The Impact of Board Gender Diversity on Corporate Responsibility Performance in the FTSE 100

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Dissertation submitted in partial fulfilment of the requirement
for the MSc in Corporate Governance & Business Ethics

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1 October 2012

Acknowledgements

It is a pleasure to thank those who made this dissertation possible.

First of all, I would like to thank my dissertation supervisor Dr Suzanne Konzelmann for her time and guidance. She has been a great source of inspiration for me during my Master's degree.

Most of all, I want to thank my mother, father and sister who never stopped believing in me and helped me achieve my dreams. I am eternally grateful for their constant love and support.

Last but not least, I want to take the opportunity to thank my closest friends for their encouragement, help and understanding.

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Abstract

Companies are facing growing pressure to improve both their governance systems as well as corporate responsibility (CR) activities. At the same time, corporations have been criticised for the low level of female members on their boards. It has been suggested that women can provide boards with unique qualities and resources that can improve board dynamics, strategic decision-making and firm performance. Due to their different values and moral orientation, women are generally more CR-oriented, which may also influence companies' performance in non-financial areas.

The purpose of this study was to clarify whether there is a relationship between board gender diversity and corporate responsibility in FTSE 100 companies. Based on 2011 data, CR was divided into four sub-areas: social, environmental, corporate governance and financial responsibilities, and a set of Pearson correlation coefficient tests and a multiple linear regression analysis were performed on the data of 92 companies. The study found a significant relationship between board gender diversity and overall corporate responsibility, social responsibility as well as financial responsibility. Therefore, the research suggests that companies who fully utilise the female talent pool are more successful in fulfilling their corporate responsibilities, both financial and non-financial. These findings also provide further support for Lord Davies' recommendations that FTSE 100 companies should increase the number of female board members to 25 per cent by 2015. Even though critics have argued that women should only be appointed to boards of directors based on moral and ethical considerations, this study suggests that gender equality on boards makes good business sense.

However, the research also outlines that female representation on boards is not the only factor that influences corporate responsibility, and there was no significance between female representation and corporate governance or environmental aspects. Thus, further research is needed to provide more information on the relationship and confirm the generalisability of the findings.

Keywords: corporate responsibility, corporate governance, board diversity, gender, female directors, financial performance, FTSE 100, CR, CSR.

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Chapter 1 – Introduction

The financial crisis and various corporate scandals have caused widespread concern over the way corporations are governed and their responsibilities to stakeholders. Regulators and academics have emphasised the importance of board diversity in improving the strategic and monitoring role of the board, and preventing further business failures. The discussion has recently concentrated on the poor representation of female members at board level, which seems to be a common problem in most countries, including the United Kingdom. In February 2011, Lord Davies' report on board gender diversity recommended that FTSE 100 boards should aim for a minimum of twenty-five per cent female representation by 2015, which is the most significant development in the UK to date (Davies, 2011).

Empirical evidence shows that gender diversity on boards is not only an ethical obligation, but also seems to have a positive effect on firm performance and corporate responsibility. This suggestion raises a question whether women could be the answer to the need for improved corporate governance and more responsible business. Even though Lord Davies' recommendations were only introduced in February 2011, some progress has already been made. Therefore, the purpose of this research is to clarify whether there is an association between board gender diversity and corporate responsibility performance in FTSE 100 companies.

The remainder of Chapter 1 is going to provide an insight into the development of the board gender diversity discussion and regulatory frameworks, and compare the UK situation to other countries. The literature review in Chapter 2 will start by discussing corporate responsibility, and then move onto introducing the theoretical framework that underpins the function of boards of directors and board diversity.

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Finally, the literature review will discuss how gender diversity may be related to improved corporate responsibility performance. Chapter 3 will introduce the methodology and research design of the study, while Chapter 4 will present the key findings of the research. Chapter 5 will then analyse the results and comment on the board gender diversity discussion. Finally, Chapter 6 will conclude and summarise the implications of the study.

1.1. The Development and Current Situation of Board Gender Diversity in the United Kingdom

Despite efforts in many countries to promote female participation, a recent study by the Organisation for Economic Co-operation and Development (OECD) concluded that women are still under-represented at more senior job levels (OECD, 2012). Female representation is particularly low on corporate boards, and thus the OECD has suggested countries should introduce targets and measures to increase the number of women board members in listed companies. In the UK, the development has been relatively slow, and it seems that board gender diversity has only started gaining greater importance among regulators and businesses in the past few years. Holton (1995) was especially concerned about how few women held top management and board positions in UK companies and the slow rate of change. In 1993, women only represented four per cent of all directorial appointments, and at that rate of progression, Holton argued that it would not be until 2017 that there would be a woman on each board of Britain's Top 200 companies.

In 2003, the Higgs Review found that only four per cent of executive directors and six per cent of non-executive directors were women and that there were only two female chairmen in FTSE 350, which shows that the development had been

insignificant for a decade (Higgs, 2003). A potential reason for this is that regulation and recommendations have not paid sufficient attention to the issue until recent years. However, even though the Higgs report raised a concern about the lack of diversity at boards level, it did not set standards or objectives for gender equality and consequentially the response remained poor (Davies, 2011). In fact, McCann & Wheeler (2011) add that female boardroom participation seemed to disappear from the corporate governance discussion until the financial crisis of 2008.

In 2010, the *Female FTSE Board Report* by Cranfield School of Management stated that women made up only twelve per cent of the members of the corporate boards of the FTSE 100 companies (Vinnicombe et al., 2010). Even though this was an increase from nine per cent in 2004, the report points out that it would take more than seventy years to achieve gender-balanced boardrooms at this rate of change. In February 2011, a government-commissioned report by the former UK trade minister Lord Davies recommended that FTSE 100 boards should aim for a minimum of twenty-five per cent female representation by 2015 (Davies, 2011). In October 2011, the Financial Reporting Council amended the UK Corporate Governance Code according to the Davies report, which now requires listed companies to report annually on their boardroom diversity policy, including gender, and on the progress in implementing the policy and achieving these objectives (Financial Reporting Council, 2011). In addition, gender diversity is now one of the key factors in evaluating a board's effectiveness.

Disappointingly, six months after the launch of the Davies report, only thirty-three FTSE 100 companies had set themselves targets regarding female board members (Sealy et al., 2011). However, the one-year progress report revealed that seventeen companies in the FTSE 100 had already reached the twenty-five per cent target and a

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further seventeen were currently between twenty and twenty-five per cent (Davies, 2012). Women now accounted for fifteen per cent of all FTSE 100 board members, up from twelve per cent in 2011, meaning there had been a total of forty-seven new female appointments (Davies, 2012). In the FTSE 100, there were now only eleven all-male boards, down from twenty-one. Despite these improvements, the UK still falls behind the OECD 30 average, with countries such as Norway, Sweden, France, Indonesia and Finland taking top places (Figure 1).
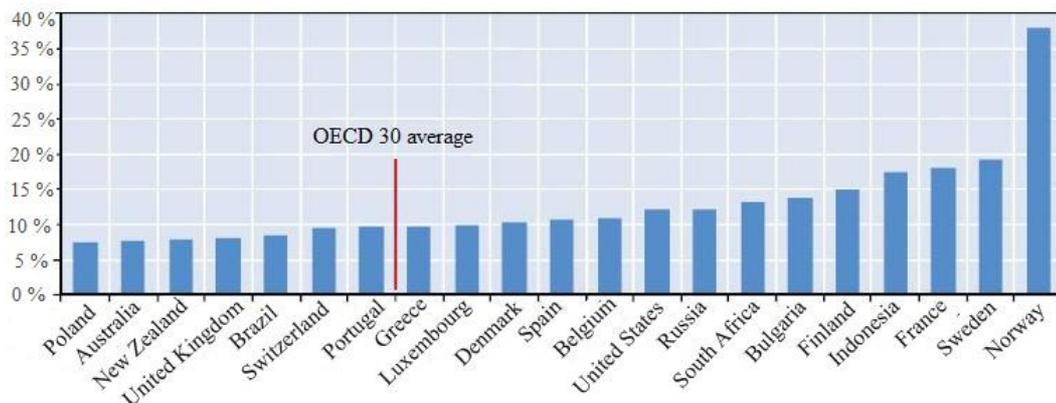
Figure 1: The Percentage of Women on Boards in Listed Companies in 2009 (Source: OECD, 2012)

1.2. Policy vs Corporate Governance Codes – International Comparison

Even though the OECD encourages countries to be more active in promoting gender equality, it does not provide a clear recommendation on one of the key issues outlining the debate – whether this should be achieved through official policies and quotas or self-regulatory corporate governance codes. Gender board quotas for publicly listed companies have already been established in Belgium, France, Iceland, Italy, the Netherlands, Norway and Spain (OECD, 2012). The most far-reaching of these policies is the Norwegian quota law established in 2006, which requires all listed companies to appoint at least forty per cent of each gender on boards (OECD, 12814957

2012:227). Companies failing to meet this objective will face legal and financial sanctions. Spain introduced a similar policy in 2007, recommending large companies to appoint an even number (between forty and sixty per cent) of male and female members on boards (OECD, 2012: 227). However, failure to comply does not result in formal sanctions, which might explain poor development on Spanish boards.

Even though policies can be effective in balancing female and male representation on boards, the quota-model does not seem to provide as significant improvements compared to countries that follow self-regulatory corporate governance codes. For example, the OECD notes that when Finland introduced a 'comply or explain' principle, the proportion of listed companies with women on boards went up from fifty per cent in 2008 to seventy-four per cent in 2010 (OECD, 2012: 99). Of countries with quotas, only Norway, France and Belgium make it into the Top 10, which questions the real influence of legal obligations. Therefore, there is no clear evidence to suggest that the UK model, based on the Davies report, is not competitive.

Chapter 2 – Literature Review

2.1. Corporate Responsibility

Even though corporate responsibility is a prominent topic in management research, it was not until the second half of the 20th century that organisational theorists recognised the existence of corporate responsibilities. Early authors, such as Barnard and Bowen, tend to emphasise the role of an individual entrepreneur or executive rather than that of the company. In 1938, Barnard (1968) addressed CR as the economic, legal, moral, social and physical aspects of environment, and argued that the role of the executive was to create an atmosphere where there is coherence of values and purpose. Moreover, Bowen (1953) conceptualised CR as the 'social obligation' by the individual businessman, namely the obligation to act according to the objectives and values of the society (cited in Crane, et al., 2008).

Carroll (1979: 500) took a similar approach to corporate responsibility as Barnard when he referred to the social responsibility of business as the economic, legal, ethical, and discretionary expectations that society has of organisations at 'a given point in time'. Based on this argument, he developed the CSR (Corporate Social Responsibility) pyramid model (Figure 2) (Carroll, 1991).
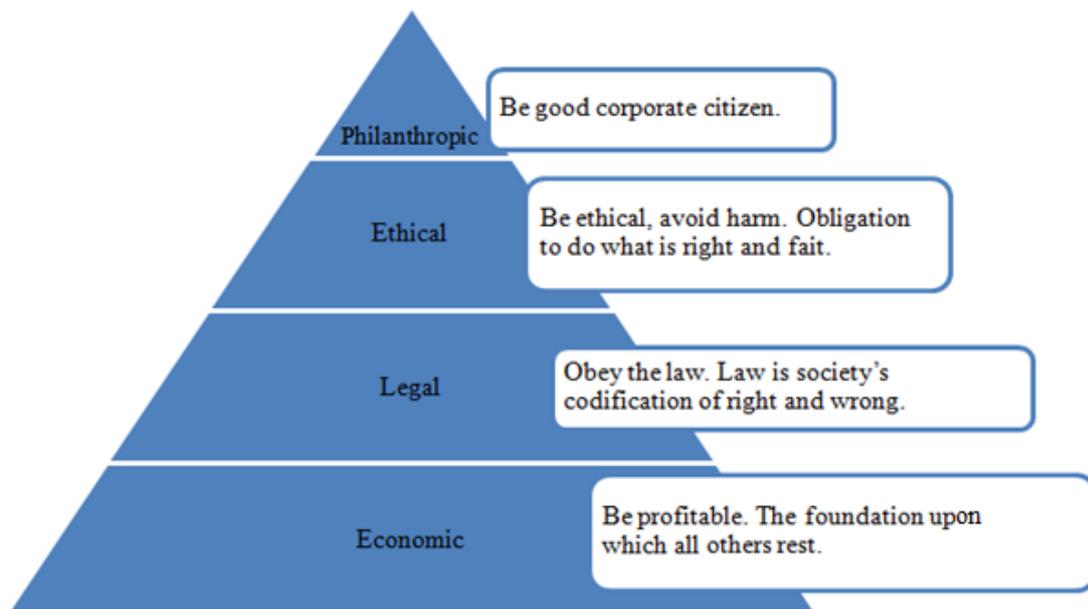
Figure 2: CSR Pyramid - Responsibilities of Companies   **Source: Carroll (1991)**

Carroll (1991) notes that while economic and legal responsibilities are *required* from companies, ethical and philanthropic activities are *expected* from companies as 'societal members'. This argument is central in developing an understanding of the concept of CR for two reasons. Firstly, Carroll refers to 'good corporate citizenship' — the notion that corporations are citizens in the society where they operate, and therefore they are expected to act according to the norms and rules of the surrounding world. Secondly, the argument emphasises that the different aspects of social responsibility should not be viewed as separate or voluntary elements. Carroll (1991) adds that in order to be accepted as 'legitimate', CR has to address the entire spectrum of these obligations.

These definitions seem to imply that the financial and non-financial requirements arise from the expectations of external parties, in other words, a company's *stakeholders*. Freeman (1984) defines stakeholders as the various internal and external parties who can affect or are affected by the achievement of the firm's

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objectives. Crowther and Rayman-Bacchus (2004) argue that stakeholders are crucial to the existence of a company as they give the firm a 'licence to operate'. Thus, Freeman and Evan (1993) suggest that companies should be managed for the long-term benefit of their stakeholders who should participate in decisions that substantially affect their welfare.

Building on the long-term thinking of the stakeholder theory, the majority of contemporary descriptions of CR have moved on from discussing the actual responsibilities to encompassing companies' role in sustainable or 'triple bottom line' (TBL) development. TBL builds the economic, social, and environmental aspects of doing business, in other words, 'people, planet and profit', into the core strategy (Porter & Kramer, 2006). The aim is to become *sustainable* - which refers to the long-term maintenance of an economy, environment and society that is frugal in demands on natural resources, consumes resources wisely while ensuring long-term competitiveness, and that has the capacity to withstand economic fluctuations (Martin & Verbeek, 2006).

Malik and Banerjee (2011) develop a thorough description of CR that combines the aforementioned approaches and provides an excellent summary of what CR means. Firstly, CR is a 'framework for ethical business', which includes the moral responsibilities addressed by Barnard and Bowen. Secondly, CR is about looking beyond profit maximisation and recognising the impact upon environment and society. This combines the ideas introduced by Carroll with TBL, and emphasises the foundation of profitability. Thirdly, CR involves engaging with stakeholders and adopting long-term thinking — sustainability in all aspects of business. Finally, Malik and Banerjee (2011) argue that CR must be central to the core strategy, which emphasises that CR should be an integrated way of doing business.

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2.1.1. Positive Impacts of Corporate Responsibility

The majority of definitions of CR concentrate on what is required from companies and the explaining of the advantages to a company's stakeholders rather than outlining how companies could benefit from CR. Porter and Kramer (2006) note that the corporate responsibility discussion is dominated by this 'moral imperative'. Porter and Kramer state that CR should not be treated as an externality, as gaining a 'license to operate' and becoming more sustainable are essential in gaining a competitive advantage. Furthermore, CR initiatives improve company reputation and strengthen the brand, which can ultimately increase the share price and drive investments (Porter & Kramer, 2006).

In addition to reputation and 'better business', Peloza (2005) argues that corporate responsibility has various positive impacts on firm performance. He was particularly interested in how CR can affect financial performance, and found that a successful CR strategy can result in incremental financial gain. Peloza explains that this is partly a result of increased employee commitment and morale, customer loyalty, as well as collaboration with suppliers. Therefore Peloza (2005) argues that a failure to fulfil corporate and social responsibilities can result in financial losses, boycotts, declined sales, activism and losing investments. This is often caused by negative publicity, as CR scandals tend to attract media attention and lead to public relations (PR) crises. Thus, CR is also important in building trust, improving corporate image and media coverage, as well as enhancing relationships with regulators and influencing favourable legislation (Peloza, 2005).

2.1.2. Criticism of Corporate Responsibility

Even though improving reputation is one of the key drivers of CR, it may explain why sceptics tend to associate corporate responsibility with 'green washing' attempts. Jahdi and Acikdilli (2009) note that many companies falsely use CR as a buzz-word in marketing communications, and these 'unsubstantiated ethical claims' have resulted in cynicism among consumers and other publics. Doane (2005) points out that it is natural that companies want to be involved in corporate responsibility initiatives as they are good PR. However, problems occur when businesses purposefully attempt to do this as a way to capitalise on CR efforts without having to change their behaviour (Doane, 2005).

Critics have also questioned the need for corporate responsibility. Opponents typically follow the 'Friedmanist' approach to CR that argues that the only responsibility of companies is to maximise profits and add shareholder value (Friedman, 1970). CR activities conflict with companies' economic goals and shareholders' interests as they are rarely given the opportunity to agree to such strategies (Margolis & Walsh, 2003). It is therefore argued that companies should concentrate on maximising dividends, and leave it up to the individual shareholders to decide how to invest the money, which will ultimately create wealth for the wider society.

Drucker (1954) is also critical of the extent to which corporations should contribute to solving social problems. Even though Drucker agrees that companies should minimise undesirable social impacts of operations, in terms of *social problems* that exist regardless of the company, he notes that there are limits to what companies are responsible for. Drucker argues that corporate responsibility activities should be

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resisted when they would harm the performance capability of the company or exceed its competence. Moreover, he states that it is not always the corporations' responsibility to address shortcomings in the society, and that the discussion should not exclude the role of government and public authorities. Ultimately, Drucker suggests that companies should rely on the state in situations where social problems cannot be turned into profitable business opportunities.

Porter and Kramer (2006) partly follow Drucker's argument as they assess how companies should form their CR strategies. They claim that companies tend to approach CR in generic ways instead of finding the most appropriate objectives to their individual strategies. To put this in context, Porter and Kramer suggest that a bank should not concern itself with obesity issues and an oil firm should only concentrate on health and safety or environmental aspects. Porter and Kramer argue that CR can result in a competitive advantage when companies see it as an opportunity to improve the business, concentrate on the responsibilities that are most relevant to them, and stop treating CR as a PR tool. Haigh and Jones (2006) are also concerned about the ineffectiveness of CR strategies, as companies often separate CR activities from core operations and place the CR function within PR and marketing departments rather than strategy or accounting. Thus, Haigh and Jones (2006: 267) argue that 'the structural and legal environments admit only instrumental forms of CR'.

The inefficiencies and criticisms related to corporate responsibility strategies may be a result of poor governance of CR. For instance, Strandberg (2008) argues that there is a gap between board oversight and the strategic direction of corporate responsibility activities. Strandberg suggests that boards often fail in their corporate responsibility governance task, by which she refers to integrating social,

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environmental, and ethical considerations into board affairs. Weaknesses of the board often form the greatest barriers to governance of CR, such as tendency to group think, or the mindset of the board chairperson. Moreover, Strandberg (2008) notes that there is a lack of consensus on the board's orientation to corporate responsibility, which may prevent building a strong internal culture, leadership and a business case for corporate responsibility. Even though the trend seems to be towards 'mainstreaming' CR as a governance concern, Strandberg suggests that companies should consider appointing directors based on their CR competency and knowledge about sustainability in order to overcome difficulties. Once again, this raises the question whether diverse boards would be more competitive in fulfilling the CR governance duty.

2.2. Theoretical Framework for Board Diversity

Traditionally, the corporate governance discourse has focused on agency theory in explaining the function of a board of directors. The separation of ownership and control leads to an agency problem, as owners (principals) delegate the responsibility of running the company to managers (agents) (Clarke, 2004; Letza et al., 2004). The lack of direct control creates an agency problem that is concerned over how principals are able to prevent agents from maximizing their own utility and secure wealth maximisation. Berle and Means (1938), Fama and Jensen (1983), and Coffey and Wang (1998) argue that owners rely on the board to protect their interests and curb agent opportunism. In addition, the role of the board is to actively monitor the agents' behaviour, reduce conflicts of self-interest, and ensure that executive functions are carried out.

Coffey and Wang (1998) point out that even though regulation and management theories normally emphasise the importance of boards, several critics have questioned their role and real impact. One general concern is that corporate boards might fall into complacency and relinquish control to management groups who will only further their own interests. Similarly, several cases show that boards have failed in their accountability to shareholders and other stakeholders (Coffey & Wang, 1998). Various authors suggest more diversified boards as a solution to these issues.

Coffey and Wang (1998) define board diversity as variation among the members of a board. Literature seems to distinguish between two types of diversity: the demographic and membership characteristics of board members. Demographic diversity in board's composition refers to a variety of measures including gender, age, ethnicity, nationality, values, expertise, educational background, and industrial experience (Campbell & Minguez-Vera, 2008; Coffey & Wang, 1998; Erhardt et al., 2003). Membership diversity refers to a board member's relationship to the company — meaning whether they are executive or non-executive directors. In other words, firm insiders or independent, outside board members (Coffey & Wang, 1998).

Board diversity has been under examination of regulatory bodies in recent years, particularly after corporate scandals such as Enron, WorldCom, Lehman Brothers and News Corporation. For example, the Sarbanes-Oxley Act of 2002 requires corporations to have more independent directors, and the UK Corporate Governance Code requires one-third of the board to be non-executive (Bernardi & Threadgil, 2010; Financial Reporting Council, 2006). Various corporate governance theories can be used to support changes in regulation and to explain why boards should be diversified. Despite the rationale traditionally concentrating on agency theory, for

example, resource dependence theory and stakeholder theory provide additional perspectives on a board's role.

2.2.1. Agency Theory

Berle and Means (1938) were concerned that over time, boards might become dominated by the agents, which makes the monitoring role ineffective. Various authors have suggested board member diversity as a solution to reducing agency costs. For instance, Coffey & Wang (1998) argue that board diversity plays an important role in ensuring that the board meets its objectives and fulfils its accountability to shareholders. Fama and Jensen (1983) note that independent directors are particularly essential in balancing a board's interests and ensuring that the monitoring role is carried out efficiently, which ultimately adds value to firms. Similarly, Bonazzi and Islam (2007) propose that outside directors are more effective in monitoring managers and protecting the interests of shareholders. It seems that agency theorists mainly concentrate on the role of outside members when they refer to board diversity, and ignore other characteristics that may improve board processes and ultimately the firm performance.

2.2.2. Resource Dependence Theory

The resource dependence theory (Pfeffer & Salancik, 1978) views board members as providers of tangible and intangible assets that are fundamental for a firm's performance and that shape its behaviour and environment. Ferreira (2010) points out that access to new resources, skills and knowledge positively affects the board's advisory role and decision-making processes, as board members who come from different backgrounds are more likely to have diverse experience and approach problems in different ways. Ferreira (2010) goes on argues that creativity and

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different perspectives are the most imporant benefit of board diversity, as diverse groups are less likely to 'groupthink'. Similarly, Campbell and Mínguez-Vera (2008) note that board diversity gives a company a broader range of knowledge, and a diverse group tends to analyse decisions more thoroughly than demographically homogenous boards. Ramirez (2003) continues that the variety of opinions also makes a board more likely to challenge questionable management practices.

The resource dependence approach also highlights that diverse boards have access to a broader resource pool, which strengthens a company's network with its external environment and gives it access to new connections and resources (Campbell and Mínguez-Vera, 2008; Daily & Dalton, 2003; Ferreira, 2010; Pfeffer & Salancik, 1978). Pfeffer and Salancik (1978) and Campbell and Mínguez-Vera (2008) emphasise that the increased number of professional contacts provides channels for co-operation and support from external organisations, and enables a firm to manage its relations with third parties more effectively. Ferreira (2010) adds that increasing the number of financial and political connections is particularly valuable as this can help companies to gain access to finance, investors, contracts and regulators.

2.2.3. Stakeholder Theory

In addition to corporate responsibility, stakeholder theory provides an increasingly popular theoretical foundation for board diversity. Hillman et al. (2001) point out that corporate governance theories normally emphasise protecting the interests of shareholders and ignore the importance of other stakeholders. However, stakeholder theory implies that the management must fulfill their fiduciary duty to the stakeholders and safeguard their long-term interests, which also influences the role of the board (Freeman & Evan, 1988). Moreover, various authors emphasise the

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importance of board diversity in understanding and managing stakeholder relationships. Hillman et al. (2001) suggest that including stakeholders (i.e. diverse board members) on a board is crucial in securing the interests of different stakeholder groups, as this ensures that companies can better protect and respond to their needs. Johnson and Greening (1999) explain that board members who represent the company's stakeholder groups can provide unique knowledge about the changing demands of external stakeholders.

2.3. Board Gender Diversity

The Organisation for Economic Co-operation and Development (OECD) notes that gender equality is not just about economic empowerment but a 'moral imperative about fairness and equity'. In addition, the OECD (2012: 2) points out that the issue of equal opportunities between genders includes multiple political, social and cultural dimensions, and has been reported to increase well-being and happiness of individuals and communities across different cultures.

Campbell and Mínguez-Vera (2008) and the Organisation for Economic Co-operation and Development (OECD, 2012) argue that the foundation of female representation on boards is based on two arguments: ethical and economic. Firstly, it is unethical and immoral to exclude women from boards based on gender. In order to fulfill the 'moral imperative about fairness and equity', firms should promote gender diversity in order to encourage economic empowerment and positive outcomes for society (Campbell & Mínguez-Vera, 2008:439; OECD, 2012: 2). Even though fulfilling the moral obligation could be seen as a socially responsible act in itself,

further arguments point out that gender-inclusion can have wider impacts on firm performance.

The economic argument follows the resource dependence theory, as it suggests that firms fail to access the best candidates crucial for firm performance as well as gaining competitive advantage if they ignore the female talent pool (Campbell & Mínguez-Vera, 2008). The OECD (2008) notes that women are generally more highly educated than men, as over half of all university degrees are awarded to women. Considering that boards of directors be composed of the most qualified and competitive members, the low level of female directors seems controversial, and it could be argued that employers and boardrooms are not benefiting from women's qualifications. Lord Davies was also concerned about this fact, but he adds that there are other, clear economic initiatives than just accessing the widest talent pool (2011). Davies argues that the business case for gender diversity on boards is related to improving performance, being more responsive to the market, and achieving better corporate governance.

In addition to moral and economic arguments, literature underlines that women can provide boards with unique resources. Daily and Dalton (2003) note that female directors provide exceptional perspectives, experiences, as well as work and communication styles, compared to male colleagues. Several authors suggest that female representation on boards is particularly important in industries where women form the majority of final customers. Daily and Dalton (2003), supported by Campbell and Mínguez-Vera (2008) point out matching a firm's directors to the characteristics of its potential customers can improve the understanding of the marketplace and female customers' buying behaviour, and in addition, create a competitive advantage. This seems to be true in practice as well, as Brammer et al.

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(2007) noticed that higher levels of gender diversity on boards can be explained by the external business environment and industry type.

Moreover, female representation has been argued to improve collaboration in the boardroom and decrease conflicts of interests and opinions that heterogeneous boards often suffer from (Ferreira, 2010; Knight et al., 1999). Fondas and Sassalos (2000) point out that the presence of female directors leads to sensitivity to other perspectives and improves the co-operation of a firm's board and top management teams. Similarly, Konrad and Kramer (2006) argue that when there are three or more female members on a board, women tend to bring a more collaborative approach to leadership, which improves communication among directors and between the board and management.

2.3.1. Female Board Members and Corporate Responsibility

Sullivan and Mackenzie (2006) argue that harmful corporate impacts on society and the environment are related to vaster corporate governance issues, particularly agency problems and bounded rationality. Moreover, homogeneous, insider-dominated boards have been accused of prioritising short-term economic utility over corporate responsibility (Coffey & Wang, 1998; Ibrahim & Angelidis, 1995). Considering the agency, resource dependence and stakeholder theory arguments, it could be argued that companies with diverse boards are less likely to be affected by these issues for two reasons. Firstly, as already suggested, board diversity can contribute to resolving agency problems. Secondly, diverse boards have access to a wider pool of knowledge and resources, which can reduce bounded rationality. Furthermore, literature shows that female directors bring distinctive qualities to leadership that might advance CR performance.

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For instance, Konrad and Kramer (2006) suggest that female board representatives take into account a wider set of parties involved or affected by the company, and therefore gender diverse boards are more likely to adopt a stakeholder approach. Bear et al. (2010) argue that increased stakeholder orientation is related to the participative and collaborative qualities of women, which may enhance the board's ability to effectively address CR issues. Williams (2003) agrees that female directors are more sensitive to CR activities, which may influence how a board approaches the various internal and external responsibilities. Post et al. (2011) explain that women's CR orientation could be explained by gender differences in values, moral orientation and ethical judgement, as women are, for example, more likely to respond to the needs of others and recognise unethical actions. In addition, Adams and Funk (2012) argue that female directors are more benevolent and universally concerned but less power oriented than male directors. Indeed, literature demonstrates a positive impact of gender on various areas of CR, especially on social, environmental, governance and economic responsibilities.

2.3.1.1. The Impact on Overall Corporate Responsibility Performance

Webb (2004) investigated responsible firms' board structures, and found that these firms tend to have a stronger representation of outsider and female directors on their boards. A study by Coffey and Wang (1998) provides more information about the direction of the relationship, as they demonstrated that boards with independent and female members are more likely to proactively enhance CR performance. In other words, responsible firms are not just likely to have more diverse boards, but the boards actually influence the level of CR activities. Coffey and Wang (1998) suggest that this is particularly related to the role that diverse board members take, as they

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argue that diverse boards are more effective in monitoring and limiting managerial opportunism that would have negative effects on corporate responsibility.

It could be suggested that this positive relationship is closely linked to female representation. With a sample of nearly 700 companies listed in the Fortune's '2009 Most Admired Companies', Bear et al. (2010) studied how the diversity of board resources and the number of female board members affect firms' corporate responsibility ratings. The researchers found a statistically significant relationship between gender diversity and corporate responsibility, while other forms of resource diversity had no impact on CR performance.

Larkin et al. (2012) also examined the relationship between female board members and companies' corporate responsibility performance. They looked into Fortune 500 companies, and found that as the number of women directors increased, the probability of a corporation appearing on a listing of responsible companies (e.g. Ethisphere Magazine's 'World's Most Ethical Companies' and Corporate Responsibility Magazine's '100 Best Corporate Citizens') increased. As these lists demonstrate the total score of corporate responsibility, the finding could be said to suggest that female board members positively affect a company's ability to improve their overall CR performance. Bernardi and Threadgill (2010) also studied a sample of Fortune 500 companies and demonstrated that gender diversity is directly related to the total social responsibility score of a company and various corporate responsibility measures.

Based on 2009 data, McCann and Wheeler (2011) found that the presence of female non-executives is associated with higher CR scores in FTSE 100 companies. Interestingly, the appointment of female directors improved the CR commitment of

companies in physical and technical industry sectors, where the proportion of women on boards is generally low. However, the relationship was not strong and McCann and Wheeler suggest that other factors are more significant in determining a company's CR profile (2011: 573). This result could have been influenced by the limited indicators of CR used in the research. McCann and Wheeler used the quality of CR policies as a measurement of non-financial responsibility, which does not reflect the complexity of CR issues and the actual performance in this area. The authors admit that policies may be created to trigger a benchmark or quality mark. This supports that further research is needed, therefore;

> Hypothesis 1: There is an association between board gender diversity
>
> score and total corporate responsibility performance score.

2.3.1.2. The Impact on Social Responsibility

A number of authors have examined the link between board composition and a firm's social responsibilities. Zahra et al. (1993) studied how director representation and ownership structures affect firms' social responsibilities, and found that the percentage of outside directors was positively associated with external social responsibility issues, particularly customer satisfaction, environment, employment and community-related activities. Johnson and Greening (1999) came to a similar conclusion, as they propose that outside director representation is positively related to corporate social performance, especially in terms of workforce diversity and good community relations.

Furthermore, previous studies show that gender diverse boards are active in contributing to external social issues, particularly the well-being of society. For example, Siciliano (1996) researched 240 YMCA organisations, and found that

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higher levels of social performance and were associated with board gender diversity. Siciliano (1996: 1318) associates the finding with the stakeholder approach, and suggests that boards with greater diversity in member backgrounds and gender are able to 'keep their social agency purpose in the forefront'. Ferreira (2010) similarly relates board diversity to the stakeholder approach as he argues that board diversity has a positive impact on the relationship between a firm and its shareholders and other stakeholder groups. Ferreira also points out that firms may benefit from fulfilling societal expectations about promoting diversity as, for example, institutional investors and other major shareholders are more likely to pay attention to director demographics, and therefore a diverse board can be a means of acquiring legitimacy (Ferreira, 2010: 228).

Williams (2003) was interested in whether gender diversity affects a company's charitable giving habits. The research of 185 Fortune 500 firms found a relationship between the proportion of women on the board and the firm's corporate philanthropy, suggesting that female board members contribute significantly more to charitable causes than their male counterparts. This conclusion was also supported by a study by Bernardi and Threadgill (2010) as they found that companies with women on their boards are more likely to have a formal employee volunteer program in place, sponsor charities, and have stronger relationships with surrounding communities. Soares et al. (2011) also found a relationship between gender-inclusive leadership teams and charitable giving habits. This is particularly related to the level of philanthropic investments, although the study speculates that gender diversity may also affect the quality of all CR initiatives.

In addition to external responsibilities, literature shows that board gender diversity is associated with internal social responsibilities, such as workplace equality, employee

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benefits and a female-friendly environment. Rosener (2003) argues that women tend to have better possibilities for career development in companies with a higher number of female board members. Presence of female board members also sends a signal to female employees about their chances for advancement within the company. A longitudinal study of 73 Fortune 500 companies by Bernardi et al. (2004) supports this argument. Bernardi et al. examined the career progression of female employees at the director and executive manager levels for the period from 1999 through 2003, and found that electing more women to a company's board increases the number of women being appointed to senior management.

Falk & Grizard (2003) identified that Fortune 500 companies with higher female representation on boards were less affected by 'glass ceiling' issues, and had an above-average number of women in executive posts. The strongest statistical correlation was found between the presence of female executives and family-friendly benefits — for example, the length of maternity leave. The authors point out that these types of policies enable more women to stay in the work force and balance their work and family responsibilities, which ultimately advance women's career development opportunities.

As previous studies have found a multitude of positive effects of women on social performance, therefore;

> Hypothesis 2: There is an association between board gender diversity score and social performance score.

2.3.1.3. The Impact on Environmental Responsibility

The OECD (2008) argues that women are generally more receptive to environmental issues. The report points out that women are more interested in addressing climate change, leave a smaller ecological footprint than men, and promote sustainable consumption patterns. In addition, women are more likely to recycle, buy organic food and eco-labelled products, and use energy-efficient transport (OECD, 2008). Moreover, Johnsson-Latham (2006) found that the lifestyle and consumption patterns of men tend to be more resource-intensive and less sustainable than women's, regardless their income level and country of residence. With regard to businesses, the OECD notes that companies are increasingly trying to address environmental issues in their values, codes of conduct and governance guidelines. Therefore it could be suggested that women's presence may enforce a board's approach to environmental responsibilities.

Despite the environmental orientation of women, few articles have researched the relationship between female directors and environmental responsibility. In addition, previous research has mainly addressed other aspects of board diversity, and results have been ambiguous. Post et al. (2011) studied how board composition affects environmental corporate responsibilities in Fortune 1000 companies, and found that firms with a higher proportion of female and outside directors perform better in environmental aspects. However, the majority of similar studies have found no significance between board member diversity and environmental performance. Galbreath (2011) found no significance between female directors and environmental quality in Australian firms. Other studies have mainly concentrated other characteristics of diversity rather than gender. For example, McKendall et al. (1999)

analysed the relationship between environmental violations and board structure with regard to executive and non-executive directors. However, a different focus on diversity did not provide supporting evidence, as the proportion of inside directors to outside directors was not related to environmental law violations.

Due to the ambiguous findings, Galbreath (2011) notes that the relationship between board (gender) diversity and sustainability has not been investigated thoroughly. Therefore;

> Hypothesis 3: There is an association between board gender diversity score and environmental performance score.

2.3.1.4. The Impact on Corporate Governance

Rosener (2003) argues that companies with high female representation on their boards tend to have stronger corporate governance practices than those with few or no women on the board of directors. A study about Canadian private sector, public sector and not-for-profit boards by Brown et al. (2002) supports this argument. The research found that boards with three or more women performed significantly better in terms of corporate governance than all male boards. Empirical evidence suggests that this might be a result of improved risk management and monitoring systems. Brown et al. (2002) noticed that boards with high female representation were particularly efficient in monitoring and measuring corporate strategy, accountability practices as well as using non-financial performance measures. Similarly, Stephenson (2004) argues that boards with a higher percentage of female directors tend to have improved risk management systems in place and they are more likely to use non-financial performance measures, such as innovation and social responsibility, in evaluating their companies.

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Even though Siciliano (1996) revealed a positive relationship between board diversity and CR, the study found no evidence for improved operating efficiency, which suggests that diversity does not influence the board's monitoring role. Additionally, Finkelstein and Mooney (2003) argue that neither demographic diversity nor insider/outsider ratio have been shown to improve firm performance in Standard & Poor's (S&P) 500 firms. In fact, Finkelstein and Mooney point out that even though boards are more 'independent' than ever before, corporate governance breakdowns seem to be appearing more often. Instead of concentrating on board diversity, Finkelstein and Mooney (2003) suggest that the focus should be on improving board processes. Moreover, Adams and Funk (2012) argue that female directors are less traditional and security oriented as well as more likely to take risks than their male counterparts. Thus, Adams and Funk are concerned whether having women on the board will lead to more risk-averse decision making.

As previous research has been ambiguous and there is no evidence from the FTSE 100;

> Hypothesis 4: There is an association between board gender diversity score and corporate governance performance score.

2.3.1.5. The Impact on Economic Responsibility

As Carroll (1979 & 1991) emphasised, fulfilling economic obligations forms the foundation for other corporate responsibilities. Various researchers have investigated the effects of women on financial performance. For instance, Campbell and Minguez-Vera (2008) propose that board gender diversity has a positive effect on firm value in Spanish firms. They follow agency arguments as they speculate that this is related to improved corporate governance. The authors suggest that gender

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composition of a board affects the quality of the monitoring role, which will ultimately influence firm financial performance (Campbell & Minguez-Vera, 2008).

Other studies have confirmed similar results on financial performance. Catalyst (2004) and Joy et al. (2007) have reported a positive relationship between the number of female directors and higher market capitalisation as well as returns on equity, sales, and invested capital in Fortune 500 companies, whilst Singh and Vinnicombe (2003) found a similar association in FTSE 100 firms. A positive association between key financial indicators and demographic diversity was also demonstrated by Erhardt et al. (2003) and Zahra et al. (1993) who found that board diversity is positively correlated with firms' return on assets and investment. Moreover, female board representation seems to be aligned with long-term economic performance, as Soares et al. (2011) noticed that companies that maintained board gender diversity in at least four out of five years significantly outperformed firms with no female directors.

However, not all authors have found evidence of a positive relationship between female directors and financial performance. Even though McCann and Wheeler (2011) showed a link between female board representation and CR, the study found no evidence that the presence of female board members would improve profitability in FTSE 100 companies. In addition, some studies have even demonstrated an adverse relationship. For instance, Haslam et al. (2009) identified a negative relationship between female directors and measures of performance (e.g. return on assets and return on equity). In fact, companies with all-male boards enjoyed a valuation premium of almost forty per cent compared to firms with female board members (Haslam et al., 2009: 491). These findings show that women sat on the boards of companies that are perceived to be performing poorly, and for that reason

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the authors argue that the presence of female directors on boards could send a wrong message to investors and 'lead to the devaluation of companies' (2009: 484).

Despite these negative findings, there seems to be more evidence pointing towards a positive relationship between gender diversity of board members and improved financial performance. Therefore;

> Hypothesis 5: There is an association between board gender diversity score and economic performance score.

2.4. Drawbacks of Diverse Boards

Despite the potential benefits, all authors do not agree that boards should be diversified. For example, Hambrick et al. (1996) argue out that heterogeneous groups are more likely to disagree, which weakens team consensus. Similarly, Knight et al. (1999) indicate that decision-making in heterogeneous groups may be more time-consuming, which ultimately reduces team performance. Ferreira (2010) also admits that demographic dissimilarity may limit communication among subgroups, create conflicts between directors and result in a lack of cooperation. This is particularly alarming for independent directors, as they rely on inside directors to gain access to firm-specific information (Ferreira, 2010). In addition, Iverson (1995, cited in Bernardi & Threadgill, 2010) points out that smaller boards tend to be composed of individuals with similar background and who are close to the company, and have inside knowledge about the firm's operations. Therefore, Iverson suggests that, in some cases, homogenous boards can be more efficient in fulfilling their role. This point of view is supported by other authors who argue that board that are too outsider-dominated might lack the market and firm specific knowledge, which may

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result in governance and business failures (Baysinger & Hoskisson, 1990; Higgs, 2003).

Due to these disadvantages, some academics have expressed concern over mandatory board diversity. For instance, Ferreira (2010) admits that companies may be forced to appoint directors who are unqualified and lack experience in their attempt to create more diverse boards, which would ultimately be harmful for the performance of the firm. Bernardi and Threadgill (2010) support this view as they argue that corporations are not instruments of social change, and that boards should not be diversified unless there is a clear economic benefit. Moreover, Ben-Amar et al. (2011) conclude that statutory diversity is not sufficient for well-performing boards and that governance regimes should search for a balance between board diversity and the cohesion that best serves the firm's purpose.

With this regard, the recommendations made by Lord Davies can be described as competitive. The report recognises that all companies are different, and recommends that companies should develop their own strategies best suited to their circumstances in order to meet the recommended targets (Davies, 2011). However, the ambiguous findings about the benefits of gender diversity and little evidence from FTSE 100 show that further research is needed to clarify the business case.

Chapter 3 – Methodology

3.1. Overview

As has been pointed out in previous chapters, the primary aim of this research is to identify whether or not there is a relationship between gender diversity on FTSE 100 boards and corporate responsibility performance. Even though several authors have demonstrated a positive link between female representation on boards and various performance factors, the findings have been ambiguous. Moreover, there is barely any evidence from FTSE 100 companies, which identifies the need for further research.

This study is based on a quantitative analysis of the impact of board gender diversity on corporate responsibility performance. Using secondary data sources for ESG (environmental, social and governance) indicators, comprehensive performance scores were constructed to reflect the quality of corporate responsibility activities and gender diversity at board level. In addition, corporate responsibility is divided into four sub-scores for the first part of statistical tests in order to identify which areas of corporate responsibility FTSE 100 companies tend to consider. First, a set of Pearson correlation tests were run to examine the association between the total performance score and sub-scores of corporate responsibility performance and board gender diversity. This was followed by a multiple regression analysis of corporate responsibility, gender diversity and a set of explanatory variables.

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3.2. Research Question and Hypotheses

As the literature review shows, other researchers have found a positive relationship between board gender diversity and various areas of corporate responsibility. These results have concentrated on corporate responsibility at large, as well as social, environmental, governance and financial responsibilities. However, arguments have been ambiguous as several authors have found either negative or no relationship between female board members and CR. This shows that there is a need to confirm previous results and increase the understanding of the topic.

In addition, most studies have concentrated on, for example, Fortune 500 firms, and little attention has been paid to FTSE 100 companies. Even though McCann and Wheeler (2011) studied the FTSE 100 sample, the measures of corporate responsibility were limited and did not build a thorough picture of CR performance areas. This study addresses these limitations and leads to greater understanding of FTSE 100 firms.

The research question can be defined as:

Is there an association between board gender diversity and indicators of corporate responsibility performance in the FTSE 100?

Considering the research question, certain predictions can be made about the subject of the study. Therefore, the alternative hypotheses and the corresponding null hypotheses are:

Hypothesis 1 (H_{A1})	There is an association between board gender diversity score and total corporate responsibility performance score.
	H_{01}: There is no association between board gender diversity score and total corporate responsibility performance score.
Hypothesis 2 (H_{A2})	There is an association between board gender diversity score and social performance score
	H_{02}: There is no association between board gender diversity score and social performance score.
Hypothesis 3 (H_{A3})	There is an association between board gender diversity score and environmental performance score
	H_{03}: There is no association between board gender diversity score and environmental performance score.
Hypothesis 4 (H_{A4})	There is an association between board gender diversity score and corporate governance performance score
	H_{04}: There is no association between board gender diversity score and corporate governance performance score.
Hypothesis 5	There is an association between board gender diversity score and economic performance score
	H_{05}: There is no association between board gender diversity score and economic performance score.

Figure 3: Hypotheses

3.3. Research Design

The study is based on a quantitative analysis of corporate responsibility and board composition data from FTSE 100 companies. As the study is trying to find a correlation between two variables in order to measure the strength of the relationship, it can be classified as a type of descriptive research (Burns, R.B. & Burns, R.A., 2008).

The research methods are mainly adapted from two previous studies by Bernardi and Threadgill (2010) and Siciliano (1996). In examining whether companies with a

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higher proportion of women on boards are more socially responsible, Siciliano (1996) created a board diversity index that was compared to various social and fiscal performance measures in a set of correlation tests, using organisational size and revenue as control variables. Moreover, Bernardi and Threadgill (2010) constructed scores to assess corporate responsibility and its different categories. The authors used Pearson product moment correlation tests followed by a regression analysis to compare total scores and different category scores to a set of independent variables.

3.3.1. Sample

The sample consists of companies listed in the FTSE 100 (see Appendix 1). Eight companies (Ashmore Group, Evraz, Glencore International, Hargreaves Lansdown, ICAP, International Consolidated Airlines Group, Kazakhmys and Resolution) were not included due to missing data, thus $n=92$.

3.3.2. Variables

<u>Independent Variables</u>

x_1 = Board Gender Diversity Score

The most important independent variable is a score for board gender diversity that follows the same scale as dependent variables (0-100). A score of 100 would identify balanced gender representation (50% women, 50% men). The same technique was used by Siciliano (1996) to create a score for gender diversity.

$$x_1 = \frac{Board\ Gender}{Diversity\ Score} = \frac{Number\ of\ Female\ Board\ Members}{Board\ Size} \times 2$$

In addition, three other independent, explanatory variables are used in the multiple linear regression analysis:

x_2 = Net Revenue

x_3 = Market Cap

x_4 = Board Size

Both Siciliano (1996) and Bernardi & Threadgill (2010) point out that larger companies have the ability to engage in numerous corporate responsibility efforts compared to smaller firms, and because of this they used firm size as a control variable. In this study, firm size is measured as net revenue and market cap. As the gender diversity score is relative to the total number of board members, board size is used as another explanatory variable. As was pointed out in the literature review, larger boards have more resources, which may influence CR performance.

<u>Dependent Variables</u>

There are five dependent variables (y) in the research, of which y_1 (Corporate Responsibility Performance Score) is the main dependent variable. Additional dependent variables (y_2-y_5) that are sub-scores of y_1 are used in Pearson correlation coefficients.

y_1 = Corporate Responsibility Performance Score

y_2 = Social Performance Score

y_3 = Environmental Performance Score

y_4 = Corporate Governance Performance Score

y_5 = Economic Performance Score

Corporate Responsibility Score

In order to provide a comprehensive indicator of corporate responsibility performance, a quantitative corporate responsibility score was created for each company. The corporate responsibility score represents the mean value of four indicators of CR performance. It is the sum of all scores divided by the total number of scores:

$$y_1 = \bar{y} = \frac{\sum y_2, y_3, y_4, y_5}{n}$$

The same technique was used by Bernardi and Threadgill (2010), even though they only used employees, community, charitable contributions and environment as variables of total corporate responsibility. In this study, these aspects are covered in the social score.

Social Performance Score[1]

The social score measures a company's capacity to generate trust and loyalty with its workforce, customers and society through the use of best management practices. It is a reflection of a company's reputation and the health of its license to operate. The score takes into account factors such as customer responsibility, community, human rights, diversity and opportunity, employment quality, health and safety, as well as training and development.

Environmental Performance Score

The environmental score measures a company's impact on living and non-living natural systems, including the air, land and water, as well as complete ecosystems. It

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[1] Descriptions for corporate governance, environmental, social and economic scores were adapted from information provided by Thomson Reuters.

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reflects a company's ability to avoid environmental risks, reduce emissions and manage product innovation, resource reduction and environmental opportunities.

Corporate Governance Performance Score

The corporate governance score measures a company's systems and processes which ensure that its board members and executives act in the best interests of shareholders. It reflects a company's capacity through its use of best management practices, to direct and control its rights and responsibilities through the creation of incentives, as well as checks and balances in order to generate long term shareholder value.

Economic Performance Score

The economic score measures a company's capacity to generate sustainable growth and a high return on investment through the efficient use of all its resources. It is a reflection of a company's overall financial health and its ability to generate long-term shareholder value.

3.3.3. Data Sources[2]

The data for the research was obtained from two databases that can be classified as external secondary sources — meaning existing sources of information collected by others and archived in some form (Stewart & Kamins, 1992). Stewart and Kamins point out that secondary sources offer a relatively quick and inexpensive solution for research compared to primary sources. This is particularly useful for studies where collecting the required data would be challenging or when the researcher needs easily accessible company information, such as sales or revenue information about companies (Bajpai, 2011).

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[2] Database descriptions for Asset4 and OSIRIS were adapted from official information provided by their developers, Thomson Reuters and Bureau van Dijk.

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However, according to Bajpai (2011), the disadvantage is that the researcher cannot control the selection, quality and the methods of data collection. Thus, careful evaluation of secondary sources is necessary. Bajpai (2011) and Stewart and Kamins (1992) argue that the researcher must ensure that the secondary data source applies to the research question, population and time period of interest, uses acceptable data collection methods, includes a low bias risk and possibilities for verification.

Data for CR indicators and board composition were taken from Thomson Reuters Asset4 database, which includes systematic ESG information. Asset4 was indicated as the most reliable and relevant source of data for this study, as it is an objective and independent provider that gathers information from various publicly available sources, such as annual reports, news and publications. The data covers the time period and population of interest and the risk of bias is low compared to primary data collection methods. This is particularly important as corporate responsibility is a complex area and there is no standard way of measuring CR performance. CR information in Asset4 is based on over 250 key performance indicators (KPIs) and over 700 individual data points, which would have been difficult to collect for a large sample size using primary methods. The database allows access to original data sources, which enables the verification of data.

Company data for market cap and net revenue for 2011 were obtained from 'OSIRIS' database, developed by Bureau van Dijk. It provides financial and ownership data for the companies worldwide, including the FTSE 100. OSIRIS also filled the assessment criteria for reliability, risk bias, verification of data, required time period, population and data collection methods.

3.3.4. Data Analysis

The analysis uses two different statistical tests to test the hypotheses: Pearson product moment correlation and multiple linear regression analysis. All data was prepared and analysed using IBM SPSS software package for statistical analysis.

<u>Pearson Product Moment Correlation</u>

The Pearson product moment correlation or the Pearson correlation coefficient (*r*) is used to test all null hypotheses in order to determine whether board diversity affects all aspects of the CR score or only some of the indicators. Pearson correlation coefficient provides a numerical index that precisely indicates the degree of relationship and measures the degree of correspondence between variables (Burns, R.B. & Burns, R.A., 2008: 351). As the following equation shows, Pearson correlation is the covariance of variables x and y divided by the product of their standard deviations.

$$r = \frac{n\left(\sum xy\right) - \left(\sum x\right)\left(\sum y\right)}{\sqrt{\left[\sqrt{[n\sum x^2 - (\sum x)^2]}\right]\left[\sqrt{[n\sum y^2 - (\sum y)^2]}\right]}}$$

x = Board Gender Diversity Score

y_1 = Corporate Responsibility Score

y_2 = Social Score

y_3 = Environmental Score

y_4 = Corporate Governance Score

y_5 = Economic Score

Multiple Linear Regression

In addition, a multiple linear regression analysis is performed to test the null hypothesis H_{01}. Multiple linear regression is a technique in which more than one independent or explanatory variable is used to predict the value of the dependent variable (Burns, R.B. & Burns, R.A., 2008; Eye & Schuster, 1998). The analysis estimates parameters for the following regression equation:

$$y_{1i} = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \ldots + \beta_p x_{pi} + \varepsilon_i$$

β_0 = the constant term

$\beta_1 \ldots \beta_p$ = the coefficients for the p explanatory variables

ε_i = the residual

Therefore, the theoretical model is:

$$\text{CR Score}_i = \beta_0 + \beta_1 \times \text{Diversity}_i + \beta_2 \times \text{Net Revenue}_i + \beta_3 \times \text{Market Cap}_i + \beta_4 \times \text{BoardSize}_i + \varepsilon_i$$

3.3.5. Reliability & Validity

Lewis et al. (2009) state that reliability and validity in secondary data are mostly 'functions of the method' by which the data were collected and the source.

Reliability

Burns, R.B. and Burns, R.A. (2008: 410) define reliability as 'the consistency and stability of findings that enables findings to be replicated'. In other words, reliability is the extent to which results are consistent over time and provide an accurate representation of the total population under study (Nunnally, 1978). In practice, a measure is reliable when it can be used to reproduce the same result when repeated

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on occasions (Nunally, 1978; Vaus, 2001). Burns, R.B. and Burns, R.A. (2008) point out that accuracy and stability of a measure are the two most important characteristics of reliability. This study is based on methods used by Bernardi & Threadgill (2010) and Siciliano (1996), which improves the reliability of the results and the research design. However, this research is still an individual study that has been adapted from other relevant studies, rather than a reproduction of previous studies. Further research would be needed to confirm the reliability of the results.

Additionally, Lewis et al. (2009) point out that reliability of secondary data is related to the reputation of the source. As Thomson Reuters is one of the leading business data providers, the source can be confirmed as reliable. Moreover, the original data sources that Thomson Reuters uses (e.g. company sustainability reports) are often verified by third-parties, as the sample consists of listed companies.

Internal and Measurement Validity

Internal validity refers to the capacity and appropriateness of a research design to assess the causal conclusions it purports to measure (Burns, R.B. & Burns, R.A., 2008; Vaus 2001). Vaus (2001: 28) explains that it is 'the extent to which the structure of a research design enables us to draw unambiguous conclusions from [the] results'. With regard to secondary sources, this refers to the measurement validity of the data, or whether the indicators used in the dataset match the needs of the research (Lewis et al., 2009)

As stated earlier, Asset4 was identified as the most appropriate data source for this study, and fulfilled all the assessment criteria. In addition, there is a low risk of bias or error in the values, as data has been provided by independent sources rather than collected by the researcher. Therefore, the internal validity of the research is high.

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External Validity

External validity refers to 'the extent to which results from a study can be generalised beyond the particular study' (Vaus, 2001: 28). In other words, it means whether the results of a sample are transferable to a population (Burns, R.B. & Burns, R.A., 2008). Even though the internal validity of this study is relatively good, there are some limitations regarding external validity, as the research uses a representative sample. Even though certain assumptions can be drawn from the results and other similar studies, the findings primarily apply to the FTSE 100. This refers to a low 'population validity' discussed by Burns, R.B. and Burns, R.A. (2008), as the sample is less likely to provide results that can be transferred to a population. On the other hand, Lewis et al. (2009) argue that secondary sources have strong external validity, which improves the generalisability of findings to a population.

3.3.6. Ethical Considerations

As the data collection did not involve intervention or interaction with human subjects, there is no risk of psychological or physical harm to participants. The nature of the data sources ensures that there are no issues related to anonymity, confidentiality or intellectual property. In addition, the researcher has no conflicts of interest with regard to the results, as the research is not dependent on sponsors or other external parties.

Chapter 4 – Key Findings and Results

Descriptive statistics (Table 1) show that, on the average, FTSE 100 companies have 1.6 female members on their boards of directors. The average board size is eleven members, while women represent 14.5 per cent of all board members in the FTSE 100.

	Mean
Number of female members	1.6
Board size	10.9
% of female members	14.5
Diversity score	28.8

Table 1: Descriptive Statistics for Board Composition

Moreover, a comparison of the number of female members on each board (Figure 4) shows show that eleven per cent of companies have still not appointed any female directors to their boards. The majority of companies (39 per cent) employ one female board member, and only two per cent of companies have appointed four female board members (*n*=92).
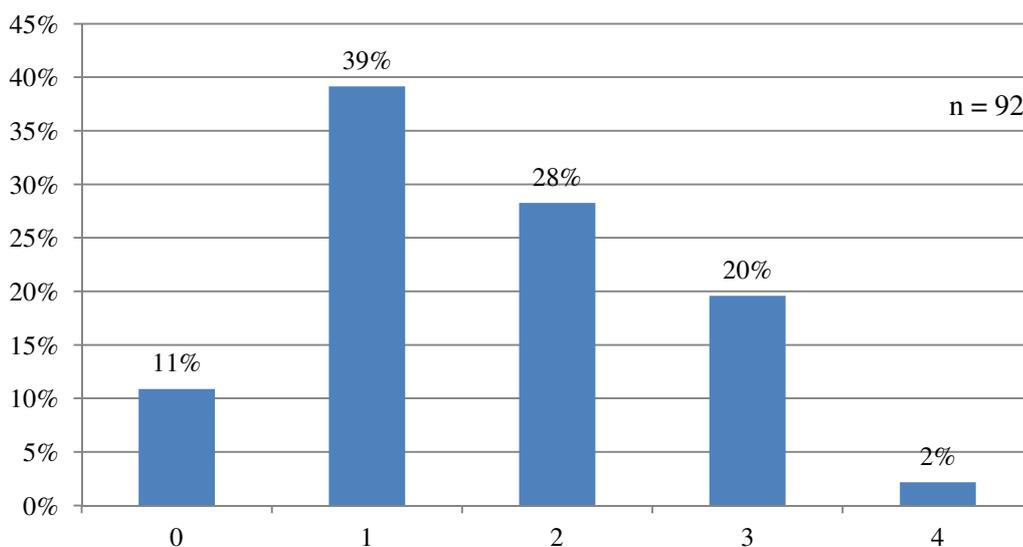
Figure 4: The Number of Female Board Members in FTSE 100 Companies

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A comparison of average, minimum and maximum values of CR scores reveals that FTSE 100 firms perform relatively well in CR aspects. The average CR score is 83, and the average sub-scores are also around 80 (social = 85, environmental = 83, governance = 85 and economic = 79). The best performing company scored 95 in total corporate responsibility, whilst the lowest score was only 60. The greatest variation is in the economic (between 27 and 98) and social scores (between 31 and 97).
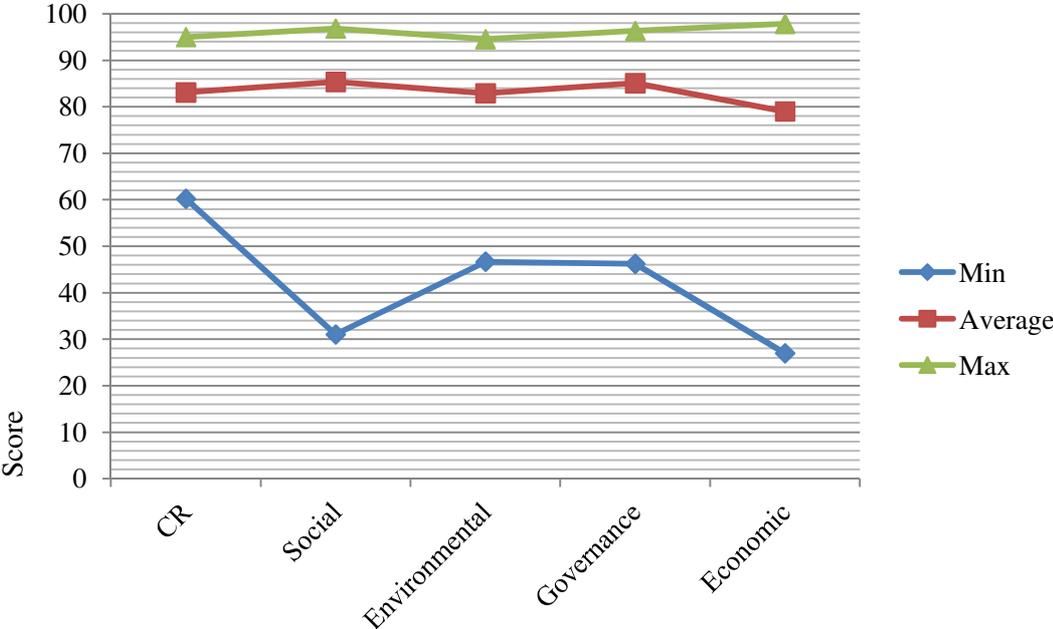
Figure 5: Average, Minimum and Maximum CR Scores

4.1. Pearson Product Moment Correlations

Board Gender Diversity and Corporate Responsibility Performance

		Gender Diversity	Corporate Responsibility
Gender Diversity	Pearson Correlation	1	.247*
	Sig. (2-tailed)		.014
Corporate Responsibility	Pearson Correlation	.247*	1
	Sig. (2-tailed)	.014	

*. Correlation is significant at the 0.05 level (2-tailed).   *n*=92

Table 2: Correlation between Board Gender Diversity and CR Performance

The correlation between gender diversity score and total corporate responsibility score is r=0.247 — this is significant at the 0.05 level (p=0.014). Therefore, the hypothesis H_{01} is rejected in favour of H_{A1}.

Board Gender Diversity and Social Performance

		Gender Diversity	Social
Gender Diversity	Pearson Correlation	1	.263**
	Sig. (2-tailed)		.009
Social	Pearson Correlation	.263**	1
	Sig. (2-tailed)	.009	

**. Correlation is significant at the 0.01 level (2-tailed).   *n*=92

Table 3: Correlation between Board Gender Diversity and Social Performance

The correlation between gender diversity score and social score is r=0.263 — this is significant at the 0.01 level (p=0.009). Therefore, the hypothesis H_{02} is rejected in favour of H_{A2}.

Board Gender Diversity and Environmental Performance

		Gender Diversity	Environmental
Gender Diversity	Pearson Correlation	1	.073
	Sig. (2-tailed)		.478
Environmental	Pearson Correlation	.073	1
	Sig. (2-tailed)	.478	

n=92

Table 4: Correlation between Board Gender Diversity and Environmental Performance

The correlation between gender diversity score and environmental score is r=0.073. This is not significant and indicates a random relationship, consequently the hypothesis H_{03} is not rejected.

Board Gender Diversity and Corporate Governance Performance

		Gender Diversity	Corporate Governance
Gender Diversity	Pearson Correlation	1	.144
	Sig. (2-tailed)		.157
Corporate Governance	Pearson Correlation	.144	1
	Sig. (2-tailed)	.157	

n=92

Table 5: Correlation between Board Gender Diversity and Corporate Governance Performance

The correlation between gender diversity score and corporate governance score is r=0.144; this is not significant and indicates a random relationship. As a result, the hypothesis H_{04} is not rejected.

Board Gender Diversity and Economic Performance

		Gender Diversity	Economic
Gender Diversity	Pearson Correlation	1	.250[*]
	Sig. (2-tailed)		.013
Economic	Pearson Correlation	.250[*]	1
	Sig. (2-tailed)	.013	

*. Correlation is significant at the 0.05 level (2-tailed). $n=92$

Table 6: Correlation between Board Gender Diversity and Economic Performance

The correlation between gender diversity score and economic score is $r=0.250$; as this is significant at the 0.05 level (p=0.013), hypothesis H_{05} is rejected in favour of H_{A5}.

Correlations Summary

A set of Pearson correlations were carried out to determine if there are any significant relationships between board gender diversity and variables of corporate responsibility performance. Three of these were statistically significant, whilst the other two showed no association.

Significant Relationships

The Pearson correlations reveal that three out of five of the tested relationships are statistically significant. Firstly, the correlation between gender diversity score and total corporate responsibility score is statistically significant at the 0.05 level ($r = 0.247$; $n = 92$; $p = 0.014$). Secondly, the correlation between gender diversity score and social score is significant at the 0.01 level ($r = 0.263$; $n = 92$; $p = 0.009$). Thirdly, the correlation between gender diversity score and economic score is significant at the 0.05 level ($r = 0.250$; $n = 92$; $p = 0.013$). These significance levels mean that the null hypotheses for each of these relationships can be rejected. In other words, there

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is an association between board gender diversity score and the total corporate responsibility score, social score and economic score.

However, the correlation coefficient (r) and coefficient of determination (r^2) values suggest that the relationships are not strong. Firstly, the correlation coefficient measures the strength and the direction of a linear relationship between two variables where ±1 indicates a perfect fit (Burns, R.B. & Burns, R.A., 2008). The r values (0.247, 0.263, and 0.250) are all low, meaning that there is a positive, but weak correlation between the variables of corporate responsibility and gender diversity. Similarly, the coefficient of determination values, which show the proportion of the total variance of one variable that is predictable from the other variable (Burns, R.B. & Burns, R.A., 2008), are weak. The coefficient of determination for gender diversity and corporate responsibility ($r^2=0.247^2$) shows that only six per cent of the variance in corporate responsibility is explained by variation in gender diversity. Similarly, gender diversity explains seven per cent of variance in the social score and six per cent in the economic score. A possible explanation for the weak relationship could be that changes in another variable influence both gender diversity and corporate responsibility scores. This suggests that even though there is a significant relationship between the variables, there are other, more important factors that are not included in these tests.

Random Relationships

The correlation between gender diversity score and corporate governance score is not significant and indicates a random relationship ($r = 0.144$; $n = 92$; $p = 0.157$). Thus the null hypothesis is accepted and there is no association between the variables. Similarly, the null hypothesis for gender diversity and environmental scores also has

to be accepted, as there is no significant correlation between the variables and the results indicate a random relationship. ($r = 0.073$; $n = 92$; $p = 0.478$).

4.2. Multiple Linear Regression

As the Pearson correlations indicated that there are other variables that influence the relationship between board gender diversity and corporate responsibility variables, a multiple regression analysis was performed to explain which other factors may influence the relationship.

Model	r	r^2	Adjusted r^2	Std. Error of the Estimate
1	.631[a]	.399	.371	5.742

a. Predictors: (Constant), Board Size, Diversity, Net Revenue, Market Cap

b. Dependent Variable: CR

Table 7: Multiple Linear Regression Model Summary

The multiple correlation value *r* of 0.631 represents the combined correlation of all the independent variables. Moreover, the adjusted r^2 shows that 32 per cent of the variation in corporate responsibility score can be explained by variation in the independent variables taken together. Even though the r^2 value is considerably better than in Pearson correlation tests, this still leaves 63 per cent of the model unexplained.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1901.273	4	475.318	14.418	.000[a]
	Residual	2868.205	87	32.968		
	Total	4769.478	91			

a. Predictors: (Constant), Board Size, Diversity, Net Revenue, Market Cap

b. Dependent Variable: CR

Table 8: Multiple Linear Regression Analysis of Variance

The analysis of variance (ANOVA) table (Table 8) presents the F-Test results, which indicates the overall significance of the multiple linear regression model. Here, the F value of 14.418 is significant with $p=0.000$, which means that the four independent variables taken together as a set are significantly related to the dependent variable. In other words, the model as a whole, is a significant fit to the data. The multiple correlation is highly significant, and thus the null hypothesis (H_{01}) is rejected and alternative hypothesis (H_{A1}) accepted.

Coefficients

	Unstandardised Coefficients		Standardised Coefficients			Correlations			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
(Constant)	63.652	2.859		22.267	.000					
Gender Diversity	.264	.037	.603	7.151	.000	.613	.608	.595	.973	1.028
Net Revenue	2.464E-8	.000	.166	1.759	.082	.177	.185	.146	.774	1.292
Market Cap	-1.583E-8	.000	-.069	-.701	.485	.051	-.075	-.058	.717	1.395
Board Size	.071	.263	.025	.269	.788	.140	.029	.022	.836	1.196

a. Dependent Variable: CR

Table 9: Multiple Linear Regression Coefficients

The coefficients table (Table 9) presents the unstandardised and standardised coefficients necessary for constructing a predictive regression equation. The results reveal that even though the model is a significant fit to the data, there is only one significant regression coefficient: board gender diversity at $p=0.000$. No statistically significant linear dependence was found between the dependent variable and other independent variables. In other words, net revenue and market cap or board size do not influence corporate responsibility performance score. Market cap, however, has a negative effect on the model, even though the relationship is not significant ($p>0.05$).

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The B value (coefficient) indicates that when the independent variable increases by one unit, the dependent variable will increase by the amount of B value. When the gender diversity score increases by one unit, the corporate responsibility score increases by 0.264, with all other variables held the same. Diversity is also the most prominent of all variables as it has the largest standardised coefficient (0.603). A large standardised coefficient value indicates that a unit increase in the standard deviation increase in the board gender diversity score leads to a 0.603 standard deviation increase in predicted corporate responsibility score, with the other variables held constant.

The coefficient table also illustrates the level of multicollinearity, which refers to the extent to which independent variables are correlated with each other (Hill & Lewicki, 2007). The variance inflation factor (VIF) provides a measure of how much the variance for a given regression coefficient is increased compared to if all predictors were uncorrelated. If the tolerance of any of the variables in the regression equation is equal to zero (or very close to zero), then the regression equation cannot be evaluated and the matrix is ill-conditioned (Hill & Lewicki, 2007). As all tolerance values are > 0.1 and VIF values are <10, there is no suspicion of multicollinearity, and the following regression equation for the estimated model can be constructed:

$$\text{CR Score}_i = 52.524 + .264 \times \text{Diversity}_i + 2.464\text{E-8} \times \text{Net Revenue}_i - 1.583\text{E-8} \times \text{Market Cap}_i + 0.071 \times \text{Board Size}_i + \varepsilon_i$$

The data satisfied the assumptions of multicollinearity, normality of residuals, and homoscedasticity. Casewise diagnostics identified one outlier, i.e., there is one residual that is particularly large; Eurasian Natural Resources Corporation. Despite this outlier, the model can be accepted.

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Chapter 5 – Analysis and Discussion

The statistical analysis provides evidence of the link between board gender diversity and corporate responsibility performance. The Pearson correlations show that there is a positive, statistically significant relationship ($p<0.05$) between the overall corporate responsibility score and the board gender diversity score. As a result, the hypothesis H_{A1} can be accepted, which indicates that board gender diversity is positively associated with corporate responsibility performance. The multiple regression model returned similar results, and supports the argument that there is an association between corporate responsibility performance and gender diversity. The overall model was statistically significant ($p=0.000$), when market cap, net revenue and board size were used as explanatory variables. However, board gender diversity was the only variable that was significant ($p=0.000$), and there was no evidence that the explanatory variables would influence corporate responsibility performance.

The findings support previous studies that have found a positive, significant relationship between female board representation and areas of corporate responsibility. Most importantly, the results provide additional evidence for Bernardi and Threadgill's (2010) study where the number of female board members was positively correlated with the overall corporate responsibility performance of a firm. In addition, the findings are in line with a similar argument by Bear et al. (2010), Larkin et al. (2012) as well as Siciliano (1996). The findings also confirm the reliability of research methods used by Siciliano, and Bernardi and Threadgill, which were the main influencers of this study.

Considering the different categories of CR, the results support the theory that companies with gender diverse boards are most likely to fulfil their social

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responsibilities, as the most significant relationship was between the social responsibility sub-score and gender diversity ($p<0.01$). With regard to the different areas that the social score consists of, the implication could be that companies with female board members are more equal, safer and have better relationships with their communities. However, as the score includes a variety of internal and external measures, it is difficult to identify which areas of social issues were more significant than others and provide an exact explanation of the social responsibility priorities. Furthermore, the result does not indicate the direction of the relationship. In other words, it could be that companies that already consider social aspects and, for example, have a higher number of female employees or women in top management positions are more likely to appoint women to their boards. This explanation would also be in line with findings about the association between gender equality at top management level or female-friendly benefits and board gender diversity (Bernardi et al., 2004; Falk & Grizard, 2003; Rosener, 2003).

Another significant relationship was found between the gender diversity score and the economic score ($p<0.05$), where the focus on the company's ability to generate sustainable growth and overall financial health. As was discussed in the literature review, economic responsibility is one of the key areas and the foundation of CR (e.g. Carroll, 1979). The finding suggests that companies with a higher representation of female board members are better at securing shareholders' interests than, for example, competitors with all-male boards. Therefore, it seems that gender diverse boards are more efficient in fulfilling economic obligations, achieving financial stability and generating long-term return on investment, as was suggested by Soares et al. (2011). This finding also supports arguments about the general association

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between board gender diversity and financial performance by Campbell and Minguez-Vera (2008), Catalyst (2004), and Singh and Vinnicombe (2003).

Even though it would appear that boards with female members are more efficient in safeguarding the owners' economic interests, the statistical analysis found no relationship between improved corporate governance and gender diversity. This is rather surprising in the light of agency theory which often assumes that these factors are interrelated. The result is also contrary to the studies by Brown et al. (2002) and Stephenson (2004) who argue that female board representation improves the overall corporate governance system, specifically in terms of monitoring and measuring corporate strategy, accountability and improved risk management systems. All of these indicators were included in the corporate governance score, but this particular sample and study did not support previous findings. The random relationship suggests that corporate governance should not be used to justify gender equality at board level, even though it has been one of the key arguments in the Davies report.

Finally, there was no association between increased gender diversity and environmental responsibilities (p>0.05). Even though women are considered more receptive to environmental concerns, their presence on boards did not influence companies' environmental performance. This finding is in line with previous studies by Galbreath (2011) and McKendall et.al. (1999), who found no link between environmental sustainability and female board members. At the same time, the result disagrees with the argument made by Post et al. (2011) who supported this relationship.

Even though this research did not demonstrate links between female representation and corporate governance or environmental performance, it does not mean that FTSE

100 companies performed poorly in those areas. The average, minimum and maximum scores revealed that there is less variation in the governance and environmental scores than in the total CR, social and economic scores, which may have affected patterns in data. Generally, it can be concluded that FTSE 100 companies fulfil their corporate responsibilities relatively well, as the average score was 80/100.

Despite the significant findings, this study does not suggest that female representation is the only and most important factor that has a positive effect on improved corporate responsibility performance. In fact, even though the relationship is significant, the correlation is distressingly weak. The coefficient of determination values indicated that gender diversity explains only about six per cent of the variance in corporate responsibility, as well as social and economic responsibility scores. At a later stage of the analysis, explanatory variables were added to the model in the linear regression analysis in order to improve the understanding of relationship, but the variables still only explained a third of the model. This is particularly interesting, as most researchers have argued that board size and indicators of firm size and financial performance often explain why some companies are more active in CR than others. This suggests that gender diversity alone cannot be used to predict changes in corporate responsibility performance.

The finding shows that there are various other factors that neither this research nor previous studies have managed to clarify. Previous studies that have indicated a significant relationship between female representation and corporate responsibility have generally demonstrated low r^2 values, but researchers rarely provide further explanation of these results (e.g. Williams, 2003; Bernardi & Threadgill, 2010). However, considering the complexity of corporate responsibility and organisations in

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general, the finding is not surprising. Limitations regarding quantitative research will be discussed later within the report, however, it must be noted that the CR indicators only concentrate on the measurable outcome and do not provide information on the characteristics of CR development. For example, CR-friendly organisational culture, market trends and activities of competitors have all probably influenced the CR performance scores. Similarly, there are other, qualitative factors related to the board and leadership teams that affect the relationship. However, the purpose of this research was not to examine all the factors that may or may not make a company more responsible, but to determine whether gender diversity on boards is one of the factors that may explain CR performance.

Even though academia has not reached a consensus on the issue, the evidence from this study suggests that the same, positive results can be repeated in different samples, markets and time periods. On the other hand, as the statistical tests confirmed that gender diversity is not the only variable that influences corporate responsibility performance, it seems rational why previous studies have demonstrated ambiguous findings. It seems that more research is still needed to explain other variables that may be more influential regarding corporate responsibility performance.

5.2. Limitations, suggestions for future research

There are several limitations regarding the findings and the research design that particularly affect the extent to which the results can be generalised. However, the limitations help provide recommendations for future research.

Firstly, the findings apply to FTSE 100 companies and are most relevant to forming an overall understanding on how these companies perform in terms of CR and board

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gender diversity. One of the greatest limitations of the sample is the certain geographical area that it represents. Namely, there are various cultural differences that affect the characteristics of corporate responsibility activities on different continents and countries. For example, Asian or North American companies would presumably report different attitudes towards, and priorities regarding, corporate responsibility, which might affect the performance areas of CR. Moreover, regulation related to board gender diversity varies between countries, and consequently the results can only be directly compared to similar countries and markets.

In addition, board diversity was only measured in terms of gender in this study. As was pointed out in the literature review, there are other forms of diversity that may have similar or additional effects on the relationship. For instance, including demographic and membership characteristics would provide a more comprehensive description of board diversity and corporate responsibility activities. Future research could look into age, occupational background, ethnicity, or independent and executive board members in order to form a more thorough understanding on total diversity.

There are also limitations to the research design. Firstly, the data for key indicators only covers a single year. At the moment, a longitudinal study was not a relevant option as Lord Davies' recommendations have been introduced relatively recently, and the data does not yet fully reflect the changes. In addition, as the development in the number of female board members has been close to none for the past decade, including data from additional years would not have been beneficial. Comparisons to previous years are also difficult due to limited CR data, as non-financial reporting has only started to become more popular in the past few years. However, longitudinal studies could provide more information about the possible changes in the relationship

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of board gender diversity and corporate responsibility performance in a few years time. After all, sustainable corporate responsibility performance is built over a longer period of time, not just in one fiscal year.

As the usual suspects (board size, key financial indicators and firm size) did not explain the model, it is evident that there are other factors that current studies have not been able to take into account. Qualitative research could provide more information about organisational culture, differences between companies, characteristics of board members and other factors that may influence corporate responsibility performance that are hard to measure quantitatively. Future research could compare board processes and attitudes towards corporate responsibility and whether female representation on board affects the development. In addition, qualitative studies could provide insights into individual board members' priorities and ethical behaviour, as well power relations within a board. For instance, if a reputable sustainability leader was appointed to a corporate board, would this improve the company's CR performance?

Even though board decisions eventually influence the operations of an organisation, the board does not automatically reflect or explain the wider characteristics of a company. Organisational culture is built up over many years and some companies may be more responsive to responsibility initiatives than others. Another interesting topic for qualitative research would be the examination of the association between corporate responsibility performance, and the corporate culture and employees' attitudes toward CR. Despite its limitations, this study contributes to the board gender diversity discussion and literature, provides new evidence from the FTSE 100, and supports the argument that female board representation improves corporate responsibility performance.

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Chapter 6 – Conclusion

Companies are facing growing pressure to improve both their governance systems as well as corporate responsibility activities. McCann and Wheeler (2011) argued that the number of female directors should only be increased based on ethical and moral considerations in the FTSE 100. However, this study suggests the opposite as the findings demonstrate that gender equality on boards makes good business sense. Different implications can be drawn from this research: those to do with the role of female members on boards of directors, and those to do with corporate responsibility.

Firstly, women can provide boards with unique qualities and resources compared to all-male boards. They are more collaborative, highly educated, and have different experiences and communication styles than their male colleagues. In addition, women can provide exceptional perspectives on a female customer base, as well as a wider set of stakeholders. As a result, women's presence may improve dynamics and processes of a board, which has various positive impacts on firm performance. Diversity of resources is particularly essential in improving strategic decision-making, bringing new perspectives to the boardroom, and achieving competitive advantage. This study demonstrates that female representation is associated with improved economic performance, which supports women's role in improving competitiveness and financial sustainability.

Secondly, women are generally considered to be more CR-oriented, which can partly be explained by their different values, moral orientation and ethical judgement. This research suggests that women's input on the work of boards of directors improves companies' CR and social performance. Even though this study did not directly compare the characteristics of men and women as board members, the findings

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indicate that gender diverse boards are better at advancing companies' non-financial and financial obligations. However, by no means does this study suggest that female board representation is the only factor that influences CR activities. There are other, more important characteristics that will provide a better explanation of CR performance.

These implications also provide further support for the Davies report, as the study demonstrates additional advantages of female presence on boards. Even though this study did not find a direct link between female board members and corporate governance, it does not make women any less valuable as board members as they do provide important resources that companies should not ignore. However, this does not suggest that companies should appoint directors purely based on their gender.

Critics have been concerned that mandatory diversity quotas might weaken companies' competitiveness if directors lack sufficient experience and knowledge. Indeed, female board members must be as qualified as their male colleagues in order to be considered for board positions and gender should never be the only criterion in directorial appointments. The argument here is that companies should not just aim to meet the target twenty-five per cent of female board members but to ensure equal opportunities at board level, as well as across the organisation in order to decrease the gap between male and female employees in long-term career promotion. Even though Lord Davies' recommendations are a welcome change in driving gender equality, there is a risk that companies will only comply to improve their public image and prevent criticism. However, as companies listed in the FTSE have not increased female board representation for the past two decades, it is high time that an external body took action.

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Appendix 1: Companies Included in the Sample

Aberdeen Asset Management	Eurasian Natural Resources Corporation	Rexam
Admiral Group	Experian	Rio Tinto
Aggreko	Fresnillo	Rolls-Royce Holdings
Amec	G4S	Royal Bank of Scotland
Anglo American	GKN	Group
Antofagasta	GlaxoSmithKline	Royal Dutch Shell A
Arm Holdings	Hammerson	Royal Dutch Shell B
Associated British Foods	HSBC Holdings	RSA Insurance Group
Astrazeneca	InterContinental Hotels	Sabmiller
Aviva	Group	Sage Group
Babcock International	IMI	Sainsbury
BAE Systems	Imperial Tobacco Group	Schroders
Barclays	Intertek Group	Serco Group
BG Group	ITV	Severn Trent
BHP Billiton	Johnson Matthey	Shire
BP	Kingfisher	Smith & Nephew
British American Tobacco	Land Securities Group	Smiths Group
British Land	Legal & General	SSE
British Sky Broadcasting	Lloyds Banking Group	Standard Chartered
Group	Marks & Spencer Group	Standard Life
BT Group	Meggitt	Tate & Lyle
Bunzl	Wm Morrison Supermarkets	Tesco
Burberry Group	National Grid	Tullow Oil
Capita	Next	Unilever
Capital Shopping Centres	Old Mutual	United Utilities Group
Group	Pearson	Vedanta Resources
Carnival	Pennon Group	Vodafone Group
Centrica	Petrofac	Weir Group
Compass Group	Prudential	Whitbread
CRH	Randgold Resources	Wolseley
Croda International	Reckitt Benckiser Group	WPP
Diageo	Reed Elsevier	Xstrata

Appendix 2: Data Analysis Results - Pearson Correlations

Gender Diversity and Corporate Responsibility Score

Descriptive Statistics

	Mean	Std. Deviation	n
Gender Diversity	28.30	16.561	92
Corporate Responsibility	80.69	12.070	92

Correlations

		Diversity	Corporate Responsibility
Gender Diversity	Pearson Correlation	1	.247[*]
	Sig. (2-tailed)		.014
	n	92	92
Corporate Responsibility	Pearson Correlation	.247[*]	1
	Sig. (2-tailed)	.014	
	n	92	92

*. Correlation is significant at the 0.05 level (2-tailed).

Gender Diversity and Social Score

Descriptive Statistics

	Mean	Std. Deviation	n
Gender Diversity	28.30	16.561	92
Social	83.01	14.269	92

Correlations

		Gender Diversity	Social
Gender Diversity	Pearson Correlation	1	.263[**]
	Sig. (2-tailed)		.009
	n	92	92
Social	Pearson Correlation	.263[**]	1
	Sig. (2-tailed)	.009	
	n	92	92

**. Correlation is significant at the 0.01 level (2-tailed).

Gender Diversity and Environmental Score

Descriptive Statistics

	Mean	Std. Deviation	N
Gender Diversity	28.30	16.561	92
Environmental	80.15	15.884	92

Correlations

		Gender Diversity	Environmental
Gender Diversity	Pearson Correlation	1	.073
	Sig. (2-tailed)		.478
	n	92	92
Environmental	Pearson Correlation	.073	1
	Sig. (2-tailed)	.478	
	n	92	92

Gender Diversity and Governance Score

Descriptive Statistics

	Mean	Std. Deviation	n
Gender Diversity	28.30	16.561	92
Corporate Governance	83.66	12.849	92

Correlations

		Gender Diversity	Corporate Governance
Gender Diversity	Pearson Correlation	1	.144
	Sig. (2-tailed)		.157
	n	92	92
Corporate Governance	Pearson Correlation	.144	1
	Sig. (2-tailed)	.157	
	n	92	92

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Gender Diversity and Economic Score

Descriptive Statistics

	Mean	Std. Deviation	n
Gender Diversity	28.30	16.561	92
Economic	75.97	21.140	92

Correlations

		Gender Diversity	Economic
Gender Diversity	Pearson Correlation	1	.250[*]
	Sig. (2-tailed)		.013
	n	92	92
Economic	Pearson Correlation	.250[*]	1
	Sig. (2-tailed)	.013	
	n	92	92

*. Correlation is significant at the 0.05 level (2-tailed).

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Appendix 3: Data Analysis Results - Multiple Linear Regression

Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	BoardSize, Gender Diversity, Net Revenue, Market Cap[a]	.	Enter

a. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.631[a]	.399	.371	5.742

a. Predictors: (Constant), Board Size, Gender Diversity, Net Revenue, Market Cap

b. Dependent Variable: CR

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1901.273	4	475.318	14.418	.000[a]
	Residual	2868.205	87	32.968		
	Total	4769.478	91			

a. Predictors: (Constant), Board Size, Gender Diversity, Net Revenue, Market Cap

b. Dependent Variable: CR

Coefficients[a]

Model		Unstand. Coefficients B	Std. Error	Stand. Coefficients Beta	t	Sig.	Correlations Zero-order	Partial	Part	Collinearity Statistics Tole-rance	VIF
1	(Constant)	63.652	2.859		22.267	.000					
	Diversity	.264	.037	.603	7.151	.000	.613	.608	.595	.973	1.028
	Net Revenue	2.464E-8	.000	.166	1.759	.082	.177	.185	.146	.774	1.292
	Market Cap	-1.583E-8	.000	-.069	-.701	.485	.051	-.075	-.058	.717	1.395
	Board Size	.071	.263	.025	.269	.788	.140	.029	.022	.836	1.196

a. Dependent Variable: CR

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Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	(Constant)	Gender Diversity	Net Revenue	Market Cap	Board Size
					Variance Proportions			
1	1	3.489	1.000	.00	.02	.02	.02	.00
	2	.911	1.957	.00	.03	.35	.14	.00
	3	.414	2.905	.00	.01	.62	.75	.00
	4	.164	4.619	.05	.95	.00	.02	.04
	5	.022	12.523	.95	.00	.01	.06	.95

a. Dependent Variable: CR

Casewise Diagnostics[a]

Case Number	Std. Residual	CR	Predicted Value	Residual
31	-3.017	51	68.33	-17.325

a. Dependent Variable: CR

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	n
Predicted Value	64.12	83.43	72.30	4.571	92
Residual	-17.325	8.881	.000	5.614	92
Std. Predicted Value	-1.790	2.434	.000	1.000	92
Std. Residual	-3.017	1.547	.000	.978	92

a. Dependent Variable: CR

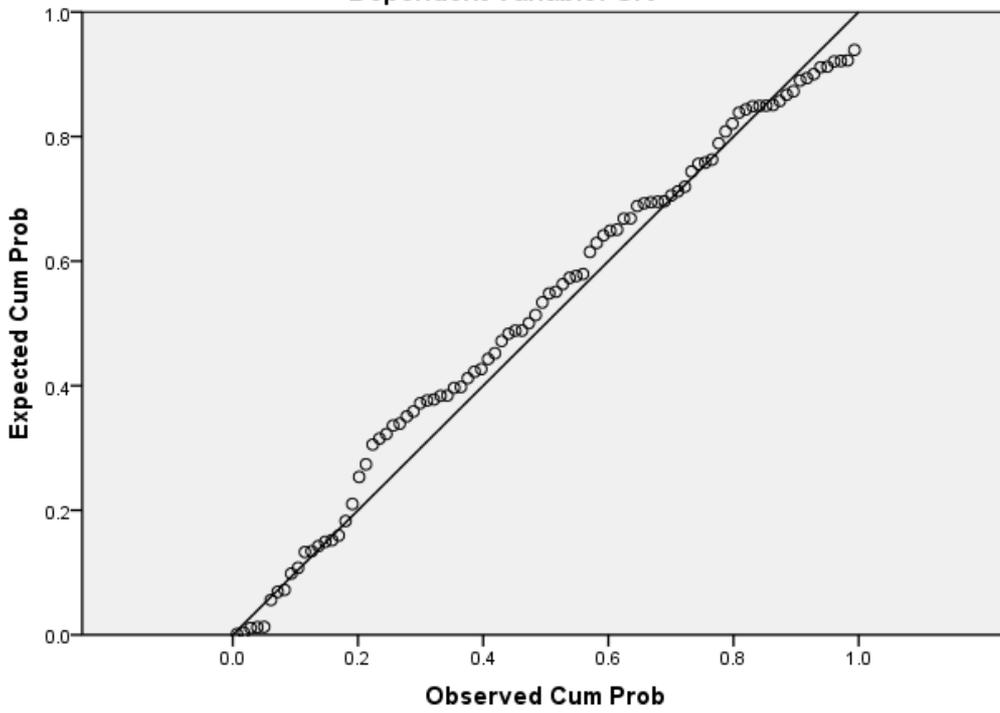Histogram — Dependent Variable: CR

Mean = 9.78E-16
Std. Dev. = 0.978
N = 92
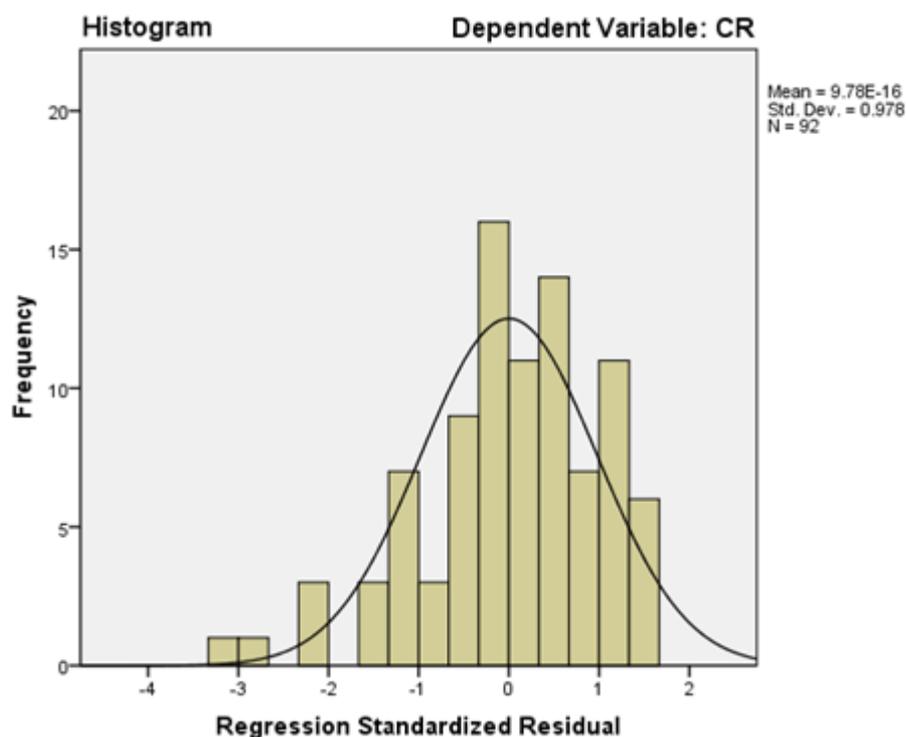
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Normal P-P Plot of Regression Standardized Residual
Dependent Variable: CR

Scatterplot
Dependent Variable: CR

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