.087
Standard Error	1.238	2.387	1.320	2.612	1.381	2.571	0.005	0.021
Median	27.270	54.550	20.000	40.000	34.470	46.000	0.027	0.104
Standard Deviation	12.320	23.750	13.138	25.993	13.736	25.584	0.047	0.206
Minimum	0.000	0.000	0.000	0.000	8.570	0.000	-0.179	-0.768
Maximum	57.140	100.000	53.330	100.000	73.410	94.000	0.171	0.657
Observations	99	99	99	99	99	99	99	99

Professional Services Sector

	Board Woman Ratio	Board Gender Score	Executives Woman Ratio	Executive Gender Score	Advanced Total Gender	Advanced DEI Focus	ROA	ROS
Mean	31.831	59.951	26.063	51.238	48.906	63.667	0.044	0.309
Standard Error	1.391	1.993	1.285	2.333	1.461	2.077	0.006	0.017
Median	30.770	61.540	25.000	50.000	49.270	69.000	0.019	0.333
Standard Deviation	12.044	17.258	11.125	20.201	12.653	17.986	0.056	0.147
Minimum	10.000	0.000	0.000	0.000	10.910	0.000	0.003	0.049
Maximum	100.000	100.000	66.670	100.000	72.780	89.000	0.280	0.672
Observations	75	75	75	75	75	75	75	75

In order to examine a possible correlation between the independent variables (i.e., diversity metrics) and the dependent variables (i.e., financial metrics), a regression analysis has been conducted. Thus, insights can be uncovered, and it can be seen to what extent diversity in the management and board of companies in two different sectors has an impact on the financial indicators of those operating companies. As mentioned in the methodology part, an OLS regression analysis was carried out. The results are discussed in 4.4.

4.3 Findings

Based on the OLS regression analysis, results could be drawn on the association of the two independent and dependent variables. Here, an OLS regression allows us to investigate the degree of correlation. This is achieved by investigating the correlation coefficient (R^2) and the trendline. The results of this statistical analysis are described and analysed in the following. This is done in several steps. First, the results of the Professional Services sector and the results of the Energy Services sector are presented. Then, both are analysed and compared, allowing for an analysis of the relationship of the two sectors in terms of diversity in correlation to financial performance.
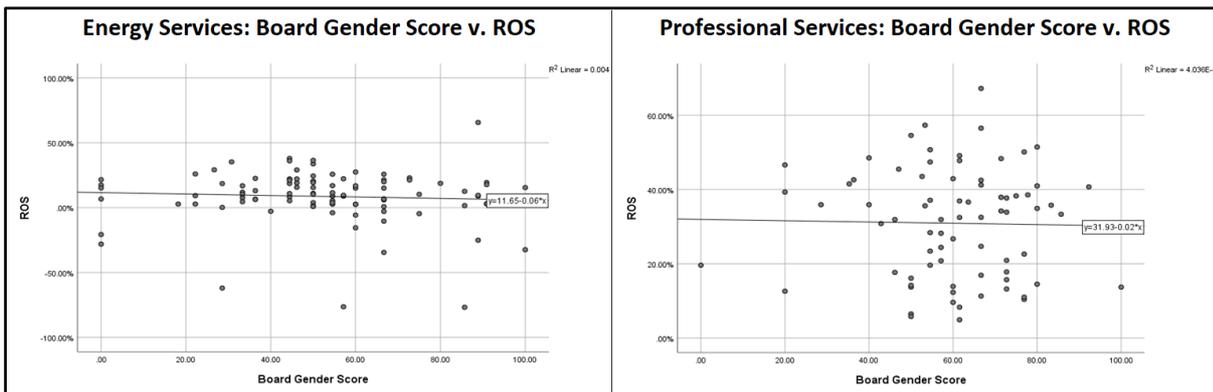
Board Gender Score v. ROA & ROS

The results obtained following the OLS regression analysis are as follows: R^2 = 0.004 and 0.001 for the Energy and Professional Services sectors, respectively. Likewise, the trendlines are y=2.94-0.01x and y=5.18-0.01x. According to the trendlines trend as well as the correlation coefficient, the relationship between Board Gender Score and ROA is negative with a very low correlation for both sectors.

Figure 3: Board Gender Score v. ROA
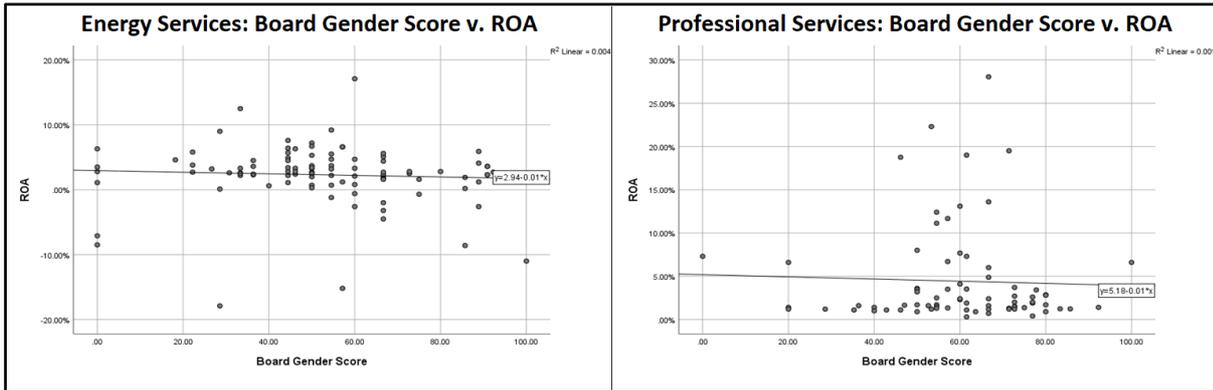
The results obtained following the OLS regression analysis are as follows: R^2 = 0.004 and 0.0004036 for the Energy and Professional Services sectors, respectively. Likewise, the trendlines are y=11.65-0.06x and y=31.93-0.02x. According to the trendlines trend as well as the correlation coefficient, the relationship between Board Gender Score and ROS is negative with a very low correlation for both sectors.
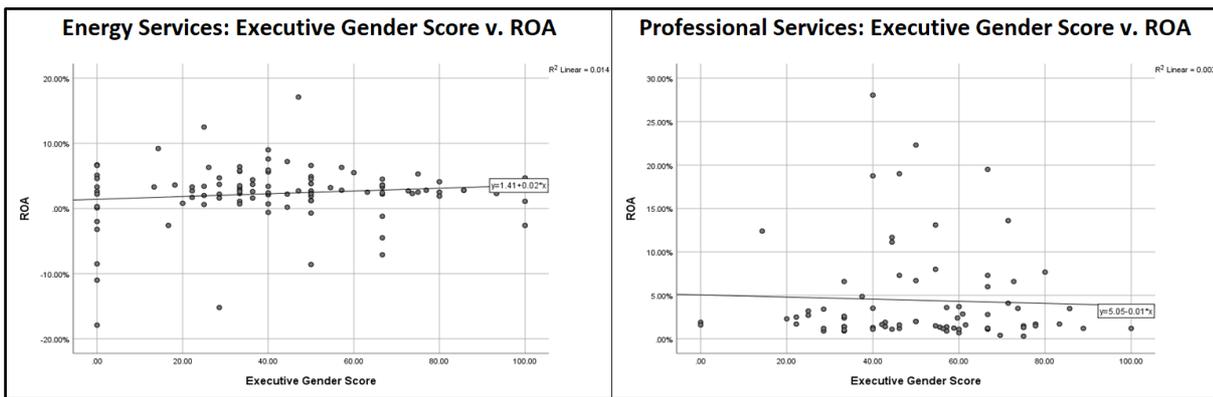
Figure 4: Board Gender Score v. ROS
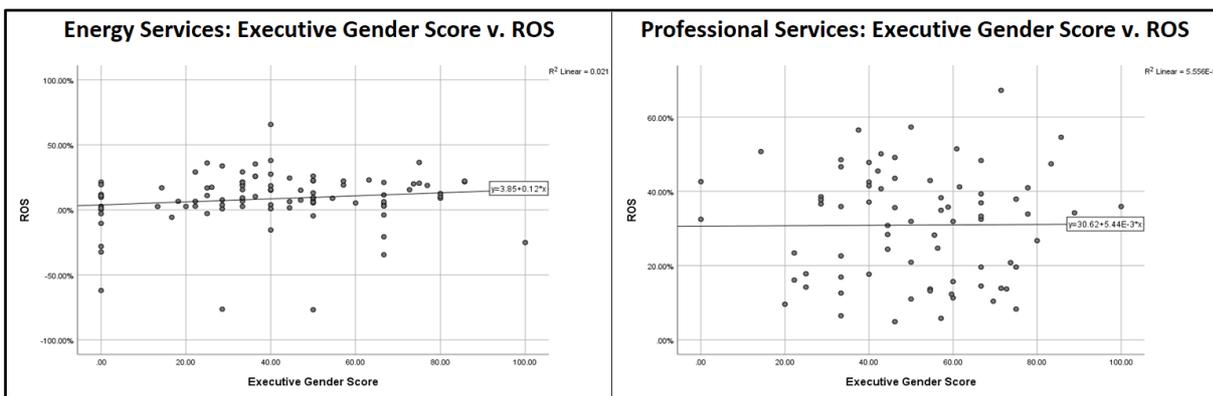
Executive Gender Score v. ROA & ROS

The results obtained following the OLS regression analysis are as follows: $R^2 = 0.014$ and 0.002 for the Energy and Professional Services sectors, respectively. Likewise, the trendlines are y=1.41+0.02x and y=5.05-0.01x. According to the trendlines trend as well as the correlation coefficient, the relationship between Executive Gender Score and ROA is positive for the Energy Services sector with a medium correlation, and negative for the Professional Services sector with a very low correlation.

Figure 5: Executive Gender Score v. ROA

The results obtained following the OLS regression analysis are as follows: $R^2 = 0.021$ and 0.00005556 for the Energy and Professional Services sectors, respectively. Likewise, the trendlines are y=3.85+0.12x and y=30.62+ 0.00544x. According to the trendlines trend as well as the correlation coefficient, the relationship between Executive Gender Score and ROS is positive for the Energy Services sector with a very high correlation, and positive for the Professional Services sector with a very low correlation.
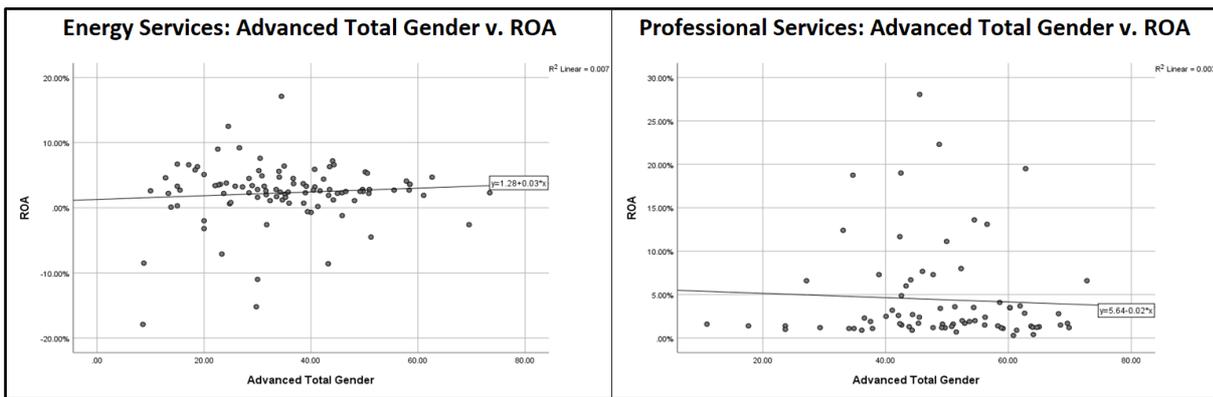
Figure 6: Executive Gender Score v. ROS

Advanced Total Gender v. ROA & ROS

The results obtained following the OLS regression analysis are as follows: R^2 = 0.007 and 0.003 for the Energy and Professional Services sectors, respectively. Likewise, the trendlines are y=1.28+0.03x and y=5.64-0.02x. According to the trendlines trend as well as the correlation coefficient, the relationship between Advanced Total Gender and ROA is positive for the Energy Services sector with a low correlation, and negative for the Professional Services sector with a very low correlation.

Figure 7: Advanced Total Gender v. ROA

The results obtained following the OLS regression analysis are as follows: R^2 = 0.011 and 0.002 for the Energy and Professional Services sectors, respectively. Likewise, the trendlines are y=3.19+0.16x and y=33.27-0.05x. According to the trendlines trend as well as the correlation coefficient, the relationship between Advanced Total Gender and ROS is positive for the Energy Services sector with a medium correlation, and negative for the Professional Services sector with a very low correlation.

Figure 8: Advanced Total Gender v. ROS
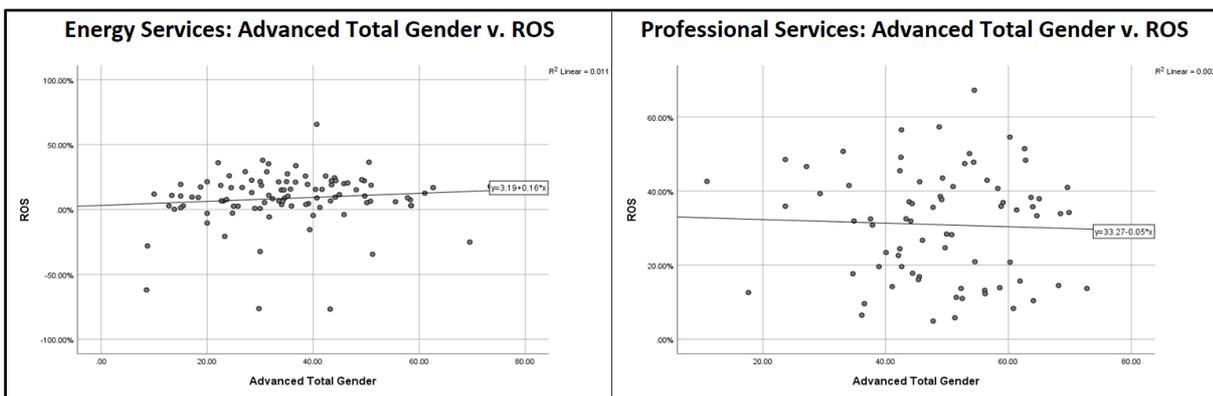
Advanced DEI Focus v. ROA & ROS

The results obtained following the OLS regression analysis are as follows: $R^2 = 0.013$ and 0.017 for the Energy and Professional Services sectors, respectively. Likewise, the trendlines are y=1.45+0.02x and y=1.88-0.04x. According to the trendlines trend as well as the correlation coefficient, the relationship between Advanced DEI Focus and ROA is positive for the Energy Services sector with a medium correlation, and negative for the Professional Services sector with a high correlation.

Figure 9: Advanced DEI Focus v. ROA

The results obtained following the OLS regression analysis are as follows: $R^2 = 0.003$ and 0.0004273 for the Energy and Professional Services sectors, respectively. Likewise, the trendlines are y=6.75+0.05x and y=31.98-0.02x. According to the trendlines trend as well as the correlation coefficient, the relationship between Advanced DEI Focus and ROS is positive for the Energy Services sector with a very low correlation, and negative for the Professional Services sector with a very low correlation.
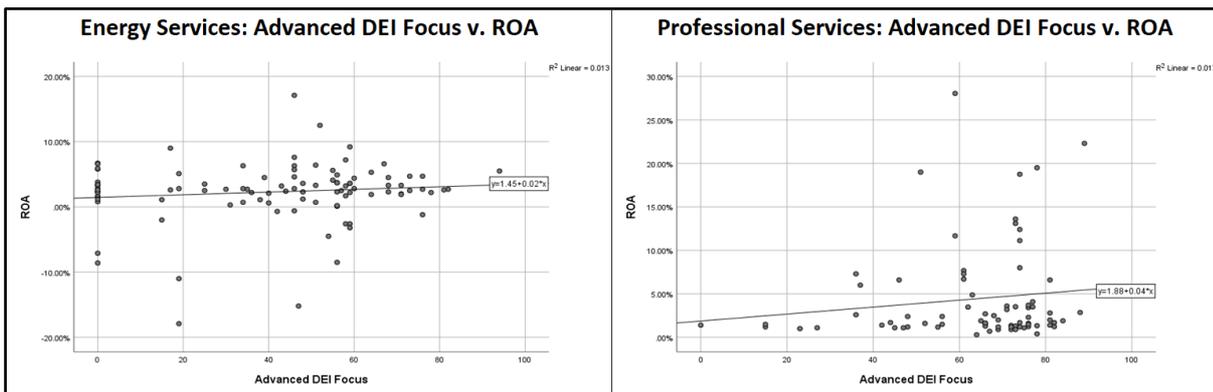
Figure 10: Advanced DEI Focus v. ROS
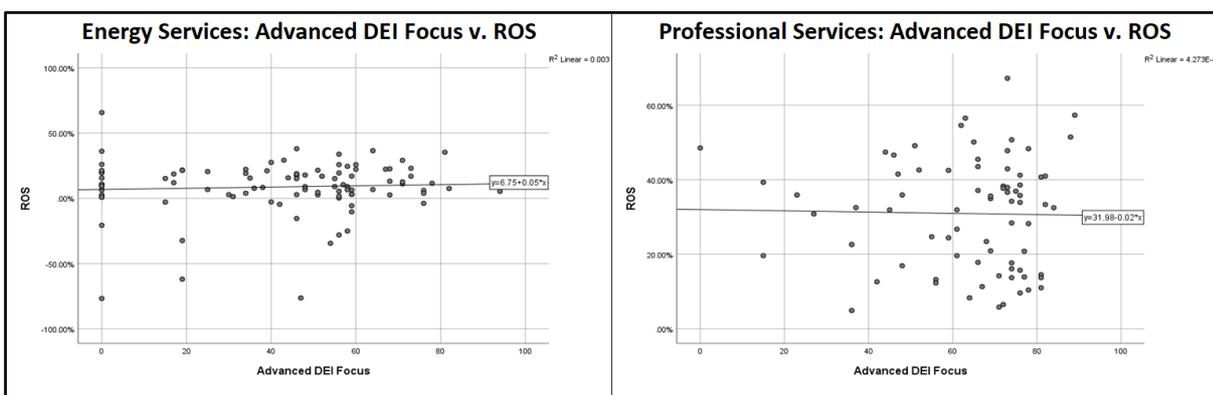
4.4 Comparison & Discussion of Findings

The mean of Board Woman Ratio and Executives Woman ratio is 26.91% and 31.83% for Energy and Professional Service firms, respectively. The number of observations, likewise, is 99 and 75. In direct comparison, the Board Woman Ratio for Energy Service firms is slightly lower than that of Professional Service firms. As the mean can be strongly influenced by outliers, the median, minimum and maximum can be noted in Table 4; the median consists of minimal and less differences than the aforementioned.

Table 5: OLS Regression: Outcome of OLS Regression with Effect on ROA and ROS

Energy Services Sector				
	ROA: Slope	*ROA: R^2*	*ROS: Slope*	*ROS: R^2*
Board Gender Score	Negative	Very Low	Negative	Very Low
Executive Gender Score	Positive	Medium	Positive	Very Low
Advanced Total Gender	Positive	Low	Positive	Medium
Advanced DEI Focus	Positive	Medium	Positive	Very Low
Professional Services Sector				
	ROA: Slope	*ROA: R^2*	*ROS: Slope*	*ROS: R^2*
Board Gender Score	Negative	Very Low	Negative	Very Low
Executive Gender Score	Negative	Very Low	Positive	Very Low
Advanced Total Gender	Negative	Very Low	Negative	Very Low
Advanced DEI Focus	Negative	High	Negative	Very Low

The above illustrated table consists of a cumulative OLS regression with diversity variables as Independent Variables (X) and financial variables as Dependent Variables (Y).

As shown in Table 5, the OLS regression analysis yielded a significantly low correlation across all regressions. However, there is a positive trend between the slope-relationships of the Energy Services sector, and conversely a negative one for the Professional Services sector.

As previously stated, the hypotheses put forward pointed toward an expected positive relationship within the Professional Services sector between the gender-diversity variable and firm performance variable (i.e., Hypothesis 1 & Hypothesis 2), and a weak or insignificant relationship within the Energy Services sector between the gender-diversity variable and the firm performance variable (i.e., Hypothesis 3 & Hypothesis 4). Following the regression analysis, for the Professional Services sector, there were found negative relationships between the independent diversity variables and ROA, and, for the Energy Services sector, this was positive in all but the Board Gender Score diversity variable. Additionally, there were found negative relationships between the diversity variables and ROS for the Professional Services sector, except for Executive Gender Score, and for the Energy Services sector positive relationships, except for Board Gender Score. Following this, we can: (H1) Partially reject that

there is a positive relationship between the Executive Gender Score and firm performance in the Professional Service sector; (H2) Reject that there is a positive relationship between the Board Gender Score and firm performance in the Professional Services sector; (H3) Reject that there is no relationship between the Executive Gender Score and firm performance in the Energy Services sector; and (H4) Reject that there is no relationship between the Board Gender Score and firm performance in the Energy Services sector.

When considering expanding and hiring individuals in an organisation it may have significant effects on the ROA and ROS with respect to which gender is hired. Considering the correlation coefficient, it could be said that statistically it has a relatively low or negative effect on firm profitability ratios for Professional Services, but in practice it may look different. For Professional Services, hiring one more woman on the board of directors has a negative effect on ROA and ROS (Figure 3; Figure 4). If considering hiring one more woman executive, then that has a negative effect on ROA but a positive effect on ROS (Figure 5; Figure 6). Correspondingly, for the Energy Services sector, hiring one more woman on the board of directors has a negative effect on ROA and on ROS (Figure 3; Figure 4). For executives, another woman would mean a positive effect on both ROA and ROS (Figure 5; Figure 6).

Likewise, when considering company's profitability based on their total gender performance (board, executives, company-wide, maternity leave, gender pay gaps), that is weighted against country-specific scores, firms across the Energy Services sector experience a positive effect across both ROA and ROS while the Professional Services sector experience a negative effect on both ROA and ROS (Figure 7; Figure 8; Figure 9; Figure 10). The same results apply for total DEI policy score that goes beyond companies gender equality looking at broader diversity, equity and inclusion measures within the firm.

To follow up, the findings of this analysis were not aligned with the expectations of the authors as almost all hypotheses were rejected and proposed an almost mirror opposite scenario. This, however, opens up for new questions of the area of knowledge and to what extent prior studies have examined a diverse enough sample (i.e., sector/industry wise), a substantial enough sample (i.e. sample-size wise) and if the correlation is present with a significantly large sample diversity and size. Alternatively, it may also be the case that since previous studies' have investigated industry-specific relationships, and sometimes also country-specific, and not sector-specific, the correlation is found to be weak as more industries are being considered with opposing correlations in between each industry, which ultimately may lead to a *balance* of correlations.

4.5 Limitations of Data and Analysis

A constraint that could significantly influence the outcome of the study is the sample size available. Putting the sample size into perspective can be done through looking at the total population of stock traded on the US stock exchange which was equal to 4,266 companies in the year 2019 (GlobalEconomy, 2019). The percentage of the sample size with relation to the whole US market is less than 5%. Therefore, by representing less than 5% of the companies in the study it can be argued that the results are not as statistically significant as when looking at a larger sample size.

5. Discussion

5.1 Sector-Specific Structure & RBV

5.1.1 Structure

Adding a further layer of analysis between the two sectors can allow for learning more on the intangible differences between the Professional Services sector and Energy Services sector. This analysis can also provide a vocal point in discussing the different relationships between gender parity and financial performance of companies in the Professional Services and Energy Services sectors.

We acknowledge that the performed study has not single handedly proved a positive relationship between gender equality and profitability. This could be caused by numerous factors affecting the overall profitability of the companies in the studied sectors. Therefore, to assess a firm's strategic position and account for differences between the Professional Services sector and Energy Services sector, capital needs and macro-environmental factors are recognised to look at sector-specific characteristics and to discuss the results of the performed study extensively.

Macro-environmental factors and capital needs can be applied to look at attractiveness within a given industry and assess to what extent human capital drives positive economic rent. Since the study looks at a bundle of industries within Professional Services and Energy Services, the analysis can be extended to the broader sector-level. The Professional Services data sample looked at auditing, accounting, consulting, banking and legal services, while the energy data sample comprises oil & gas industries.

Hypothesis 1 investigated in the study can be explained by high dependency on human capital which serves as a co-creator of the offered service (Grönoos, 2007). The capital needs for Professional Services are on average low in comparison to energy companies. New entrants are not required to invest in capital-intensive properties, plants, equipment or buildings additionally allowing them to create and capture value independent of the physical assets they possess. This provides substantial ground to view Professional Service firms as knowledge-dependent highly reliant on employees output with direct

business costs mainly tied to labour expenses and high ROA due to low assets proportion (ceteris paribus).

Furthermore, the profitability of companies studied in the Professional Services sector can be affected by various macro-environmental factors. A framework to structure the analysis *PEST* can be applied where political, economic, social, technological and factors are examined (Aguilar, 1967). However, due to time and page restraints only selected areas of the PEST framework will be applied. Some of the most significant external factors affecting company's operations in this sector are economic and political aspects. With Professional Service firms being tied to the performance of their clients' industries it can be argued that during an economic recession the companies can experience deteriorating performance caused by a decrease in the interest of clients or poor performance of the financial markets. Secondly, political factors play a great role in the demand for Professional Services with new government policies such as auditing rules and environmental regulations forcing many companies to seek help from consulting and auditing firms therefore driving the demand for Professional Services. Likewise, this has a direct impact on economic forecasts with the government announcing interest changes that directly influence the performance of the stock market.

A non-existent relationship between the percentage of women as top management or board members and company profitability has been expected due to little to no dependency of the human capital in relation to the output of Energy companies. The main resource used to appropriate value by energy firms is oil, gas, or other energy sources, which sales, unlike Professional Service firms, will to a great extent affect company's revenue. The capital needs for the companies operating in the sector are considered very high with output being dependent on investments made in equipment, plants and properties used to extract, transmit and distribute energy. This characterises the Energy Services sector as being highly-dependent on physical assets rather than human capital which can further demonstrate neutral relationship between gender parity and profitability additionally lowering their ROA with high proportion of assets (ceteris paribus). The profits of energy companies are also highly affected by macro-environmental factors such as economic or political. Unlike for Professional Services the output produced by energy companies is a basic necessity with global prosperity being linked to energy growth. In times of economic turmoil, both industries can experience a declining demand for the product offered. Moreover, the political factors have a detrimental effect on the energy prices with government instability causing big shocks to the energy market, which in turn affects the sector's profitability.

When comparing the effect of women as executives and board directors on the profitability of companies in the two sectors one has to take into consideration various external factors affecting the relationship. Although, at the first glance Professional Service firms might be characterised by their dependency on

human capital there might exist innumerable external and internal factors that influence their performance in different geographical areas throughout time.

5.1.2 Resource-Based View

To further discuss the results of the study a resource dependency theory is applied to build on top of the expectation of the positive relationship for Professional Services as well as to outline how it can contribute to nonexistent relationships in the Energy sector. The resource-based view can be used to document why a positive relationship between the gender performance score and financial profitability is to be expected when looking at Professional Service firms.

According to the theory, resources and capabilities play an integral role in ensuring a company's sustainable competitive advantage. In line with this, human-intensive companies are particularly in focus when looking at firm profitability (Grant, 1991). The Hypothesis 1 & 2, although rejected, were expected to be caused by firms leveraging their human resources and using their unique team to create rare, limited resources and capabilities. This observation relevant for Professional Services may allow companies to achieve sustainable competitive advantage that is driven by the top executive team members and board members. This theory explains why human-centric companies have their outputs tied to individuals working there and can be additionally complimented by the "How Diversity Works" by Philips where a relationship between diversity and better decision-making as well as problem-solving is established. The theory that can be referenced to further argument in favour of a positive relationship is the agency theory where firms with high gender parity are characterised with raised transparency and reduced asymmetric information (Reguera-Alvarado et al., 2015). A relationship between a firm's gender parity and financial performance can be considered as irrelevant when looking at the Energy Services sector. Pursuant to the resource-based view, energy-intensive companies rely on physical assets. A great importance is put on physical assets such as power plants, equipment and infrastructure, with little to no impact of the top management or the board members on the financial performance of the company.

The analysed data sample points at a negative relationship for Professional Services between the gender performance scores and financial performance, except for Executive Gender Score and ROS. This prompts to look at further implications of the resource-based view theory in seeking an explanation for this inverse relationship. One of the important assumptions outlined by Grant is that in order to achieve competitive advantage firms need to ensure the durability of their resources and capabilities. The reason for the negative relationship might be caused by firms' limited ability to adapt with time. Afterall,

what is the benefit of having a high gender parity in top management if their capacity to solve current problems is limited or outdated?

Lastly, when exploring the relationship between gender diversity of top management and board members and profitability one has to look holistically at different human capital resources investigating how the bundles of resources can be leveraged by firms. As defined by Barney they consist, but are not limited to, individual traits, previous experience, judgement, intelligence and training (Barney, 1991).

The Upper Echelons Theory further pinpoints at the need to account for personal characteristics of top management when evaluating organisational outcomes (Hambrick, Mason, 1984). By looking at organisational problems through a personal lens, executives can contribute to problem-solving with their unique ideas derived or related to their previous career experience, education, socioeconomic background, financial position, gender as well as age group. The study further indicates that personal characteristics don't work in isolation and can only collectively contribute to the decision-making process of top management. This limitation can be mirrored in the study performed. By looking at the relationships between gender performance scores and ROS & ROA in Professional Services it can be deduced that one has to look at the overall characteristics of board members such as age, gender, education, experience, culture etc., not isolating one specific factor. Additionally, high group heterogeneity can allow for novel problem solving, which in turn can lead to higher performance. Nevertheless, due a negative relationship this link (for almost all analysis in the Professional Services Sector) cannot be treated as certain and the Hypothesis 2 had to be rejected.

As indicated in the performed study, there is no strong relationship that single-handedly establishes human-intensive firms with high ratios of women as being superior to its peers. Rather than looking at individual characteristics one has to take into consideration many attributes to arrive at a holistic assessment whether a specific individual can drive growth and contribute to positive performance of a firm.

5.2 Sector-Diversity

To explain the association of the variables, Social Identity theory serves as an important benchmark. As mentioned, Social Identity theory consists of a personal identity and a social identity. The personal identity consists of unique attributes, such as body types, attributes, behaviour, and ways of thinking. These unique attributes are significantly different between genders, but also between people belonging to minorities stated in the Advanced DEI Focus variable. People show evolutionary differences in their behaviour and their way of thinking (Lippa, 2008). These differences are partly visible and tangible, but also partly cognitive.

Equally different is the classification of oneself and others into different groups. An important factor, according to which these categories are also formed, is gender or other subgroups people are able to identify with. Examples could be ethnicity, race, age or based on special appearance characteristics. But it could also, for example, be on the basis of a disability or different religious affiliation.

According to this, it can be assumed that people, on the basis of their external appearance and internal beliefs automatically assign themselves, as well as each other, to groups. This happens based on the body attributes (personal identity), as well as the group classification based on often specific values and perspectives of the environment around them (social identity). Thus, it can be said that social identity theory and consequently grouping is strongly based on gender and other factors such as external appearance, views, and other characteristics that lead to grouping.

In addition, the theory argues that any kind of social or group identification improves the relationship between group and individual. If we include this information in the discussion, the question arises whether the almost just negative relationships especially in the Professional Services sector, i.e., where we hypothesised a positive association, is also due to a lack of social and group identification among minorities in the sample companies.

To find answers to the questions, Critical Mass Theory refers to the phenomenon of tokenism, which is apparent when there are less than 30% of people of minority board. And vice versa, if there are more than 30% of people belonging to a minority on the board of directors, the company experiences less of the negative effect which tokenism causes. However, if there are less than 30%, the beneficial effect on the company's performance declines. The reason given is the effect of too few ones belonging to a minority in a group, which leads to them being different from the rest of the group. According to the data sample only % of women on board in Professional services hardly surpassed 30% with all the other areas such as executives share of women in both studied sectors have been below 30% possibly indicating the hindered positive effect of gender on profitability.

We know the proportion of people belonging to a minority, such as a specific gender, is very low on average and, accordingly, based on social identity theory, they categorise themselves and get categorised by others into a small common group. However, this is only possible if there are at least two (or 30%) of the same on the board that can be categorised as one, in order to have the possibility of being assigned to a group with similar personal and social identity. Only with a social or group identity, according to the Social Identity theory, the development in the social environment takes place. Nevertheless, this is only a theory. It must be considered that each two people of one group are in any case in the clear outnumber. According to the critical mass theory, they are thus different from the rest

of the group and their opinions are not perceived to the same extent as those of the other larger groups, where more members can get identified.

It has a similar, even more destructive effect, if one person in a group cannot identify at all with any others of the group. Assuming that the opportunity to develop in the social environment is indeed very differentiated, a single woman or person of minority on the board will not be assigned to any social group based on personal and social identity. Accordingly, she or he has no sense of belonging to a group that shares the same personal identity, i.e., body and behavioural, and social, i.e., group belonging, identity. Thus, she is automatically differentiated from the rest of the group and, consequently, cannot develop in the social environment of the company due to the lack of social identity. As an example, we see this occur with the negative relationships in the Professional Services sector, in which the corporate world is very network-driven and, traditionally, men occupying top management position, and as such a woman entering would act as an unidentifiable part of the group. On the contrary, the positive relationship for the Energy Services sector is partially affected by the lack of this network effect and more direct link to products and decisions made.

In addition, it can be argued that having no possibility to identify or assimilate, can lead to a weaker performance of the person. It is important to emphasise at this point that this includes both the gender that is less represented in each case, as well as any person who cannot identify with a group due to their personal and social identity, but who also cannot form a group on their own. Accordingly, there is a presumption that in such a case the performance not only stagnates but can also have a negative effect. This could be due to the aforementioned reason that these individuals do not feel a sense of belonging and therefore cannot establish themselves in the social environment of the company.

The critical mass theory argues at this point that in such a case there is no effect on the performance of the company. This is reflected in most of the results of the regression analysis.

The regression analysis of all independent variables and ROA and ROS (except Executive Gender Score and ROS) in the Professional Service Sector show negative relationships in both cases, indicating a negative correlation with the performance indicators return on assets and return on sales.

The analyses of the data in the Energy Services Sector also shows a negative relationship between Board Gender Score and ROA and ROS. Nonetheless all other independent variables show a positive relationship towards ROA and ROS. Possible reasons for the positive relationship can be explained by the fact that many other factors also contribute to firms' profitability. In addition, it can be argued that in the product-dependent Energy Services sector, social or group identification is less significant for the

performance of each person, and especially for those ones belonging to a minority, than in the Professional Services sector, for the reason that processes are routinized and the final output is less dependent on the process of group thinking and hence on the process of minorities being able to feel identified in a group.

Accordingly, both the Social Identity Theory and the Critical Mass Theory serve as possible explanations for a negative link between women and minority board members and financial performance.

5.2.1 Limitations of Sector-Diversity

Critical mass theory is focused on women as board members, while our study includes women as both board members and top management executives, as well as generally people that have a hard time identifying themselves in a group due to being the minority We assume that the results of this discussion on social identity theory and critical mass theory are applicable to both positions in the company, as well as not only for gender, and that the links between the independent variables and ROA and ROS can be explained with the same assumptions.

An important limitation that arises relates to the fact that Critical Mass Theory dates from 1977 and we consequently question its temporal relevance. Nevertheless, the theory has good possible reasons that can actually explain the relationships we found. Thus, we are left with the question of whether diversity may not have evolved as progressively as we would have expected, so that a theory from over 40 years ago may still make a realistic argument.

Critical Mass and Social identity theory therefore provide a good basis for arguing for the negative, as well as positive, correlations that emerged from the regression analyses. Thus, several reasons could be given that speak for a negative correlation, as well as for a positive correlation. The arguments mentioned support the aspect that it is not the mere presence of adding one person to achieve a diversified team that makes the difference and leads to better performance, but that minority groups cannot sufficiently identify and establish themselves if the number is too small, and thus cannot reduce the effect of tokenism.

5.2.2 How Diversity Works

Additional argumentation points on the results of the statistical regression analyses can be found in the literature on how diversity works (Philips, 2014). This states that diversity can have a particularly positive effect on innovation and thus on financial performance. Philips states that the underlying assumption is that people have to intensify their work to reach a consensus if there is a diversified group.

The statistical regression analyses of this study show different results with respect to the correlation between the different independent variables and ROA and ROS in the two sectors.

In the Energy Services sector, all except the Board Gender Score show a positive correlation with respect to ROA. One reason for a positive correlation is the argument that diversity enhances creativity. According to Philips, this can be seen particularly well in the area of innovation. According to our hypothesis, there should have been a positive correlation in the Professional Services Sector and none in the Energy Services sector. Hence, positive correlation in the Energy Services sector can be explained by the fact that innovation also plays a significant role in this sector and is crucial for the financial performance of the companies. While the Energy Services sector is not people-dependent, but product-dependent, which means that the customer cannot directly feel the effects of the diversity on the end-product, innovation in the Energy Services sector nevertheless has a significant impact. Particularly in regard to climate change. Accordingly, it can be said that innovative outcomes are nevertheless significantly contributing to a better financial performance and women, as well as efforts to focus on companies' general DEI-contribute to this through the effect of increasing creativity.

However, the negative link in both sectors can also be argued on several bases. Philips argues that if a group is not diversified at all (regarding gender and general DEI) they come to a consensus faster, which in turn means that the process of making decisions and coming to a common denominator is prolonged if a minority joins the team. It can be assumed that this is due to the fact that several opinions and views come together with which a common ground must be established. Any kind of intensity in terms of time is an additional cost for a company. Accordingly, it can be argued at this point that an increase in diversity in management positions results in additional costs. This would explain why Board Gender Score and ROA and ROS in the Energy Service Sector and all independent variables: Board Gender Score, Executive Gender Score, Advanced Total Gender and Advanced DEI in ROA and ROS (except Executive Gender Score and ROS) in the Professional Service Sector, have a negative slope. This means that an additional unit of a diversified person on the board or top management team leads to a descent in ROA or ROS. In addition, it can be argued once again with the Critical Mass theory that the positive effect, which is triggered by diversity, on creativity and innovation and thus on financial performance only arises if there are more than 30% of minorities on the board or management.

Accordingly, explanations based on Philip's article for the possible correlations of the statistical analysis can be found. In addition, the Critical Mass theory was used to strengthen the argument that just adding one person of minority does not provide for more creativity and better firm performance, but that there should be at least 30% of people from one minority so that a positive effect can be noticed.

5.2.3 Managing Dimensions of Culture

Hofstede's dimensions of culture talk about and compare different dimensions at the national level of countries. In our case, we only consider the US and how the four dimensions mentioned in 2.3 are defined there. Thus, we question whether the degrees of the culture dimensions in the US can possibly contribute to the discussion of the results of this study. According to Hofstede, the dimensions of national culture can also be reflected in the corporate culture of companies. Accordingly, this model is relevant for this study. The particular focus in this discussion is on the fourth dimension of the model. The fourth dimension Masculinity vs. femininity describes the separation between gender groups and roles. As this dimension deals to a large extent with gender diversity in the US, it also is replicable to the culture in US-based companies.

Since Hofstede's Model Dimension 4 is exclusively about gender, only the Independent Variables that focus only on gender are included in this section. Thus, these would be: Board Gender Score, Executive Gender Score and Advanced Total Gender. Of course, the Advanced DEI Focus Score also relates to gender equality, but also includes other factors that can only be explained to a limited extent by Hofstede's Model. Therefore, this score is omitted here.

The Masculinity vs. Femininity dimension has a value of 62 and is thus in the high range, also described as a masculine culture. Hofstede describes US culture as "*driven by competition, achievement and success and defined by winners*" (Hofstede website, 2022). Thus, US culture tends to follow the principle that the harder you fight, regardless of what has to be done, the further you get. Accordingly, conflicts are also accepted. It can be argued that these behavioural traits often, not always, tend to be assigned to the male gender, as Masculinity pertains to power and competitiveness, while Femininity pertains to collaboration and cooperation. In addition to general competition and related behaviour, a rather low score on the Masculinity vs. Femininity dimension indicates a low focus on quality of life and equal opportunities for both genders. Hofstede mentions, among others, parental leave, education, and equal pay. With reference to the results of this study, it can be argued that women generally have a more difficult time in working life than the male gender. According to Hofstede, in a national culture with high masculinity, women must fill the role of a typical woman. This includes, above all, a focus on the family. Accordingly, it can be argued that it is a tougher competition for women to establish a position in the board or management of a company.

Even if a woman has made it to a position on the board or in top management, the assumption remains that male peers would rather see her in the *actual role of a woman* than a woman who sees success and competition before or in the same place as the quality of the family. With reference to the results of this study, the question arises as to whether a negative or only very weak positive correlation between

women on the board or in top management and financial performance can also be explained by the fact that they are not considered capable in their role as a leading member. According to Hofstede's assessment of Masculinity, this can be used as evidence.

At this point, the Signalling theory can be introduced, which states that the buyer, in the corporate case the investor, looks for signals from the buyer, the company, that reduce uncertainty. In other words, potential investors look at reputation, for instance, in terms of gender diversity on the board or in top management, in order to decide on a possible action, such as an investment. This is especially the case in the Professional Services Sector, where a better reputation, precisely in terms of diversity can therefore lead to better financial performance. Nonetheless, it should be mentioned that we can assume that in the Energy Services Sector people usually do not think in depth about aspects other than price or convenience. A fundamental difference between the two sectors examined can be identified here. Since the Energy Services sector is product-dependent, the focus here is not necessarily on the reputation of the company, but rather on the product and the associated price and convenience. Still, the aforementioned also matters for the Professional Services Sector, but a fundamental focus is still on corporate reputation for the simple reason that it is a people-dependent service, where the end product is not selected solely on the basis of price or convenience. However, it can also be argued that because of the reputation of some companies, they choose to hire women purposefully to close the gap of equality and pride themselves on diversity and equality. This move is the fine line between altruism and egoism. Since the results of this study show negative and positive associations, it can be argued that in some cases women are hired who may not be able to fulfil the positions, given their lack of experience, but are nonetheless employed to serve a representative PR purpose. Naturally, this is not the norm, however, it can be inferred. Support for this thesis was found in an article by Wilton et al. stating that employing women will increase the firm's reputation (Wilton et al., 2018).

This argues that in many cases, a movement in a way that is forcing gender balance in corporate management does not lead to better performance, if not worse performance. The article points out, to be sure, that equal opportunity is of enormous importance, but that hiring women, whose purpose is primarily to comply with this regulation, might bring drawbacks. If the decision is between a man and a woman, for a new position in management, and the man has more experience, but in order to maintain gender parity, the woman is hired, this can have a negative impact on the performance of the company. As a less skilled person takes over the position to serve a purpose other than the actual one of successfully managing a business. Since the discussions about gender parity are a current topic, especially in the USA and is connected to the Signalling Theory, it can be assumed that this is another

reason for a possible negative or weak correlation between the proportion of women on the board and top management and financial performance.

This is further supported by the literature of the Stakeholder Theory, which states that higher representation of women goes hand-in-hand with sustainability initiatives. This is justified by the will of the board to satisfy all stakeholders, including through the implementation of Corporate Social Responsibility (CSR) reports, which in turn leads to increased financial performance. Reason for that is the main focus on the company's Stakeholders and to serve all needs.

Stakeholders base their actions on the reputation of the company, which in fact means if a company has a good reputation, due to their focus on diversity, stakeholders might be more willing to do actions that will benefit the company's financial performance. Accordingly, based on the Signalling theory, a positive correlation can be also explained here by the fact that more focus on diversity, even if for the possibly wrong reasons, and the associated better PR, can attract more investors and thus affect the financial performance of the company.

Nevertheless, the assumption is again that appointing a women to a position for the ultimately wrong reasons may deny a male candidate, who in this case would have been better in the position, the chance to have a beneficial effect on financial performance. The assumption is thus made that this could be a reason why the results of this study are partially negative.

Returning to Hofstede's culture model, it can now be said, based on Signalling and Stakeholder theory, that women may not be considered sufficiently competent in many leadership positions, or may not want to be seen in a leadership position, because of traditional gender roles. Due to societal change regarding equal education opportunities, equal rights and gender equality, as well as reputational reasons, women are recruited to top management and board positions in the company. This can be explained by gender parity. This paper is additionally supported by the Signalling theory, which states that investors pay attention to possible signals in order to act accordingly. One signal would be diversity, which affects the reputation of the company and may be mandatory in the near future due to gender parity regulations.

In summary, possible correlation between women as board members or top management executives and financial performance can be to some extent explained and assumptions about the reasons formed. Positive connection comes from the fact that with more diversity the reputation of the companies increases and therefore the financial performance and negative connection comes from the fact that

women in leadership positions, due to specific gender roles, which in the U.S. are still at a high level, are not considered fully competent, or are considered wrong in place.

5.3 Implications

According to the discussion of this paper, there are certain characteristics of the Professional Services and Energy Services sector pertaining to structure, environment, diversity, and the future, that drive and limit the relationship between diversity and firm performance. The relationships were discussed according to the findings of the analysis. The Professional Services sector was found to experience less constraints from macro-environmental factors such as low capital requirements and value captured and appropriated through actions independent of physical assets, as opposed to Energy Services. Furthermore, both sectors didn't experience the positive effects of diversity, as proven by Critical Mass theory, which is apparent in the lack of social and group identification among women in Professional Services, and further proven by the cultural Masculinity apparent in the US culture. On the other hand, certain characteristics that promoted the firm diversity and structure were that social identity only has an (negative) effect in situations in which members carry bias and express them. Accordingly, group members can utilise their unique capabilities and resources by avoiding adopting a narrow mindset if they actively do so. Furthermore, as time progresses it can be expected that more pressure will be put on companies to account for all the stakeholders including suppliers, customers, investors, employees, governments and communities.

Women, as an under-represented gender, have been overlooked and underestimated in various public and private companies. Fortunately, this narrative is now shifting and more companies realise the benefits that diversity brings to the firm. To foster this change, numerous regulations are introduced for companies to accelerate the transition to greater gender parity. Those who fail to react and enforce diversity in their workplace can be faced with increasing pressure from various stakeholders. Gender diversity is only one of the aspects of societal goals addressed by the broader Environmental, Social and Governance (ESG) framework setting standards for companies operations. One example of such a regulation is that from the 8th of August 2022, NASDAQ, the world second largest stock exchange, will require all of the companies listed there to disclose annual statistics on board's gender, sexual-orientation and racial or ethnic diversity (MSCI, 2022). This regulation has been introduced with hopes that more companies will foster diversity on their boards elsewise risking investors scrutiny. The pressure on companies to focus on diversity and in the broader aspects on addressing the ESG foundation starts both at a government level and is implemented top down via regulations as well as bottom up by increasing shareholder pressure. The latter has become increasingly significant through what is known as shareholder activism where investors owning a significant share of the company can influence company's behaviour with a recent example of Microsoft. During recent general meeting of the company a resolution has been released urging the company to publish annual transparency report including sexual harassment incidents and provide a deep dive into gender equality efforts (Forbes,

2021). This constitutes a move towards a future-proof society and cultivates an inclusive way of doing business where people are appreciated for the value they bring to the company without prejudice or judgement on their origin, gender, age or appearance. Ultimately companies should integrate social, environmental and governance considerations into their operations in anticipation of regulation, ethical considerations, resilience, reputation and better performance. What follows is a strategic question that should be addressed by companies on how we can leverage the diversity to outperform competitors and create sustainable competitive advantage?

5.4 Limitations of Study

Due to the nature of the assignment, and its constraints, the authors experienced certain limitations of discussion and study. To a minor extent, time and size were relevant constraints in that the authors did not have the freedom to spend years (e.g., to perform a longitudinal study) or hundreds of pages (e.g., to dedicate greater focus on outliers and experimental literature) on the paper. However, to a greater extent, certain literature, especially that of which pertaining to diversity-related knowledge, could be said to inherent certain limitations as they originate from the 1970s. For example, the relevance of the social and personal identity in Social Identity theory is arguable as it only has an effect when noticeable or members actively assign themselves to groups. Furthermore, Critical Mass theory and Tokenism is also arguably outdated, while also partially applying to the discussion as it is theorised in respect to the board of directors, and not the top management team as applied in this study.

6. Conclusion

By utilising the method of Ordinary Least Square regression analysis, the authors have yielded results that laid the foundations for a discussion to take place. Initially, the analysis rejected all but the first hypothesis by finding opposing relationships between firm diversity and firm performance. The first hypothesis was partially adopted with a positive relationship between Executive Gender Score and ROS, but not ROA. This ultimately led the authors to establish statistical evidence for which to be discussed. Through the applied literature, the authors discussed Sector-Specific Structures and Sector Diversity.

The Sector-Specific Structures revealed that the profitability of the sectors is affected by various factors including the capital needs and macro-environmental factors. In the Professional Services sector, this refers in particular to low capital requirements, value capture and appropriation, resulting in actions that are autonomous from tangible assets. Additional factors in the Professional Services sector are related to governmental regulations and rules, which drive demand for services, and economical factors, such as performance of the Professional Services sector, as the performance can be strongly influenced by recessions, due to the fact that it is a client-dependent sector. The Energy Services sector has been

described as high in capital needs, that its output is dependent on the PPE and that revenue comes from physical assets. Factors discussed that can affect the Energy Services sector are political factors, in the sense that governmental instability highly affects the profitability of oil companies and economic factors. Economic factors may be able to influence the demand, nonetheless, as it is a prime need, it can be persistent even in periods of turmoil.

In addition, discussed in relation to the resource-based view, it resulted, that for people-dependent companies (i.e., Professional Services sector), results are tied to the people who work there, and that diversity leads to better decisions. Under the resource-based view, this relationship does not apply when considering Energy Service companies, as they mainly process physical resources. The possible limitation of this theory is that resources and capabilities should be persistent, nonetheless the ability of companies to adapt over time is limited. Hypotheses 1 and 2 were partially and fully rejected due to the limited view of human capital resources. They should be used in a "resource bundle" and considered together with gender, and might include education, individual characteristics, intelligence, or judgement. This is further supported by Upper Echelons theory stating that various personal characteristics need to be considered when evaluating organisational outcomes. Discussed, personal characteristics that contribute to problem solving are gender, age, socioeconomic background, and education. Additionally, it has been discussed that heterogeneous groups are better at non-routine problem-solving according to the Upper Echelons Theory. Nonetheless, this has not been proved by the study. Rather than looking at individual characteristics, one should take into account a variety of traits and attributes to arrive at a holistic assessment.

In order to discuss the sector's diversity, consequent discussion served as an in-depth explanation. First, Social Identity theory, related to the results of statistical analysis, revealed that women and men automatically categorise themselves and others into groups of the associated gender. This is based on factors such as gender, behaviour, mindset, and group categorization. Thus, it was assumed that the group categorisation and hence Social Identity theory is based on gender. In addition, the theory states that any type of identification strengthens the group relationship. Accordingly, it was assumed that the lack of Social Identity caused the insignificant relationships of the analysis. The assumption was supported by the fact that the Critical Mass theory states that the effect of Tokenism is apparent when there are less than 30% on the board. The reason discussed is that too few women feel differently in a group. Since in both samples the Mean is less than 30% of women on the board and in some cases, there is only one woman, who therefore cannot be assigned to any group, they have no sense of group belonging and therefore cannot develop in the social environment of the organisation. The result of the discussion was that this causes that if there are less than 30% women on the board, they cannot

influence the company's profitability. In addition, the discussion states that both theories are thus valid as explanations for the possible correlations. Second, the Conflict Management grid was discussed, and further connected to Agency theory. It showed that when applying the collaborative approach, gender parity can be of great importance and help to reduce asymmetric information, increase transparency, and enhance creativity, because heterogeneous groups are better able to solve problems. Third, through the article How Diversity Works, further inferences for the relationships could be discussed. A possible reason for a positive correlation is that diversity stimulates the process of creative and innovative thinking, especially significant in the innovative area. The results showed that diversity thus plays an important role in the Energy Services sector, which can be concluded from the fact that it has a positive relationship. Possible negative relationships were also discussed, and results showed that if only men are in a group, they reach consensus faster, but if one or more women are added, this inversely means that the process takes longer, which is related to additional costs. Accordingly, it was concluded that this can cause a negative or insignificant connection, as well as negative y-intercept values. A connection to the Critical Mass theory was also drawn, in relation to the fact that diversity can only enhance creativity if there are at least 30% women on the board. Last, Hofstede's Dimensions of Culture model was discussed in relation to the results. Analysing the data for the US culture revealed a high value for the fourth dimension, defining them as a masculine culture that is driven by competition, achievement, and success where women are seen as having to fill the traditional role of women, who focus on quality of family. Results revealed that negative and insignificant relationships can be argued that women in management positions, due to gender roles, are not assumed as being competent enough and are not hired because of their competence but because of their gender in order to fulfil reputational results. A possible explanation for the weak-positive linkages, based on the Signalling theory, has been argued to come from the fact that with more diversity the reputation of the organisation increases and in consequence the firm profitability. Signalling theory additionally stated that hiring women has the purpose of promoting diversity and equality in hopes of increasing organisational performance is imperative to send signals to possible investors for the sake of showing diversity efforts.

Finally, the presentation of possible implications serves as an outlook on future changes in the area of corporate diversity, including those who will fail to adapt, and will be experiencing increasing pressure from stakeholders and society. Regulations that will be implemented in the future, such as NASDAQ's requirement to present transparent diversity data for all companies listed there, will force companies to commit more to diversity within their own organisations. With more companies increasing the focus on diversity in their boardroom and beyond, the most efficient implementation of DEI aspects still remain unexplored by most firms.

6.1 Factors to consider if the study was replicated

If the authors had free will to conduct the study over again, certain aspects would have been done differently. First, the data sample size should be greater in both size and diversity to better depict the population. This would have generated better evidence for relationships and potentially better results for the analysis, of which the authors based their discussion on. Second, utilisation of triangulation could have generated more in-depth knowledge with the potential of pointing the authors towards other areas of knowledge. For example, if the methodology of qualitative interviews were adopted to inspect the management of some select firms, then the authors might investigate areas beyond the current literature. Third, more advanced methods of regression methodology could have generated greater evidence for the discussion to take place, and consequently generate significant enough results outside in some cases. This would not only assist the reliability of the study, but also further the application of the findings, as the result would lay the groundwork for new studies to take place. Fourth, if time allowed it, more extensive and experimental literature beyond that used in prior studies could assist greatly in the application of the evidence beyond traditional factors to consider.

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