The Impact of Corporate Governance and ESG Performance on Firm Value

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ABSTRACT

This paper mainly studies the mediating influence of ESG performance on the relationship between corporate governance and firm's value. This investigation has been performed on a sample of 131 Taiwan firms listed in Taiwan Stock Exchange in 2018. We have used two performance measures; return of asset (ROA) and Tobin's Q; as dependent variables and five corporate governance variables; CEO duality, board size, board independence, board diversity and board meeting; as independent variables; ESG performance as the mediation variable. Using path analysis method in structural equation model (SEM), we found that board size and board independence are significantly positively related to both firm values while board diversity significantly negatively related to both firm values. There is significant positive impact between ESG performance and short-term value (ROA). On the other hand, there is no statistically significant relation exists between ESG performance and firm value as measured by Tobin's Q. Nonetheless, aside from the positive mediating effect of ESG performance on the relationship between corporate governance (board size, board independence and board diversity) and ROA. To sum up, three board characteristics promote ESG activities to establish and reach higher performance, which have short-term firm value enhance. These results denote the importance and value of ESG in Taiwan

Keywords: Board Characteristics, ESG, Firm Value, Structural Equation Model

1. Research Background

Sustainability development originating among issues related to eco-system and environment has been a famous issue discussed and studies in wide fields for years. Seuring & Müller (2008) contended that it can be viewed as an ability of adaptation in unstable and competitive environment. According to utilitarianism sustainability development is defined that corporates obtain the maximum satisfaction without hurting descendants. Elkington (1998) based on social, environment and economy, developing "Triple bottom line", which was believed to build lasting relationships between internal and external stakeholders and lead win-win situation. However, corporates and researchers started to reexamine the focused factors of sustainability after financial crisis happened in 2008. They figured out governance plays the more critical role than economy. In other words, corporates should emphasize core values. Additionally, the outbreak of epidemic in 2019 spread rapidly around the world, which hit corporates extremely. Therefore, people increasingly attach importance to the three factors, environment, social and governance (ESG).

ESG is usually compared with corporate social responsibility (CSR). In 1999, Kofi Annan, Secretary-General of the United Nations, advocated corporates should implement CSR. The financial crisis in 2008 made the wave of CSR again until now. Even though it seems that ESG and CSR are similar, CSR is a general concept, while ESG lists the practical goals to achieve. Therefore, ESG is a critical index for sustainability development. Furthermore, to achieve global sustainability development by 2030, the UN in 2015 reported 17 Global Goals, known as the Sustainable Development Goals (SDGs). In the 17 goals, there are including in 169 detailed targets. SDGs provide corporates with more practical objectives to follow.

Initially, the concept of ESG appearing in United Nations (UN) Global Compact in 2004 is seen as an evaluation of corporate operation. ESG is composed of three dimensions, environment, social, and governance. The UN gained attention when the financial crisis broke out in 2008. Take the top 3,000 companies in the US by market capitalization as an example. Companies with higher ESG scores are less affected by the financial crisis. The reason is that companies' long-term investment in social assets and the trust of investors drive the company's performance to maintain a certain level.

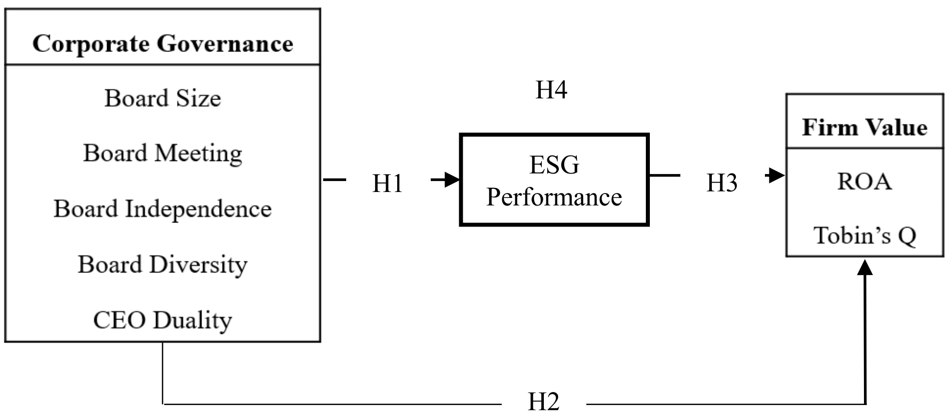
Recently, in Taiwan, the term of ESG has been a popular issue, especially in capital market. Most Taiwanese investors head to ESG-related ETF funds, like Fubon TWSE Corporate Governance, Cathay MSCI Taiwan ESG Sustain Hi Div Yield ETF, and Yuanta FTSE4Good TIP Taiwan ESG ETF. According to Taiwan Depository & Clearing Corporation (TDCC), the number of sustainable investors at age 20s rises dramatically in less than a year. Commercial Times reported that Cathay Securities Corporation cooperated National Taipei University to create ESG database for Taiwan. It clearly shows ESG attracts extensive attention.

In previous studies, they strengthened the importance of sustainable performance and seek the vital governance variables could promote the activities and performance related to sustainability development. Also, they investigated sustainable performances result in firm values including viewpoints and willingness of market investors, and sales performance. Yet, in Taiwanese sustainable research, few studies investigated if the mediator role of ESG performance would help corporate governance variables improve ROA and Tobin’s Q. In this study, corporate governance variables concentrate on board characteristics, and ROA and Tobin’s Q are the proxies of firm value. This study investigates the effect of CG variables on ESG performance and firm value. Importantly, it also discusses the mediating role of ESG performance.

The purpose of the study aims to investigate the antecedent and consequence of ESG performance. Corporate governance variables are as independent variables, and firm value (Return of Assets and Tobin’s Q) is as dependent variable. The three research questions are following: (1) Do boards as corporate decision-making centers to the extent influence to push ESG activities and sustainability development forward? (2) Does ESG performance increase firm value? (3) Does firm value increase obviously with the internal corporate governance and ESG performance in parallel?

The main contribution in the study is the mediating role of ESG performance for Taiwan corporates. The result infers that Taiwan corporates should conduct ESG activities and establish ESG policy. These will make short-term value extremely enhance, particularly, when the value is underperformance. Also, board characteristics plus ESG performance will perform obvious effect.

Figure 1



2. Literature Review & Hypothesis Development

2.1 Corporate Governance

The concept of corporation governance is originated from Berle & Means (1932). They contended that procession and management which are supposed to be separated impact the goal of settlement and achievement. In other word, they can be regarded as systems of supervisory and management. Also, corporation governance is divided into two perspectives. First of all, Dima Jamali (2008) in the micro perception, it seen as a tool retaining benefits of shareholders and ownership, whereas, to macro perception, it merely considers shareholders' benefits. As result of reaching the two perceptions, inter mechanism and external mechanism are developed. The former mainly achieves integrity and transparency of information disclosure toward shareholders, while the latter is related to legislation protecting their rights (Detthamrong et al., 2017). Companies with excellent corporation governance encourage themselves to create values via operating researching and innovating as well as offer the appropriate control system of accountability. Corporate governance has a critical influence on companies and has been a popular theme in academic research. The previous research frequently contains numerous theories, including resource dependence theory, agency theory and stakeholder theory.

The common two theories, resource dependence theory and agency theory, are connected to board functions. The description of agency theory shows separating ownership and controlling to decline beneficial conflicts. However, it brings out a serious conflict of information asymmetry that can be resolved by inter mechanism of corporate governance. In previous researchers, Paniagua et al. (2018) and Huang & Wang (2015) declaim that boards not only moderate a problem of information asymmetry between management and stakeholders also retain stakeholders' benefits. In Jizi (2017), it asserts that board characteristics were helpful to maximize resources in companies and even widely improve sustainability development. Furthermore, several social sciences research like finance and management adapted traits of board characteristics. Board size, board independence, CEO duality, board diversity and board meeting are important variables to be measured (Alves et al., 2015; El Nayal et al., 2021). Cuadrado-Ballesteros et al. (2017) also discovered most characteristics are highly helpful to promote sustainability development policies. In this study, the inter mechanism of corporate governance is adapted, that is board-related variables. The five board characteristics, including board size, board meeting, board diversity, board independence and CEO duality, will be described details.

2.1.1 Board Size

Board size that refers to the number of members in a board exists two different effects. First, Cheng (2008) contended, about firm performance, a larger size may cause extremely slight variation of. The larger size means more members and distinct perceptions. it is seldom likely that boards make decisions that the stand is clearly different from some members. Therefore, board members must spend much time negotiating mutually and reaching an agreement, which make sure appropriate decisions and reduce variation of firm performance. In addition, making decision and managing discretionary power may cause inefficiency in large-size boards (Jensen, 1993).

2.1.2 Board Meeting

Board meetings in a year, generally, are regarded as an activity and diligence, and in results of previous studies, the effect of board meeting on firm performance is not totally identical. Some present boards are thought that they are inefficient when meetings are hold frequently. In a discussion of an undeveloped issue, it will make the agenda be divided into several meetings This leads the poor executive performance and higher negotiating costs (Vafeas, 1999). Others assert that it is beneficial to stakeholders that boards are supervised seriously (Conger et al., 1998; Lipton & Lorsch, 1992). In addition, they proposed that board meetings make members share a great deal of information and opinions, which can improve the decision-making process and ensure the legitimacy that stakeholders expect. Regular meetings, actually, are necessary to instantly solve problems when some issues or policies cause negative impacts (Dienes & Velte, 2016).

2.1.3 Board Diversity

In the past, several literatures had shown the importance of board diversity in relation to financial, sustainability, and voluntary disclosures (McGuinness et al., 2017; Rupley et al., 2012). Researchers aimed to exceed the scope of these studies, attempting alternative measures. foreign diversity (Sarhan et al., 2019) and age diversity (Talavera et al., 2018). Due to international concentration on gender equality, gender diversity gradually got emphasized in studies. Studies found the existence of women on the board reveals practical meaning. (Fasan & Mio, 2017; García-Sánchez & Noguera-Gámez, 2018; Gerwanski et al., 2019).

The present literatures discover the differences of demography offer effective supervisory, for instance, CEOs' gender (Bryan W Husted & Sousa-Filho, 2019). In the meanwhile, Adams & Ferreira (2009) and Bear et al. (2010) find gender diversity among board members conduces the governance. Additionally, Jizi (2017) contended that due to attendance of female member, self-monitoring systems operate overall and effectively. In general, the increasing gender differences seems to monitor well. Agency theory and resource dependent theory are adapted to explain that the genders in boards influence their thorough thoughts. Through agency theory, it is investigated if female board members will assist boards to monitor managers. People usually think females are more independent than men, so they can improve a monitoring system. Based on resource dependent theory, females enable to provide some specific resources which men do not. That is, the more diversified boards exist, the more plentiful resources they gain. All in all, during the process of decision- making, the diversity among board members allow several perceptions and suggestions to be adapted as well as enhance the quality. Therefore et al. (2009) proved that a financial performance is apparently affected positively. However, Erhardt et al. (2003) doubted the effect of board diversity on financial and non-financial performance, which is a complicated research. According to the composition analysis framework of board gender by Kirsch (2018), it shows the relationship between board diversity and firm value is worth to discuss deeply.

2.1.4 CEO Duality

Rechner & Dalton (1991) and Bapuji et al. (2018) mentioned CEO duality appears when one person, meanwhile, takes duties of board chairman and CEO. Agency theory claims that dual identification allows a board chairman's decision power raise and concentrate on the disclosure issue (Al-Janadi et al., 2012). However, some scholars assert it will cause significant problems of governance and leading. Tsui et al. (2001) stated minorities may be neglected gradually, for the sake of CEOs lacking thorough consideration. Also, dual identification makes CEOs play multiple roles under much pressure so that they attempt to decline disclosures issues on environment, social and governance. For example, they will decrease the cost of social and environmental activities to avoid unnecessary risks (Haniffa & Cooke, 2002). Therefore, Peng et al. (2010) suggest companies should have the two positions combined for one person, which is able to reduce the business and operate steadily to much degree. Even though most previous research did not certainly point out the connection of CEO duality to social responsibility disclosure, some studies still found CEO duality highly lowers their willingness to disclosure (Forker, 1992; Said et al., 2009; Muttakin & Subramaniam, 2015).

2.1.5 Board independence

The dominated mission of boards is to protect stakeholders' right. As independent directors in companies, they have no material relationship with the company, is not part of the executive team, and is not involved with the daily operations (Arosa et al., 2010). Due to the three reasons, Arosa et al. (2010) thought assigning independent directors improves decisions and increases the opportunity to obtain valuable resources. Dahya et al. (2019) in the acquisition topic shows board independence has positive impact on performance. Additionally, the ability of controlling and commend depends on how a board is formed. There are two measures of board independence: one is a percentage of non-executive members to all board members, and another is a percentage of non-executive members to executive members (Hossain & Reaz, 2007). The more independent directors encourage and inspire managers to fulfill complete transparency and information disclosure (Forker, 1992).

Theoretically, higher independent boards enable to revamp governance structures and even figure out solutions to agency problems to ensure stakeholder's benefits and boards' practices (Chen & Chen, 2010).

2.2 ESG Performance

ESG refers to environment, social and governance. "Governance" in ESG completely differs from "governance" mentioned in corporate governance. The latter is a systematic form established to manage, while the former is a non-financial indicator used to evaluate a company's governance system that is the latter. ESG, basically, evaluates company's practices of environment, social and governance, which gradually are closely related to sustainability development (Yoon et al., 2018). In Carroll (1979), an initial CSR model that was proposed is based on economy, regulation and ethics and then add in environment to investigate the CSR investment. After then, previous research found environment, social and governance thoroughly explain CSR overall performance (Garcia et al., 2017). Also, implementing them in practice is the most effective to build the relationship with local organization and realize new customers' needs, which create extremely great firm value. Nowadays, ESG which is scored through public reports has been an important indicator to evaluate corporate sustainable development. It is aimed to have the ESG score standardized and innovate shared value and long-term profitability. Majority of corporates follow criterions of Global Reporting Initiative (GRI) to conduct ESG-related public reports. International Integrated Reporting Council (IIRC), currently, attempts to draft standards via international framework announced in 2013 (Eccles et al., 2014; Reuter & Messner, 2015).

The principal institutions, Bloomberg、Sustainanalytics and MSCI, collect corporate paper and online reports in public and evaluate the ESG scores or rating. The three dimensions of ESG consist of individual subclasses. The dimension of environment is defined as being eco-friendly from the viewpoint of nature. The social dimension emphasizes diversity, equality, human right, consumer protection and animal benefits. Finally, the governance covers management structure, employee relationship, executive compensation, morality, and employee compensation (Sassen et al., 2016). The items used to score ESG are included several critical assets like reputation, quality, and security. That is, ESG score firmly reflecting to general non-financial data and abilities of execution and risk management. Therefore, ESG score is usually viewed as non-financial and sustainable performance (Galbreath, 2013).

Among investment studies, they investigated whether the performance of firms with higher ESG scores is superior to those with lower scores during financial crisis. Some studies in US and Europe showed there was significant relation between ESG scores and social responsibility investment (Galema et al., 2008; Chiappini & Vento, 2018). Their results are definitely great discoveries for firms, investors and Investment practitioners. For firms, ESG score is discussed with risk, performance and value. (Di Tommaso & Thornton, 2020) investigated banks and the result showed that ESG score had indirect effect on bank value. Through studies from Z. Wang & Sarkis (2017) and Xie et al. (2019), it finds ESG-related activities help increase efficiency and ratio of assets. Also, Indahl & Jacobsen (2019) encourage companies to regard ESG as a core capacity and competitive advantage, which not only bring favorable benefits also have the sustainable goals advance.

2.3 Firm Value

In the condition of legitimate regulation and value-oriented management, firm value reflects the ability to satisfy stakeholders (Zhenghui Li, 2019). Some researchers pointed out firm value refers to firm size, price-to-earning ratio, book value per share, earnings per share, dividend per share, and debts (Jadiyappa, Hickman, Jyothi, Vunyale, & Sireesha, 2020; Le & Phan, 2017). Still, others usually measure firm value with return on investment (ROI), return on assets (ROA) and return on equity (ROE) (Yiwei, 2018). They stated that ROA and ROE as accounting-based performance indications are used to be measured firm itself value, as a result of not being affected by external factors. In contrast to ROA and ROE, Tobin's Q as market-based indication is extremely slightly impacted by accounting convention and earning records (Dechow et al., 1996). It is measured by the market value of a company divided by its assets' replacement cost totally reflects the market's expectation to a company's future profits, so it is widely measured firm value in accounting, economy, and finance literatures

(Brainard & Tobin, 1968; Tobin et al., 1969; Gompers et al., 2003). No matter Tobin's Q, ROA or ROE, they indicate different meaning of firm value.

2.4 Hypothesis Development

2.4.1 Governance Corporate & ESG

Internationally, people have investigated the relations between governance and information disclosure for years, and also environment and eco-friendly awareness are the major research themes (Calza et al., 2016; Ortiz-de-Mandojana et al., 2016). Currently, firm's activities including environment, social and governance are increasing concerned. In addition, most scholars believe that board characteristics are the explanation variables of ESG. The following literature reviews are based on agency theory and stakeholder theory to explain the relation.

The previous studies in different countries and backgrounds are devoted to researching board size and ESG performance. Esa & Ghazali (2012) found board size positively influence on ESG performance in listed companies in Malaysia. However, there still exist different result from some research, for instance, Giannarakis (2014) investigated one hundred companies in distinct industries, and the result showed board size had no effect on ESG performance. Additionally, in a UK research, Al-Shaer & Zaman (2019) added other corporate governance variables as control variables to observe the effects on ESG performance. The outcome of analysis discovered board size affected it significantly. Obviously, most studies show larger board size mean more members in boards, in the other word, members improve plenty of ESG-related activities to be taken place along with the increase of the performance.

Board meetings allow executive and non-executive members to interact with each other, and it is important for directors to take responsibility to supervise. When corporate social responsibility policies and strategies are discussed in meetings, board members enable to concentrate on stakeholders' need and expectation, and reinforce social engagement (Hussain et al., 2018). Furthermore, Dube & Jaiswal (2015) contend that the effect of board meetings on community development and sustainable policies is significant. The study by Hussain proposed frequent meetings increase the social dimension of sustainability development performance.

Nguyen et al. (2020) found board independence and gender diversity usually create a balance to deal with the managers' conflict with stakeholders. Previously, some researchers showed female managers had much concentration on conducting service, benefits and charities on society. In US companies, the existence of females exactly increases behaviors of donation (J. Wang & Coffey, 1992; Markopoulos et al., 2020). The same result that was discovered by Brown (2005) females impact charity activities positively. Velte (2016) researched the relation of gender diversity and ESG performance in German and Austria Stock exchanges, and also had the same result as previous literatures. Wasiuzzaman & Wan Mohammad (2020) asserted females in boards efficiently help activities including social, environment, and governance promote, which enable to improve sustainable performance.

Previous studies proposed if there were independent directors, managers would obtain more supports from boards (Muttakin Mohammad & Subramaniam, 2015), especially facing sustainability practices. Lanis & Richardson (2018) found it interesting that in a CSR projects, independent directors always occupied the most percentage among members attending. In addition, Pucheta-Martínez et al. (2019) contended that independent directors were much concerned about CSR and philanthropic topics. Even though some researchers believed there was no connection between ESG performance and board independence, the positive relation between them has been proved in different countries. In US, Johnson & Greening (1999) found independent directors presented extreme concern about social issues. As a result, they from different backgrounds experienced various community and environment; therefore, they realized the importance of communication with other stakeholders. With the increase of independent directors, ESG disclosure will be complete.

Until now, there are still no identical results of the impact of CEO duality on ESG performance. According to Allegrini & Greco (2013), Italian listed companies as objects, CEO duality in the companies negatively influenced on corporate governance disclosure. Agency theory claimed that CEO duality enhance chairmen's right of decision which reveals reports in public (Al-Janadi et al., 2012). After disclosing ESG-related reports in public, firm's ESG performance as well as reputation will incredibly raise. However, the relation of CEO duality and ESG performance is still controversial because academic research quite lacks these relevant studies.

To sum up, despite the impact of corporate governance variables, especially board characteristics, on non-financial performance being observed in previous research, the results showed uncertainly. For instance, Lagasio & Cucari (2019) found board size, board independence and female directors obviously reinforce ESG performance while CEO duality and board meeting did not. Though the two variables had no significant causal relationship with ESG performance, boards enable to monitor people of various circles and be responsible to groups when firms encounter severe environmental risk. This means CEO duality and board meeting definitely show their importance. Therefore, the following hypotheses are introduced:

Hypothesis 1: Corporate Governance variables have significant impacts on ESG performance.

H1-1: The impact of board size on ESG performance is significant.

H1-2: The impact of board independence on ESG performance is significant.

H1-3: The impact of board diversity on ESG performance is significant.

H1-4: The impact of board meeting on ESG performance is significant.

H1-5: The impact of CEO Duality on ESG performance is significant.

2.4.2 ESG & firm value

With ESG-related activities and reports revealed, global and local investors were attracted by the latent factor, which have cash flow increase (Jizi, 2017). According to voluntary disclosure theory developed by Verrecchia (1983) and Dye (1985), the participative degree of ESG reflects to the actual ESG reports. In other words, corporates with excellent ESG performance always disclose more relevant activities than those with lower ESG performance do. This framework theory explains the corporates' aim to reveal reports is mainly to distinguish underperformed corporates to avoid disadvantaged consequence (Akerlof, 1970). The argument is supported by Cahan et al. (2015). They found well ESG performance would result in efficient promotion, and also only firms getting good ESG performance obtained well reports by media to achieve higher firm value or lower capital cost.

Brogi & Lagasio (2019) stated current academic literatures observe a positive relationship exist in ESG performance and financial performance, but there was no consensus and some results were ambiguous (Revelli & Viviani, 2015; Rowley & Berman, 2000). A study by Aupperle et al. (1985) proposed there was no relationship with CSR and financial performance, which was the same as McWilliams & Siegel (2000) which used ROA as firm performance. They believed CSR had neutral effect on financial performance.

Legitimacy theory and stakeholder theory indicate revealing environment, social and governance reports affects positively on corporates. If the reports are positive, the public consider corporates really take care of every party's benefits. Even though the negative reports they reveal, the public will have their behavior rationalize. Thus, we introduce the following hypothesis:

Hypothesis 2: ESG performance has significant impact on firm value (ROA and Tobin's Q).

2.4.3 Corporate & Firm Performance

Researchers proposed inter mechanism of corporate governance, especially boards as central decision-making, can improve firm value and bring much possibility of development. However, this issue is thought to be doubted and believed to need much evidence. In this study, we discuss five board characteristics, which are size, meeting, diversity, independence and CEO duality, and firm value.

Different perspectives in previous literatures showed if expansion of board size or increase of board meeting create huge value. Vafeas (1999) early study pointed out frequent board meetings apparently reduced the cost of time and money in this year, and cause performance to decrease, which were time-consuming and in vail (Arora & Sharma, 2016). However, it was interesting that the performance in the next year grew up. As result of frequent meetings, policies were discussed perfectly, when management executed them, boards could perform their supervisory capacity. Harris & Raviv (2006) claimed two perspectives of board size. First, more members referred to abundant experiences and connections with outside. It was useful to provide stakeholders' information for inter corporates. Secondly, they contended that larger board size might cause decision-making effectiveness to reduce, and also damage firm value. Therefore, the relationship between board size and firm value still exists differences. However, most studied showed, with expansion of board size, firm value would increase. This result could be explained by agency theory and resource dependence theory. The former explains better supervisory through a group of people enhances firm value, while the latter shows larger sizes brings wide expertise from various fields to provide strong abilities of monitor and outer connections (Kalsie & Shrivastav, 2016). In addition, through resource dependence theory, Mishra & Kapil (2018) described that the increase of board members would grow firm value both market-based and account-based one.

Board diversity literally means the diversified composition of a board. Theoretically, board diversity is believed to benefit firms. Song et al. (2020) asserted that directors with distinct backgrounds, abilities, ages, and genders provide specific opinions and perspectives for corporate resources and management, and then the quality of decision could be improved perfectly. Nowadays, gender equality becomes a critical international issue. Also, a lot of studies which focus on diversity as a topic consider the existence of female directors brings advantages to corporates. In Bear et al. (2010) and Qureshi et al. (2020) proved under female directors' supervisory, firm reputation and financial value were extremely risen.

It is widely discussed independent directors whether have firm value increase；however, there is still no clear results reported. Rashid (2018) researched the connection in emerging markets, and the result showed negative relationship. The author explained emerging markets with high concentration of ownership did not have the concept of board independence. What's more, they think only underperformed firms needed much monitor from independent directors. Leung et al. (2014) found board independence had no impact on firm value, except for family corporates. However, Liu et al. (2015) and Zhu et al. (2016) found independent directors empowered increased overall performance because of their effective monitor. Terjesen et al. (2016) stated independent directors faced less beneficial conflicts to offer fair judgment because they were from external environment. Additionally, their professional experiences learning from other corporates make board decisions useful. It means directors were able to take good use of knowledges and skills to enhance value.

The positions of CEO and board chairman, generally, should be taken by different people, or it may cause ineffective supervisory and management. However, Dony et al. (2019) found CEO duality had firm value improve, which did not match agency theory. It was likely that CEO as a chairman at the same time could not only deliver thorough information also integrate management into a board. So, CEO duality was beneficial to firm value especially in a competitive and complicate business environment (Abels & Martelli, 2013; Yang & Zhao, 2014). Hsu et al. (2021) investigated firms in Taiwan stock exchange and Taipei stock exchange as samples and analyzed ROA and Tobin's Q as firm value. They discovered, in a dynamic and complexed environment, CEO duality had the transition cost of information reduce and then improve firm value.

According to the previous literatures, we propose hypothesis 3. Few studies discussed whether the relationship between boards and firm value will be mediated by ESG performance, so this study proposes hypothesis 4 to test the mediated effect of ESG performance. The following two hypotheses are introduced:

Hypothesis 3: ESG performance have significant impacts on firm value (ROA and Tobin's Q).

H3-1: The impact of board size on firm value (ROA and Tobin's Q) is significant.

H3-2: The impact of board independence on firm value (ROA and Tobin's Q) is significant.

H3-3: The impact of board diversity on firm value (ROA and Tobin's Q) is significant.

H3-4: The impact of board meeting on firm value (ROA and Tobin's Q) is significant.

H3-5: The impact of CEO Duality on firm value (ROA and Tobin's Q) is significant.

Hypothesis 4: ESG performance mediates the relationship between corporate governance variables and firm value (ROA and Tobin's Q).

H4-1: ESG performance mediates the relationship between board size and firm value (ROA and Tobin's Q).

H4-2: ESG performance mediates the relationship between board independence and firm value (ROA and Tobin's Q).

H4-3: ESG performance mediates the relationship between board diversity and firm value (ROA and Tobin's Q).

H4-4: ESG performance mediates the relationship between board meeting and firm value (ROA and Tobin's Q).

H4-5: ESG performance mediates the relationship between CEO duality and firm value (ROA and Tobin's Q).

2.5 Control variables

To avoid some factors to impact ROA, Tobin's Q and ESG performance in regression, this study adds control variables. As leverage increasing, it is along with financial institutions review. Therefore, management staffs prefer to report more ESG reports to decrease the cost of monitor. Also, Stulz (1990) showed leverage impacted firm value negatively and positively. Studies showed there was direct relationship between firm size and market value. Aouadi & Marsat (2018) stated larger firm size was obtained much concentration by medias and analysists, which caused less information asymmetry to rise firm value. Furthermore, Dang et al. (2019) showed financial leverage and firm size had significant influence on firm value. Some studies indicated sale growth and firm value had positive relationship because sale income accounted for the major percentage of firm value instead of assets (Lang & Stulz, 1994; Rountree et al., 2008; Fosu et al., 2016; Fatemi et al., 2018). Especially, when they measure Tobin's Q as firm value, ROA would be regarded as profitability. In their studies, the results obviously demonstrated ROA as profitability impacted on firm value (Aouadi & Marsat, 2018；Dang et al., 2019). In this study, financial leverage, firm size, sale growth and ROA will be control variables.

3. Methodology

3.1 Research Design & Samples

Companies which Refinitiv evaluates ESG scores are compositions from symbolic global indicators. This means not all listed companies have ESG scores in this data. In Taiwan, there are only companies in the two indicators, MSCI Taiwan or MSCI Emerging Market, will be scored. As a result of the restrict, we adapt Taiwan companies in the two indicators as research sample. MSCI Taiwan index is composed of top 100 companies, and Taiwan companies in MSCI Emerging Market includes small and medium enterprises. The sample size consists of 131 companies. Data in this study are collected from Datastream and Taiwan Economy Journal (TEJ). ESG performance is collected from Datastream database of ESG score. Corporate governance, firm value, and control variables are from TEJ. This study adapts cross-sectional data analysis, and data are collected in 2019.

There are three analysis phases: 1. descriptive analysis 2. correlation analysis 3. path analysis using SPSS18.0 and AMOS 21.0 software. SPSS18.0 is used on descriptive analysis and correlation analysis showing relationships between variables. To test hypothesis, we used structural equation modeling (SEM) in AMOS 21.0 to conduct path analysis. SEM approach follows hypothesis model to transfer to path graph and provides model estimation and modification. The main advantage is that the model fit and causal analysis can be measured at the same time (Bollen & Long, 1993;)(Kline, 2015). Also, path analysis reveals clear and easier results to realize and explain directions and effects between variables (CDATA-Kline, 1998; Hair et al, 1998). Therefore, SEM is a more thorough method of model construction (Hair, Black, & Babin, 1998). Furthermore, SEM have data in social science studies avoid biased estimation that is occurred in an incomplete measure and enhance statistical power.

In SEM approach, model fit is defined as the extent a hypothesis model agrees with the data. In contrast to many statistical procedures that have a single powerful pass index, SEM reports a lot of model fit indices. It allows researchers to only report indices that are within an acceptable range, those that agree with their proposed model. The reported indices are Chi Square Statistic and Probability, value of Chi Square /DF, p-value, Goodness of Fit Index (GFI), CFI (Comparative Fit Index), RMSEA (Root Mean Square Error of Approximation) and so on.

3.2 Variables

3.2.1 Corporate Governance Variables

This study concentrates on board characteristics. Board size is measured by the number of directors, and board meeting is the number of annual meeting. Board diversity refers to the percentage of females in a board, and board independence denotes the percentage of independent directors. Also, according to annual reports, CEO duality refers if CEO or general manager is board chairman. It is measured using a binary variable. A value of "0" denotes that the CEO and board chair are separate individuals, while a value of "1" indicates that the same person holds both titles.

3.2.2 ESG Performance

According to Refinitiv 2020 April report, ESG data are mainly collected from annual reports, corporate websites, non-government websites, stock exchange, and CSR news reports. It apparently shows ESG scores on Datastream database they provide are evaluated objectively and transparently, and it is suitable to be measured as ESG performance. ESG scores from Datastream are divided into overall score, combined score, and controversy score. To ensure the accuracy and reliability, ten topics are used to evaluate ESG scores – emission, environmental innovation, community, humanity, products responsibility, employees, CSR strategy, and management and stakeholders. There are five steps to calculate the three kinds of scores:

Step one: calculating weights depending on industries

Step two: calculating overall scores and environment, social, and governance scores

Step four: controversy scores (based on 23 controversial topics, and eliminate topics which firms reach 100 scores)

Step five: calculating combined overall scores

3.2.3 Firm Value

Demsetz & Villalonga (2001), Thomsen et al. (2006) and Fich & Shivdasani (2012) regarded Return on assets (ROA) as accounting – based value which is commonly defined as net income divided by total assets Net income includes sales minus cost of goods sold, general expenses, taxes, and interest. Following Prowess financial database, an item named PBDITA (profit before depreciation, interest, tax and amortization) is frequent as proxy of net income.

$$\mathrm{ROA} = \frac{\mathrm{PBDITA}*100\%}{(\text{Assets the beginning of the period} + \text{Assets the end of the period}) \div 2} \tag{1}$$

In the beginning, Tobin (1950), a Nobel Economics Prize winner, proposed Tobin's Q to predict the effect of factors on decisions except for independent macroeconomic ones. He defined it was equal to the market value of the assets divided by the replacement cost of the assets. The value >1 explains firms can buy more resemble assets. Due to the complication of primary calculation, Chung & Pruitt (1994) figured out a convenient alternative method - Approximate Tobin's Q. It explains up to 96.6% of the variability of Tobin's Q plays an important role in financial interactions. This ratio shows the market estimation of future investment returns that external stakeholders and investors can see.

$$\text{Approximate Tobin's Q} = \frac{(MVE + PS + DEBT)}{TA} \tag{2}$$

TA=Total Asset; MVE= the number of common stock shares outstanding; PS=liquidating value of the firm's outstanding preferred stock; DEBT= Current Liabilities - long-term liabilities

3.2.4 Control variables

In past studies, firm size was measured by total asset, and found have the positive effect on firm value. Therefore, this study will adapt the way, natural log of total assets. Financial leverage refers to ROE divided by total debts. High debts or equality usually means firms actively expend financing through debts. In other word, operating revenues via using debts will be much more than without using debts. Finally, sale growth refers to natural log of total sales.

$$\text{Firm size} = \boldsymbol{ln}\ \text{Total Asset} \tag{3}$$

$$\text{Firm sale} = \boldsymbol{ln}\ \text{Sales} \tag{4}$$

$$\text{LEV} = \frac{\text{Total Debt}}{\text{Stakeholders}'\text{Equality}} \tag{5}$$

3.3 Empirical Analysis Equation

The research framework based on previous literatures is divided into two path analysis models can be referred to (7) and (8). The following three equations show the hypothesis testing. Equation (1) test the direct impact of corporate governance variables on ESG performance. In this study, two proxies of firm values, ROA and Tobin's are divided into two main models to test hypothesis. In equation (2), ROA as the dependent variable, refers to the impact of CG and the mediating impact of ESG on ROA. Similarly, in equation (3), Tobin's Q as the dependent variable, refers to the impact of CG and the mediating impact of ESG on Tobin's Q.

$$ESG=\beta_0+\beta_1 BSIZE+\beta_2 BMEET+\beta_3 BIN+\beta_4 BDI+\beta_5 CEOD+\beta_6 SIZE+\beta_7 LEV+\beta_8 SALE \tag{6}$$

$$ROA=\beta_0+\beta_1 CG+\beta_2 ESG+\beta_3 CG*ESG+\beta_4 SIZE+\beta_5 LEV+\beta_6 SALE \tag{7}$$

$$Tobin's\ Q=\beta_0+\beta_1 CG+\beta_2 ESG+\beta_3 CG*ESG+\beta_4 SIZE+\beta_5 LEV+\beta_6 SALE+\beta_7 ROA \tag{8}$$

ESG=ESG performance; CG=Corporate Governance; BSIZE=Board size; BMEET=Board meeting; IND=Board Independence; FM=Board independence; CEO=CEO Duality; FSIZE=Firm size; LEV=Leverage; FSALE=Total Sale

4. Data Analysis & Result

4.1 Descriptive Statistics

In this study, 131 companies were collected including 26 industries. Figure 2 shows the percentage of industries in this study. It is obvious that LPG (liquefied petroleum gas), semiconductor, Electronic Components, opto-electronics industry and Electronic Channel Industry account for more than 50%. Table 1 illustrates the descriptive statistics for both the dependent and independent variables. The descriptive statistics table includes the minimum, maximum, mean, standard deviation, skewness, and kurtosis. The means of ROA and Tobin's Q are 10.35 and 1.19. The Tobin's Q, long-term performance indicates averagely market value is greater than replacement cost, which corporates increased the investment activities. A distribution of ESG performance is skewed to the left (red dashed curve) called negative skewness. The tail on the curve's left-hand side is longer than the tail on the right-hand side, and the mean is less than the mode. This reveals that Taiwan corporates was attracted to ESG issues in 2018. Through non-financial performance, they expected to gain positive image and reputation. Also, the figures demonstrate this issue is paid high attention in a wide range of industries.

Regarding corporate governance variables, board size is averaged 10.21, board independence is 0.33, board diversity is 1.37, and board meeting is 8.22. The mean of board independence and diversity individually state the low existence of independent directors and females in Taiwan. That's is, the data reveals that there are less than 1 independent directors among 10 members, and approximately only 1 female.

Figure 2

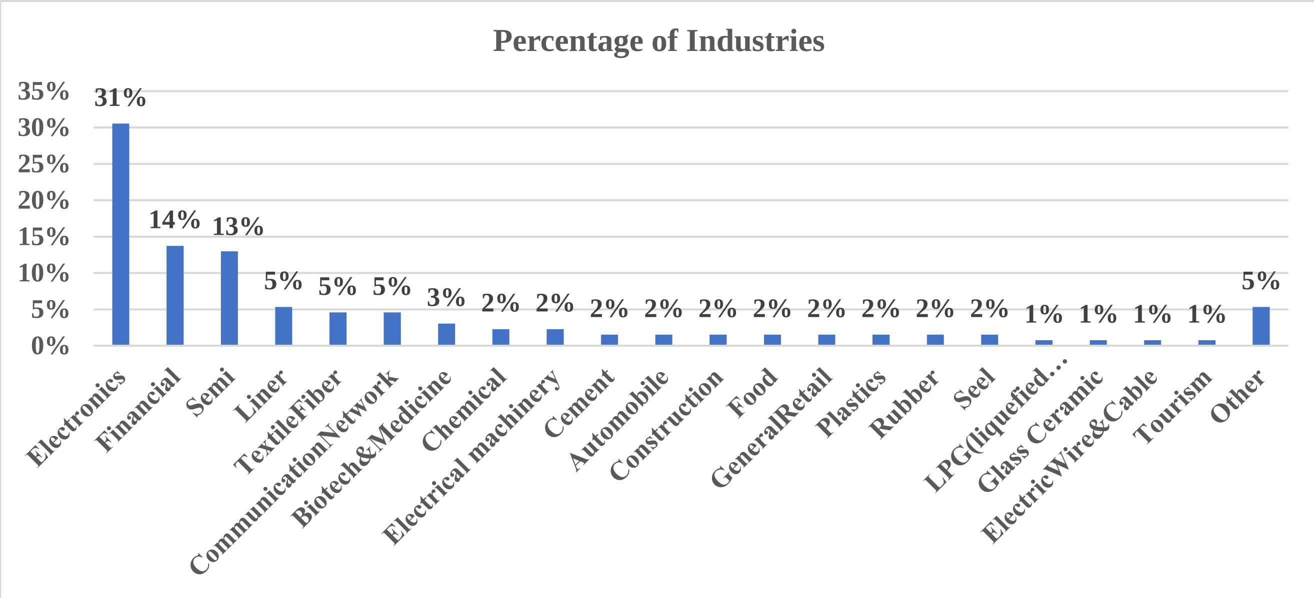


Table 1. Descriptive Statistics

	Min.	Max.	Mean	SD.	Skewness	Kurtosis
ROA	-22.87	55.64	11.472	10.351	0.945	3.488
TobinsQ	0.05	8.68	1.164	1.199	3.054	13.383
ESG	1.71	90.24	50.152	22.803	-0.397	-0.617
CEO	0	1	0.21	0.412	1.413	-0.004
Bsize	6	20	10.21	2.958	0.869	0.46
IND	0.167	0.571	0.327	0.097	0.754	0.183
FM	0	7	1.37	1.443	1.317	1.741
Meeting	4	21	8.22	3.206	1.663	2.94
Fsize1	15.358	22.945	18.748	1.695	0.39	-0.268
Fsale2	9.498	22.389	17.904	1.62	-1.229	5.823
LEV	0.052	24.228	2.914	4.783	2.553	6.103

4.2 Correlation Analysis

The correlation matrix (Table 3) highlights very important relationships between the main variables of the study. The two proxies of firm value, ROA and Tobin's Q, has positive relationships (r=0.311). Also, board meeting is negatively associated with ROA and Tobin's Q (r=-0.255; r=-0.135). CEO duality is related to Tobin's Q positively (r=0.22). The results of correlations were not particularly high, indicating the links between firm value and the remaining variables we adopted and also excluding the collinearity among the dependent variable and control variables.

4.3 Model Fit

The research framework based on previous literatures is divided into two path analysis models. One is ROA as dependent variable (Figure 3), and the other one is Tobin's Q as dependent variable (Figure 4) to test hypothesis in this study. Also, hypothesized relationship are supported by literatures, and the two path analysis models are structured models. Thus, model fit indices in the mediation structured models, the df is zero and thus they produce a GFI of 1, AGFI of 1.

Table 2. Correlation Matrix

	ROA	Tobins Q	CEO	Bsize	IND	FM	Meeting	ESG	Fsize	Fsale	LEV
ROA	1										
TobinsQ	0.311**	1									
CEO	0.072	0.244**	1								
Bsize	-0.086	-0.141	-0.138	1							
IND	0.043	0.135	0.125	-0.677**	1						
FM	-0.01	-0.026	-0.084	0.425**	-0.340**	1					
Meeting	-0.255**	-0.311**	-0.205*	0.114	-0.052	0.185*	1				
ESG	0.046	-0.079	-0.013	0.087	0.117	-0.146	0.073	1			
Fsize	-0.254**	-0.510**	-0.323**	0.350**	-0.11	0.171	0.449**	0.291**	1		
Fsale	0.156	-0.429**	-0.183*	0.199*	-0.026	-0.049	0.037	0.218*	0.646**	1	
LEV	-0.438**	-0.374**	-0.189*	0.250**	-0.102	0.288**	0.580**	0.179*	0.683**	0.123	1

*p<0.05, **p<0.01, ***p<0.001

4.4 Path Analysis Result

In Table 2 and Table 3, the findings from path analysis results are showed path coefficients and p-value performing hypothesis testing. Table 2 shows the results of Model 1, ROA as dependent variable. Hypothesis 1, corporate governance has significant effect on ROA, is partially supported. There only board diversity positively effects ROA(β=1.528, p=0.013), whereas other variables do not. The effect of corporate governance on ESG performance is also supported partially. Board size and board independence effect ESG performance positively and significantly (β=1.871, p=0.047; β=54.829, p=0.038). Particularly, board diversity has negatively impact on ESG (β=-3.475, p=0.017). Board meeting and CEO duality are no effects on ESG performance (β=-3.17, p=0.659; β=3.423, p=0.472).

In Table 3, Model 2, Tobin's Q as dependent variable, shows the relationships between it, ESG performance, and corporate governance. First, the effects of corporate governance on Tobin's Q are not all supported in this study. It shows only board independence affects Tobin's Q significantly (β=2.359, p=0.047). What's more, board size, board independence, and board diversity have significant impact on ESG performance (β=1.922, p=0.039; β=53.813, p=0.038; β=-4.002, p=0.006). However, board meeting and CEO duality are not supported to affect ESG performance (β=-0.376, p=0.596; β=3.501, p=0.455).

According to James et al. (2006), in the SEM approach, partial mediation is necessary to meet two conditions. First, the path from the independent variable (corporate governance) to the dependent variable (firm value) is significant. Secondly, the paths between the independent variable (corporate governance) and the mediator variable (ESG performance), as well as the path between the mediator variable (ESG performance) and the dependent variables (firm value), are significant. If only second condition is met, a full mediation effect is supported. Among corporate governance variables, the model 1 in this study, ESG performance has full mediating effect on the relationships between three CG variables (board size, independence, and diversity) and firm value. Respectively, the indirect coefficients are 0.136, 3.985, and -0.253. Yet, model 2 does not met the conditions that James et al proposed. Therefore, there are no mediating effects in model 2.

Figure 3 Model 1

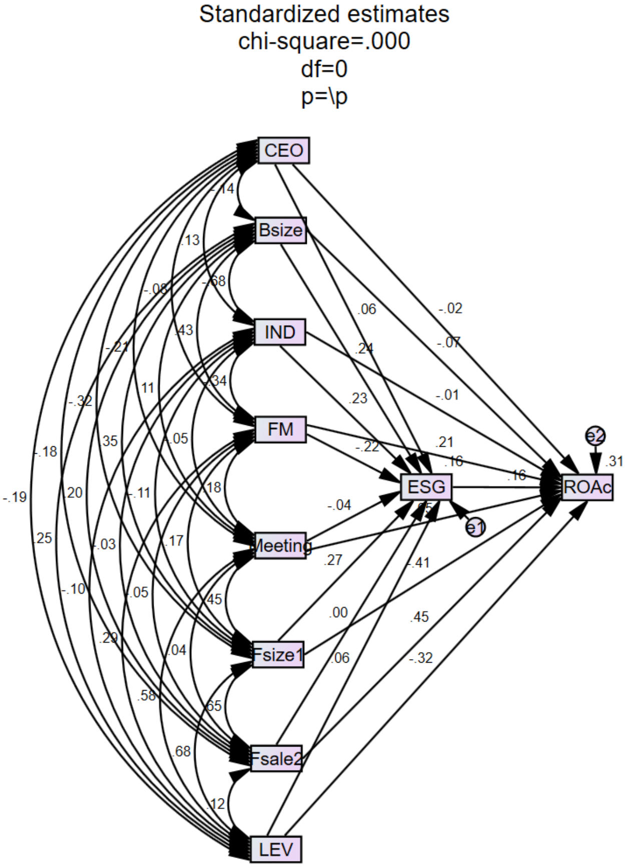
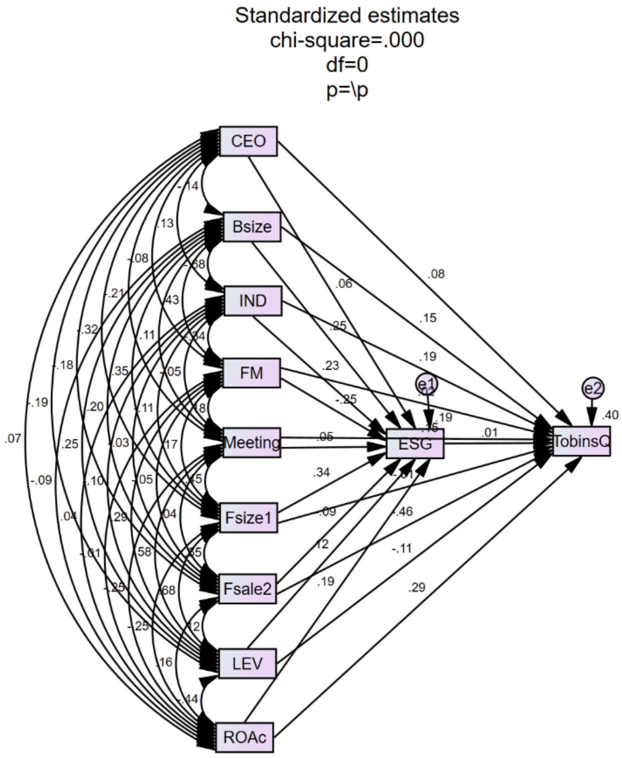


Figure 4 Model 2



4.5 Discussion

The result shows merely gender diversity in board has significant and positive direct effect on ROA, while board independence has negative effect on Tobin's Q. The findings correspond to Uyar et al. (2021). This study mainly investigates the importance of ESG in Taiwan. First, the result shows board size, board independent and board diversity will be the key factors in executing activities about sustainability development. The findings correspond to previous studies (Cucari et al., 2018; Bryan W. & Sousa-Filho, 2019; Suttipun, 2021). Also, the impacts of ESG performance on both firm values reveal different results. There is significant positive impact on ROA, but on Tobin's Q, which is the same as Velte (2017) and Abdul et al. (2018). However, there is no the effect of CEO duality and board meeting on ESG performance and firm values (Nekhili et al., 2021) did not find the significant relationships as well.

Table 3. Path Analysis Result for ROA (Model 1)

DV	ESG		ROA	
	Coefficient	**p**	**Coefficient**	**p**
IV				
CEO	0.062	0.472	-0.017	0.825
Bsize	**0.243***	0.047	-0.073	0.515
IND	**0.233***	0.038	-0.014	0.89
FM	**-0.22***	0.017	**0.213***	0.013
Meeting	-0.045	0.659	0.051	0.583
MV				
ESG			**0.16***	0.045
Control				
Fsize1	0.273	0.142	**-0.413***	0.015
Fsale2	-0.005	0.97	**0.446*****	0.000
LEV	0.058	0.684	**-0.316***	0.014
	R-Square	0.19	**R-Square**	0.4

*p<0.05, **p<0.01, ***p<0.001

Table 4. Path Analysis Result for Tobin's Q (Model 2)

DV	ESG		Tobin's Q	
	Coefficient	**p**	**Coefficient**	**p**
IV				
CEO	0.063	0.455	0.084	0.25
Bsize	**0.249***	0.039	0.154	0.144
IND	**0.228***	0.038	**0.191***	0.047
FM	**-0.253****	0.006	0.022	0.785
Meeting	-0.053	0.596	-0.146	0.087
MV				
ESG			0.01	0.891
Control				
Fsize1	0.242	0.066	-0.011	0.944
Fsale2	-0.089	0.512	**-0.461*****	0.000
LEV	0.115	0.417	-0.107	0.38
ROA	**0.188***	0.045	**0.294*****	0.000
	R-Square	0.16	**R-Square**	0.31

*p<0.05, **p<0.01, ***p<0.001

Table 5 Indirect Effect Coefficient

IV→MV→DV	CG→ESG→ROA
	Coefficient
IV	
Bsize	0.136
IND	3.985
FM	-0.253

5. Conclusion

5.1 Theological Implication

This research is based on resource dependence theory and agency theory to investigate boards as monitor centers evaluate positive consequences, and even through ESG activities. Some results match the theories, but some do not. First, more members and independent directors in boards mean boards possess a wide range of sophisticated expertise in different fields and backgrounds. In other word, it will benefit on ESG policies establishment, when boards are responsible for decision making, which in line with resource dependence theory. Particularly, more independent directors increase the long-term performance (Tobin's Q). Yet, the finding of board diversity is not exactly consistent with this theory. The relationship between board diversity and ESG performance found opposite to it. The finding demonstrates the existence of females in boards seems to be a drag on ESG activities. However, females in boards provide various and objective viewpoints and help ROA increase. This finding is in line with resource dependence theory.

As to agency theory, statistically, the effect of CEO duality on ESG performance and firm value do not show significant evidence to prove it in this study so that it hard to tell whether combining execution and management is benefit for firms or not. Also, the number of board meetings is not proved. Therefore, it has difficulty inferring CEO duality and the number of meetings will reduce information asymmetry and then result in positive reputation or consequences. However, through the analysis result, CEO duality shows the positive direction to ESG performance, and board meeting shows negative direction to ESG performance. To sum up, even though there is no statistic evidence to prove the reduction of information asymmetry proposed by agency theory, the direction of CEO duality demonstrates it still should be an important factor in sustainability development. Comparatively, the negative direction of board meeting seems not to actually help sustainability development.

5.2 Managerial Implication

Through the empirical research, it is found more members and independent directors in board help firms improve and increase non-financial and financial performance. This founding suggests firms establish more director seats whose various professional is helpful to decisions, especially environment, social and governance activities. Also, in this study, it is found that, through ESG activities that enhance firm's reputation, directors indirectly rise shot-term performance (ROA). That is, most board characteristics have corporates increase the willing of voluntary reporting. However, it is supposed that females in boards will decrease or even drag on ESG policies and ROA due to cultures. Even though there is no statistical support on the effect board characteristics on Tobin's Q, the positive coefficients still exist implications. They denote the five characteristics except for board meetings positively improve Tobin's Q. In contract to ROA, these characteristics except for board diversity and board meetings are negative. The results are observed the different effects on the two kinds of values. When corporates pursue long-term performance, focusing on the improvement of board characteristics. Also, corporates' boards enable to take good use of ESG activities to grabbing much outside attention and then gain rewards from investors and customers.

5.3 Limitation & Future Research Suggestion

There are several limitations existed during this study data collection. Regarding ESG performance collected from Datastream, though the Datastream belonged to Refinitiv, an authorial institution, all scored companies are depended on international stock index so that sample of Taiwan listed companies is not sufficient in this study. In the future, researchers can attempt to collect ESG disclosure scores on Bloomberg database in specific institutions. It will be likely to investigate the relationship between ESG performance and Tobin's Q, the long-term value. Next, even though we did not find all the board characteristics have significant direct effect on ROA and Tobin's Q, the relationships are meaningful in the reality. It is supposed that only one year (in 2018) were investigated in this study so that it has difficulty observing the apparent connections. In future further research, we recommend collecting longer time data and adopting time series method or panel data analysis, which will be better to predict financial independent variables.

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