

Article

Corporate Governance, Firm Performance and Financial Leverage across Developed and Emerging Economies

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Abstract: This research inquiry analyzed the association between corporate governance and firm performance through the mediating role of financial leverage based on panel data of 2568 firms during the period from 2002 to 2017. The study uses a two-step dynamic panel as well as a generalized method of moments (GMM) to estimate these relationships. The findings demonstrated financial leverage mediates the relationship between corporate governance and firm performance in the context of developed economies, and also in emerging economies. Additionally, firm performance is negatively associated with corporate governance through excessive leverage. The study suggests it is the responsibility of the board to use low financial leverage to enhance firm performance. In emerging countries, firms with a large-sized board use low leverage, whereas in developed countries, firms with a small-sized board use low leverage to enhance corporate performance.

Keywords: corporate governance; firm performance; financial leverage; emerging countries; developed countries



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1. Introduction

The optimum capital structure is the best possible combination of the proportions of debt and equity. A firm should select the best mix of debt in a capital structure due to the tax advantages of interest as a tax allowable cost. Contrariwise, if firms become over leveraged, this can lead to financial distress. In the corporate system of an organization, corporate financing decisions are of crucial importance. Any decisions made by a corporate board can impact financial leverage policy. For the successful operation of a company, there is a need for well-defined and articulated policies and procedures. Correspondingly, companies' failures and an increase in business complexity have paved the way for enhancing corporate governance requirements.

Countries which do not have corporate governance would face disaster. If a company increases its debt level above the optimum point and does not conform to appropriate corporate governance, it can face financial crises. Major companies' scandals, financial crises and unanticipated corporate failure has intensified a focus on the importance of strong corporate governance practices in order to avoid these risks (Puni and Anlesinya 2020). As owners' interests may be different from representatives' interests, corporate governance can work as a mechanism to align the interests of stakeholders and management. Companies following well-defined corporate governance practices are better able to manage effective mechanisms, control oversight, offer more opportunities to flourish, and have better access to resources and hence improve overall performance as well as reduce risks (Bhagat and Bolton 2019).

Different environmental and contextual factors influence firms' behaviors. Firms' governance is influenced by the frameworks in the particular country in which they are operating. Some countries follow a one-tier board structure, while others have a two-tier

board structure. Therefore, the behavior of the firm will be determined by the structure it follows. Equally important, in different countries, firms have to follow the applicable laws of their country. In those countries which have stringent rules and regulations, firms have to behave differently from firms in countries where the legislation is less restrictive. Corporate governance structure and its implications for firm performance varies considerably between developed and emerging countries. Board size is one area which illustrates this difference. Another significant point of difference is ownership structure. The literature suggests that in emerging countries, corporate governance is limited and creates difficulties. Families tend to exert considerable control over businesses, shareholders are often not engaged, there may be insufficient legislative control, and expertise may be lacking (Mahmood et al. 2018; Khan et al. 2013; Ullah and Rahman 2015). This pattern of family control and flimsy corporate governance can be seen in emerging countries such as those in South Asia. The dominance of family ownership may result in a carelessness about shareholder benefits. (Khan et al. 2013; Muttakin et al. 2018; Bae et al. 2018).

Prior literature reveals that corporate governance impacts decisions regarding capital structure of the firms, and the effects can differ in developed and emerging countries (Pham and Nguyen 2019; Zhou et al. 2021; Khan et al. 2019). According to Rashid (2008), in emerging countries, a larger board improves outcomes for shareholders, while the converse is true for developed financial markets. Board independence also affects financial leverage in emerging countries (Abobakr and Elgiziry 2016). More non-executive directors on a board have an influence on capital choice decision of the firms. As they have greater knowledge regarding the tasks of the organization, firms have greater access to resources (Berger et al. 1997). Pillai and Al-Malkawi (2018) state that board independence is not an effective tool for governing owner managers in some developing countries, due to information asymmetry in financial markets. Conversely, in developed countries, firms have better regulations and protection of minority shareholders' rights (Awasthi 2017) which support leverage policies. In the light of mixed results from prior studies, the questions arise as to whether financial leverage mediates the relationship between corporate governance (CG) and firm performance (FP). This particular question has not been addressed in the literature in the context of developed and emerging economies (Panda and Leepsa 2017). The extant literature in the field concentrates on the effect of: (1) corporate governance on firm performance (Amin et al. 2022); (2) corporate governance on leverage (Lemennicier et al. 2019; Zhou et al. 2021); (3) leverage on firm performance (Dalci 2018; Guo et al. 2021); and (4) leverage on corporate performance (Hajawiyah et al. 2020; Vijayakumaran and Vijayakumaran 2019). The empirical findings about these effects in a single country builds a case for self-development of a strong corporate governance code (Bhatt and Bhatt 2017), particularly for state-owned countries (Zhou et al. 2021). However, identifying the influence of financial leverage on firm value is needed, particularly considering the different features of corporate governance structures in developed and emerging countries. Addressing the question of whether financial leverage mediates the relationship between firm performance and corporate governance is important for a number of reasons. First, corporate governance may not impact the firm performance directly. If the impact of corporate governance on firm performance is not direct, then the mediating impact between these variables could give mixed results. Second, when financial leverage is examined as a mediator, it is valuable to ascertain how that change impacts on corporate governance and firm performance.

It has been shown in the research that corporate governance structures relay different messages about financial leverage to the market and various stakeholders (Bae et al. 2018). If board members support leverage, they can demonstrate the potential importance of this in more detail. While the two basic characteristics of financial leverage are the ratio between debt and capital as well as between debt and total assets (Ramalho and da Silva 2013), this study measures leverage plans through looking at the debt-to-equity relationship. Therefore, this study firstly examines the impact of corporate governance on leverage and firm performance in developed and emerging countries. Secondly, the study explores

whether financial leverage mediates the relationship between corporate governance and firm performance across developed and emerging countries.

The remainder of this paper is organized as follows. Section 2 presents the literature review and hypothesis development. Section 3 presents the data and research methods. Section 4 discusses the outcome of the empirical analysis and the findings of this study. Finally, Section 5 outlines the contributions of this study.

2. Literature Review

2.1. Corporate Governance and Firm Performance

Corporate governance (CG) involves a set of relationships between a company's management, its board, its shareholders, and other stakeholders. CG also provides the structure through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined (Yasser et al. 2011). All countries have their own official procedures according to their customs, political environment, religious beliefs, and social and economic backgrounds. Countries have their own set of CG codes that protect the rights of stakeholders (Khan et al. 2016). CG is one way to deal with agency problems when conflict arises between owners and agents, resulting in variations in firm performance. CG changes the rules or introduces motivation strategies that motivate the agents to protect the interests of shareholders and resolve conflicts. Corporate performance is related to the number of agents on the board, board independence, the extent of gender diversity, and CEO duality (Bhagat and Bolton 2008). The literature on the impact of these different aspects on firm performance is discussed in the following sections.

2.1.1. Board Size and Firm Performance

A board of directors is an essential element of any corporate governance system and deals with the supervision of the mechanisms of an organization. A board of directors plays a significant part in protecting a firm from failure (Detthamrong et al. 2017). A board of directors comprises individuals who are elected to establish policies for the effective running of an organization. A board of directors is assigned with the task of overseeing the operations of a corporation. Directors play a vital role in the effective running of a company. The size of a board depends on the diversity of a firm; the more diverse a company is, the greater should be the size of the board. Firms with a larger number of directors are able to make more informed and effective decisions because they have access to more resources. The literature suggests that an interactive board enhances the performance of a firm. Firms which hold joint board-management meetings and more frequent meetings tend to have higher firm performance (Agustia et al. 2022). Academic researchers have also identified an association between board size and firm performance. Mohan and Chandramohan (2018) and Merendino and Melville (2019) indicated a significant adverse relationship between board size and firm performance. However, other research shows that for companies that are more diverse, performance improves when the board size increases (Francoeur et al. 2008; Hassan and Marimuthu 2018).

An interesting perspective on the impact of board size is provided by researchers who observe that when the board size increases then members may not properly express their ideas and their opinions (Cheng 2008; Guest 2009). Mak and Kusnadi (2005) identified an adverse association between board size and firm performance, estimated as Tobins Q, from the data collected from companies in Singapore and Malaysia. Generally, these outcomes suggest that as the board size enlarges, a firm's performance will decay. One conceivable explanation is that increased scale results in less communication among board individuals, poorer choices, and ineffective coordination. Researchers suggested that in Denmark, firm performance return on assets decreased with the increase in board size for small and medium-sized enterprises. Academics suggest in the literature that firms with more operational complexities have more severe conflicts and need more expert advice (Linck et al. 2008; Giannetti and Zhao 2019). The literature suggests mixed outcomes in

relation to the impact of board size on firm performance. Based on the literature, the first hypothesis is developed:

Hypothesis 1.1. *Board size is significantly associated with firm performance.*

2.1.2. Board Independence and Firm Performance

Board independence (BI) depends on the autonomous directors who are on the board. These independent directors are not the regular employees of a corporation, but they just have a supervisory role. They are not involved in the operation of the company, so they may be perceived as unbiased. It is suggested in some research that a board with independent directors is able to gain the trust of stakeholders and correspondingly encourage more investment (Muniandy and Hillier 2015). It has been claimed that board independence has a constructive association with firm performance and that board independence increases firm performance (Hu et al. 2022; Shan 2019; Pucheta-Martínez and Gallego-Álvarez 2020). If there are additional external directors on the board, this is likely to limit management decisions based on self-interest and correspondingly improve firm performance. The monitoring of a board by external directors can constrain management from making decisions which may undermine the survival and achievements of the company (Nicholson and Kiel 2007).

The study of Duchin et al. (2010) shows that external directors may be beneficial, but if the cost outweighs the benefits, their presence may decrease firm performance. In their study, a sample was collected from U.S. firms to ascertain how much board independence affects performance. They did not find any indication that if board independence is increased, this will lead to improved firm performance. These authors suggest that internal directors are more able to understand the operation of the company; they know everything about the company, and they have expertise. Although they argue that they add more value than outside directors, an ideal board is one having both executive and non-executive directors. Based on the literature, the second hypothesis is created:

Hypothesis 1.2. *Board independence is significantly associated with firm performance.*

2.1.3. Board Diversity (Women Directorship) and Firm Performance

Board diversity potentially leads to invention and creativity. In the past, most boards consisted of male directors. In contemporary times, there is an increasing recognition of the need to have female directors on boards. Studies have been conducted on the association between the presence of female board directors and firm performance, and the outcomes are mixed. Some research has found that firm performance is enhanced by board diversity (Brahma et al. 2021; Marquez-Cardenas et al. 2022; Yilmaz et al. 2021). In another study, Zhang (2020) states that board gender diversity was conclusively associated with firm performance. By contrast, Martinez-Jimenez et al. (2020) did not find any significant association between gender diversity and firm performance in firms registered on the stock exchange. Similarly, the study of Elgadi and Ghardallou (2022) stated that the presence of women on the board of directors does not have a significant influence on firm performance (Elgadi and Ghardallou 2022). However, Brahma et al. (2021) argue that board variety is linked with enhanced financial worth, based on data collected from UK companies. Kim and Starks (2016) show that female directors bring unique expertise to corporate boards and help to differentiate the kinds of knowledge that are brought to a board. They suggest that these kinds of contributions will assist the consultative function of directors. Duppatti et al. (2020) and Moreno-Gómez et al. (2018) investigated the connection between the percentage of female in a group of executives and found that a board with gender diversity is definitely associated with improved performance. Within a broader definition of diversity, Carter et al. (2003) scrutinized the connection between board diversity and firm esteem (Tobins Q). They utilize the number of females, Americans, Asians, African and Hispanics on the leading group of executives as an intermediary variable for board impact and find that

more females from different backgrounds led to enhanced monetary estimation of the firm. In another study, [Weck et al. \(2022\)](#) state that gender diversity could create a broader range of task views ([Fernando et al. 2020](#)) which enable more balanced and higher quality board decision making ([Adams 2016](#)).

However, some studies show a negative relationship between board diversity and corporate performance. [Elgadi and Ghardallou \(2022\)](#) reports that overall board diversity does not seem to affect performance; however, it does decrease performance variability during a crisis and in countries where the culture is more open to diversity ([Arnaboldi et al. 2020](#)). Hierarchical cultures, the CEO, the chairman, or the lead director can help to create a more open communication environment ([Creary et al. 2019](#)) which could be associated with longer processes of managerial decision ([Konrad et al. 2008](#)). It has also been argued that in some instances, when women achieve the position of chairperson, their roles and the ways they think can change as they may adopt a male stereotypical approach to voluntary information disclosure when they become a chairperson of a firm ([Amorelli and García-Sánchez 2020](#)). In cases such as this, there is no impact on firm performance as compared with male directors. From previous studies, the third hypothesis is developed:

Hypothesis 1.3. *Female directorship is significantly associated with firm performance.*

2.1.4. CEO Duality and Firm Performance

Duality refers to the situation when the manager and chairman of the board of directors is the same individual. The study of [Lee and Ko \(2022\)](#) demonstrates that CEO duality facilitates trust and cognitive collaboration among large boards. This could support firms to overcome the obligation to repay loans through increased access to resources and enhanced board effectiveness, thereby increasing its likelihood of survival in the capital market. Additionally, CEO duality can enhance the speed of the decisions that might be needed in times of a fluctuating environment, which is beneficial to firms in the initial growth stage ([Gan and Erikson 2022](#)).

Contrariwise, some studies show there are drawbacks when the manager and chairman are the same person. As board members decide on the CEO's remuneration, if the board is not independent, the CEO may influence the board's decision relating to setting the pay package of the CEO. [Dakhlallah et al. \(2019\)](#) conclude that CEO duality has a significant negative effect on the relationship between both managerial ownership, government ownership and firm performance. Based on these studies, it can be suggested that duality may negatively impact a firm's performance. Moreover, CEO duality alleviates sales activity administration, which results in decreasing firm performance ([Nuanpradit 2018](#)). It should be noted that there is also literature that finds that in some cases, duality does not affect firm performance ([Puni and Anlesinya 2020](#)). From these studies, the next hypothesis is created:

Hypothesis 1.4. *CEO duality is significantly associated with firm performance.*

2.2. Corporate Governance and Leverage

2.2.1. Board Size and Leverage

A board of directors (BOD) is of utmost importance for good corporate governance. Boards are given the task of running a company in the best interests of shareholders. In the literature, it has been suggested that information irregularities are less serious for bigger firms than for smaller firms ([Wasiuzzaman 2019](#)). This indicates a potential positive connection between a company's size and debt. Bigger firms are in a better position to spread their risk by diversifying their operations. Bigger firms can be considered to have fewer budgetary concerns. [Dirman \(2020\)](#) contends that as the scope of the firm increases, the possibility of financial distress decreases. [Balla and Mateus \(2002\)](#) conducted research in Hungary, and they found a significant connection between leverage and a company's size. The increase in financial leverage can be generated by the existence of a small board;

therefore, the board size impacts on financial leverage (Alabdullah et al. 2018). It is also posited that a bigger board constrains the amount of risk that the management of a firm is likely to take, and they may not increase the debt above a certain level. Jensen (1986) obligations are likely to have extra directors. The effects of this demonstrate a positive association between board size and financial ratios (Wen et al. 2002).

Arguably, in some research, companies with large board sizes are more likely to use debt financing than companies with smaller board sizes (Tulung and Ramdani 2018), as large boards borrow with a lower cost of debt (Fields et al. 2012). The greater the number of members, the more they tried to raise the debt level because of tax advantages on interest. The higher the level of debt, the less costly it is for the company. Due to the tax brackets, it is seen to be essential to increase the debt level. Anderson et al. (2004) likewise demonstrate that the expenditure of obligation is reduced because of the presumption that as more members are involved, there is better monitoring. From the literature, the next hypothesis is developed:

Hypothesis 2.1. *Board size is significantly associated with financial leverage.*

2.2.2. Board Independence and Financial Leverage

Independent directors are not involved in the operations of the company. They do not have major shares in the company and are not involved in the day to day working of the company. Having an independent director in the company enhances the reputation of the corporation because it helps to win the trust of loan providers and creditors. The prerequisites for independent directors are determined by the relevant board of directors. These prerequisites differ from organization to organization due to the complexity and uniqueness of particular organizational operations. Overall, having independent directors on a board allows the company to increase the firm's obligation level (Berger et al. 1997). Additionally, a greater percentage of independent directors supports managerial management, which is more valuable to shareholders, and mitigates some negative effects caused by investment and leverage level (Vafeas and Vlittis 2018). In terms of signaling, independent directors help to improve the image of a corporate's transparency, as a result of an improvement in firm performance (Sila et al. 2017). Independent directors give their point of view more freely about management procedures. In particular, independent directors who are long-tenured with high skills and knowledge about the companies they serve in enable firms to decrease the likelihood of corporate scandals as well as to increase firm value (McCabe and Nowak 2008). Consistent with the literature, the current research study anticipates that independence is associated with financial leverage, and therefore, the next hypothesis is created:

Hypothesis 2.2. *Board independence is significantly associated with financial leverage.*

2.2.3. Female Directorship and Financial Leverage

There is a perception that female executives can have the capacity to enhance the effectiveness of the board. In this regard, it is significant to note that for the first time, Norway explicitly instructed companies in the country that they should have a specified percentage of females in the highest managerial posts. Research has shown that an increase in female board representation leads to higher overall performance, less earnings management, and less excessive risk taking, particularly in countries with greater gender equality (Belaounia et al. 2020). It has been suggested that female leaders may help an organization's administration through contributing their aptitude for and knowledge about social responsibility (Zelechowski and Bilimoria 2004). They create sustainable practices linking with lower financial leverage (Setó-Pamies 2015). A study by Strøm et al. (2014) demonstrated that a female CEO or female executive on the directorate will result in improved financial execution. It has also been argued that women executives tend to use less internal and debt finance (Wang et al. 2021).

Another study was conducted, in the US, by [Zelechowski and Bilimoria \(2004\)](#) to try to ascertain the attributes of female and male directors. This study analyzed the capabilities of women and men in executive positions in 1000 firms. Outcomes showed that female insiders may not enjoy the same position or authority position on the board as men. Female insiders hold fewer directorships in different enterprises. They have less authoritative status, but are not inferior in their support of the firm. In fact, they are found to be more concerned to use their abilities for the better functioning of the company than men. Based on synthesis of the literature, the next hypothesis is formed:

Hypothesis 2.3. *Female directorship is significantly associated with financial leverage.*

2.2.4. CEO Duality and Leverage

CEO duality also determines the financing choices of a firm. It is argued that when an insider has dual roles, his or her decisions may be governed by self-interest. CEO duality allows CEOs to use their power in borrowing and using borrowed money in projects, which may be not profitable for firms ([Pham and Nguyen 2019](#)). If a CEO is also the chairman of the board of directors, they tend to implement low-value M&As policies, which potentially have a negative impact on financial leverage ([Teti et al. 2017](#)). Furthermore, experimental research in corporate administration has given solid proof that the separation of the CEO and executive jobs is ideal as it enhances the board's monitoring capacity. [Chau and Gray \(2010\)](#) contend that an executive who is autonomous has the opportunity to deal with an organization without limitations as he or she has considerable specialist knowledge. Additionally, it has been shown that the separation of jobs of the CEO and administrator results in higher market valuation ([Yermack 1996](#)). The argument is that the monitoring of the CEO by the director signals sounder administration and internal controls and prompts enhanced firm esteem. As indicated by [Jensen \(1993\)](#), the proximity of an administrator who is additionally the CEO of an organization could abrogate the benefit of having autonomous leaders on the board and reduce the capacity of the governing body. Based on these studies, the next hypothesis is created:

Hypothesis 2.4. *CEO duality is significantly associated with financial leverage.*

2.3. Effect of Leverage on Firm Performance

The study of [Bae et al. \(2017\)](#) states that the relationship between firm leverage and corporate performance can affect firm performance negatively or positively. This relationship can either lead to financial distress or be a driver of positive change in a firm's prospects. The mix of outcomes can particularly be seen when firms use high leverage to develop marketing activities which are costly for a firm. However, these marketing activities can also positively influence firm valuation and decrease the impact of distress signals. Although [Ghardallou \(2022\)](#) states debt structure hamper firms' performance, firms using debt finance can compete with equity when a firm requires external financing during the crisis ([Didier et al. 2021](#)). A research study, conducted by [Iqbal and Usman \(2018\)](#) found a negative association between firm leverage and corporate performance. Research conducted by [Vithessonthi and Tongurai \(2015\)](#) demonstrate that Thailand firms reported a negative relationship, and the authors contended that the benefit of introducing a debt is less than the related costs of it. High interest rates and greater amounts of debt can decrease firm value, resulting in decreased firm performance ([Iqbal and Usman 2018](#)).

In contrast to that, other studies such as those by [Dakua \(2019\)](#) and [Yang et al. \(2016\)](#) identified a positive relationship between financial leverage and firm performance. Likewise, [Berger and Di Patti \(2006\)](#) contend that a greater level of debt will improve firm performance. Debt finance allows firms to access innovative activities and necessary resources for developing their growth ([Zhang et al. 2019](#); [Xin et al. 2019](#)). As the findings of these different studies demonstrate contradictory results, the next hypothesis is formed:

Hypothesis 3. *Financial leverage is significantly associated with firm performance.*

2.4. The Relationship between Corporate Governance and Firm Performance with the Mediating Effects of Financial Leverage

It is argued that there is not any direct effect of corporate governance policies on firm performance, but that the impact occurs through financial leverage (Santoso and Salim 2022). These studies contend that corporate administration does not impact on a firm's performance in a straightforward way, but instead affects firm performance in a roundabout way through financial influence. It is argued that corporate administration is required to affect financial influence, which has been observed to be related to firm execution. This may be because of the way that the impact of corporate administration on firm execution is interceded by financial influence. Two conceivable causes as to why financial influence may impact on firm execution could be because firstly, powerless corporate administration may result in limited influence or under-influence on the firm. Firms with exceptionally high financial influence are bound to encounter a huge variation in firm execution (Cao et al. 2022). Secondly, organizations having low influence will in general have little variation in execution. This minimum degree of influence will then affect firm execution (Tran 2022).

Additionally, as the top managerial staff assess and favor the firm's significant ventures, the corporate administration on firm execution in all likelihood relies upon the ability of the top administrative staff to engage in speculation and make financial choices (Jin and Xu 2022). Assuming that two firms put resources into activities of similar scale, the outcome should bring about comparable performance. A major reason can be the means by which the undertakings are chosen and financed. Frail corporate administration that is related to under- or /over-influence is probably going to add to speculation and ensuing execution. In the event that the CEO inclines toward less financial influence and has a solid influence on the board, the firm may put resources into generally safe activities that are potentially financed by value financing (retain profit), that might result in lower returns (O'Connell et al. 2022). From the literature, the last hypothesis is created:

Hypothesis 4. *Financial leverage mediates the relationship between corporate governance and firm performance.*

3. Data and Research Methodology

3.1. Data and Samples

Samples for this study are publicly listed firms operating in developed and emerging economies for the period from 2002 to 2017. This sample was selected for several reasons. Data were available related to the variables of corporate governance of developed and emerging economies. The selected countries in this study have implemented reforms and begun to improve their corporate governance processes by requiring and recommending a series of good corporate governance practices, in 2000. Pakistan, India, Taiwan and Turkey are the dominant emerging economies; therefore, these economies were selected and results in these emerging economies compared with those in the developed countries that are selected including Austria, Belgium, China, Denmark, Finland, France, Germany, Great Britain, Hong Kong, Japan, Korea, Switzerland, and the United States. This categorization is based upon the classification developed by Nielsen (2011). Data used for the study cover the 14-year time periods from 2002 to 2017.

We have used a panel data of 2568 firms from developed and emerging countries to find out whether financial leverage mediated the relationship between corporate governance and firm performance. Using this data, we applied a two-step panel dynamic estimation model. We contribute to the literature by incorporating the firms from countries of developed and emerging economies during the time period 2002 to 2017. The total sample size of the study is 2568 firms. The percentages of the sample size for the countries involved are indicated in Table 1.

Table 1. The country-wise sample size percentages of the study.

Country	Population	Samples	Percent
Austria	143	11	0.4
Belgium	156	12	0.44
China	1290	97	3.61
Denmark	267	20	0.75
Finland	363	27	1.02
France	866	65	2.42
Germany	1080	81	3.02
Great Britain	1874	141	5.25
Hong Kong	145	11	0.41
India	717	54	2.01
Japan	4860	366	13.61
Korea	1249	94	3.5
Pakistan	1695	128	4.75
Switzerland	624	47	1.75
Taiwan	1542	116	4.32
Turkey	213	16	0.6
United States	18,633	1282	50.07
Total	35,717	2568	100

3.2. Research Methodology

This study uses a two-step dynamic panel as well as a generalized method of moments (GMM) to evaluate the mediating role of leverage between corporate governance and firm performance for 2568 firms in the period from 2002 to 2017. Data were collected from the Compustat database. Heteroskedasticity is checked by employing the Breusch Pagan LM test, and multicollinearity is checked by Correlation matrix. The data have the issue of endogeneity and the presence of lagged dependent variables, and the data have a short time dimension and large cross-section that estimate the dynamic panel data analysis model. Present data have these issues, and therefore, the generalized method of moments is used. The current study uses a generalized method of moments (GMM) system estimation. The research applied a two-step dynamic GMM estimation for a number of reasons. First, the present study uses dependent variables which are likely to be measured from annual data, and it seems desirable to use a dynamic panel estimation to allow for this. Secondly, there is a possibility of unobserved heterogeneity with regressors, and such effects need to be controlled. [De Grauwe and Skudelny \(2000\)](#) suggest that the lagged dependent variable in the two-step dynamic panel data system estimation controls some of the effect of omitted variables varying over time, so it helps to manage the problem. The generalized method of moments (GMM) produces consistent parameters ([Arellano and Bond 1991](#); [Arellano and Bover 1995](#); [Blundell and Bond 1998](#)). [Roodman \(2009\)](#) mentions that Arellano–Bond estimators have one- and two-step estimation. He argues that that a two-step dynamic panel estimation of generalized method of moments system estimation of the standard error tends to be severely downward biased; therefore, the current study applied the two-step GMM estimator to evaluate the impact of corporate governance on firm performance with a mediating effect of leverage in the time period from 2002 to 2017.

We discuss the analysis which will be utilized to investigate the research question and test theory. We aim to investigate whether budgetary influence mediates the link between corporate administration and firm performance. The firm is the unit for examination as we are assessing effect on firm execution.

We test our research inquiries by utilizing a two-stage dynamic framework estimation to judge the relationship between corporate governance and firm performance over the period of 2002 to 2017 of 2568 firms. To validate the direction of causality and to address endogeneity issues we have taken one lagged value. Lag is taken of factors on the right-hand side.

$$ROA_{i,t} = \alpha + \beta CG_{i,t-1} + \gamma Z_{i,t-1} + \epsilon_{i,t} \quad (1)$$

To test Hypotheses 1.1 to 1.4, which predict the impact of corporate governance on firm performance, we gauge the condition (1) using a two-panel estimation model. $ROA_{i,t}$ is determined as income before interest and taxes to total assets for firm at time t . CG is a vector of a firm's corporate administration factors, and Z is a vector of firm-level control factors.

$$LEV_{i,t} = \alpha + \beta CG_{i,t} - 1 + \gamma Z_{i,t} - 1 + \epsilon_{i,t} \quad (2)$$

For testing the Hypotheses 2.1 to 2.4, in which we ascertain the impact of corporate governance on financial leverage, and to estimate Equation (2), we utilize a two-panel estimation model. LEV is the firm's financial leverage. CG is a vector of a firm's corporate governance variables, while Z is vector of firm-level control variables.

$$ROA_{i,t} = \alpha + \beta LEV_{i,t} - 1 + \gamma Z_{i,t} - 1 + \epsilon_{i,t} \quad (3)$$

To discover the effect of financial leverage on firm performance, we gauge the condition (3) using a two-panel estimation model. $ROA_{i,t}$ is the ratio of earnings before interest and taxes to total asset for a firm i at time t . LEV is to gauge the firm's financial influence, and Z is vector of firm-level control factors.

$$ROA_{i,t} = \alpha + \beta CG_{i,t} - 1 + \beta LEV_{i,t} - 1 + \gamma Z_{i,t} - 1 + \epsilon_{i,t} \quad (4)$$

To test Hypothesis 4, to find the effect of corporate governance and leverage on firm performance, we estimate Equation (4) using two-panel estimation model. $ROA_{i,t}$ is the ratio of earnings before interest and taxes to total asset for a firm i at time t . CG is a vector of a firm's corporate governance variables and Z is vector of firm-level control variables. LEV is to measure the firm's financial leverage.

3.3. Dependent Variables

The dependent variable in this study is the firm performance measured by return on assets (ROA) presenting the ratio of earnings to total assets before interest and taxes. Prior studies used the same indicator to examine the association between corporate governance and firm performance ((Wu et al. 2020a); Danoshana and Ravivathani (2019); Maseda et al. (2015)). ROA is one of the financial performance dimensions used in corporate governance studies (Azila-Gbette et al. 2018). It shows the effects on performance of the board decisions on investments (Buallay et al. 2017). ROA reflects the efficiency of a firm in using its innovative resources to generate profits (Isidro and Sobral 2015). Although return on equity (ROE) can be used as an indicator for corporate performance, ROA could be a better indicator demonstrating how leverage is effectively used to generate capital investment and firm performance (Rai et al. 1997). Regarding the independent variables, four measures are used for measuring the effect of CG. Board size (BSIZE) is measured through the number of total members on the board. Board independence (BI) is the ratio of the number of independent directors to the number of all directors. CEO duality (CEOD) is measured as a dummy variable, zero value if CEO and chairman are the same and one if the CEO and chairman are separate. Women directorship (WD) is measured with a dummy variable, one if there are women directors on the board and zero otherwise.

In keeping with the work of Kao et al. (2019), the current study uses firm size (FSIZE) and sales growth as control variables. Different characteristics of firms in developed and emerging markets affect corporate government structure differently. Larger companies are likely to be more diversified, and thus might be subjected to higher agency and bureaucratic costs (Choi et al. 2007). Small firms may also have trouble in minimizing agency problems (Lopez-Gracia and Mestre-Barberá 2015). However, some studies state that very small companies are frequently managed and owned by only one person and, thus, do not face this issue (Lopez-Gracia and Mestre-Barberá 2015). For this study, firm size is measured by the natural logarithm of total assets. In terms of financial leverage (LEV), agency conflicts become more serious when a company is in financial difficulty (Lopez-Gracia and

Mestre-Barberá 2015). A firm with a high Leverage ratio is more vulnerable to business shocks, since it has less ability to repay debt (Kao et al. 2019). As leverage is individual firm leverage, external control and capital structure needs to be monitored by creditors to protect the firm's interests. This study measures financial leverage by using total debt to total equity. Regarding firm growth, Clarkson et al. (2008) argue that profitable firms reveal their organizational legitimacy by complying with environmental regulations because they are better positioned to adopt them, while poorly performing firms may choose to limit disclosure or remain silent on the matter. Sales growth is measured by the ratio of current year sales minus previous year sales divided by previous year sales.

Appropriate corporate governance mechanisms can affect the decision making of managers and financial leverage efforts. In addition, financial leverage is positively associated with ROA (Wu et al. 2020a). In this study, leverage is used as a mediator. Financial leverage is measured through the debt-to-equity ratio. Table 2 presents the variables used in this study.

Table 2. Variables' abbreviation, description, definition and references.

Variables	Description	Definition	Reference
BSIZE	Board size	A number of board of directors, including a chairperson and independent directors.	(Obradovich and Gill 2013; Detthamrong et al. 2017)
BI	Board independence	The ratio of the number of independent directors to the number of all directors.	(Detthamrong et al. 2017)
WD	Women directorship	The ratio of the number of female directors to the total number of directors.	(Detthamrong et al. 2017)
CEOD	CEO duality	CEO duality is a dummy variable which take a value of one if the CEO is also the chairperson of the board of directors, and zero otherwise.	(Obradovich and Gill 2013; Detthamrong et al. 2017)
LEV	Financial leverage	The ratio of total debt to total assets.	(Obradovich and Gill 2013; Detthamrong et al. 2017)
ROA	Return on assets	The ratio of earnings before interest and taxes to total assets.	(Detthamrong et al. 2017)
FSIZE	Firm size	The natural logarithm of total assets.	(Obradovich and Gill 2013; Detthamrong et al. 2017)
SG	Sales growth	Current year sales less previous year sales by previous year sales	(Ferreira et al. 2010; Detthamrong et al. 2017)

Descriptive statistics are used to check the central tendency, dispersion and variability of the sample data. Table 3 shows the descriptive statistics of the study sample which includes the number of observations, mean, minimum value, standard deviation and maximum value. The mean value of ROA was 1.590 with minimum value -2.179 , maximum value of 32.370 The mean value of leverage 0.734 with minimum value 0.004, maximum value of 0.794. It means that firms on average are not over leveraged.

Table 3. Descriptive statistics.

	BI	BSIZE	CEOD	LEV	ROA	SG	FSIZE	WD
Mean	0.511	8.287	0.261	0.734	1.590	0.308	23.054	0.615
Median	0.571	8.000	0.000	0.600	0.049	0.100	22.273	1.000
Maximum	0.990	18.000	1.000	0.794	32.370	102.649	78.510	1.000
Minimum	0.000	5.000	0.000	0.004	−2.179	−0.995	0.010	0.000
Std. Dev.	0.283	1.870	0.439	0.908	0.016	3.052	6.182	0.487
Probability	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Observations	2568	2568	2568	2568	2568	2568	2568	2568

Note: Board independence is calculated as number of independent directors to the total number of directors. Board size is calculated as numbers of directors in the board. CEO duality is taken as a dummy variable which is assigned the value of 1 CEO and chairman of the board are the same individuals otherwise 0. Financial leverage is calculated as total debts of the company divided by total assets. Firm performance is measured as ratio of earnings before interest and tax divided by total assets ROA. Sales growth is calculated as current year sales less previous year sales divided by previous year sales. Firm size is measured as natural logarithm of total assets. Women directorship is given the value of 1 if there are females in the board otherwise 0. This is also a dummy variable.

Correlation matrix is used to evaluate the relationship among the variables. According to Table 4, CEO duality has an inverse relationship with leverage. This means that when the CEO and the director is the same person, it would decrease financial leverage, and when CEO duality decreases, it would increase financial leverage with correlation value of -0.0314 in comparison to 0.8. It is less than 0.8. So, variables are less correlated with each other. This shows that the relationship between these two variables is weak. Board independence has an inverse relationship with leverage. This means that when BI increases, it would decrease financial leverage, or when BI decreases, it would increase financial leverage with a correlation value of -0.0835 . It shows that the relationship between these two variables is weak. BSIZE has an inverse relationship with leverage. This means that when BSIZE increases, it would decrease financial leverage, or when BSIZE decreases, it would increase financial leverage with a correlation value of -0.0367 . This shows that the relationship between these two variables is weak. WD has an inverse relationship with leverage. This means that when WD increases, it would decrease financial leverage, or when WD decreases, it would increase financial leverage with correlation value of -0.0019 . This shows that the relationship between these two variables is weak.

Table 4. Correlation analysis.

	ROA	LEV	FSIZE	CEOD	BI	BSIZE	WD	SG
ROA	1							
LEV	−0.0674	1						
FSIZE	0.0509	0.1139	1					
CEOD	−0.0087	−0.0314	−0.0936	1				
BI	0.0131	−0.0835	−0.0666	0.0616	1			
BSIZE	0.0018	−0.0367	−0.0311	0.0243	0.0316	1		
WD	−0.0056	−0.0019	−0.008	−0.005	−0.0035	0.0048	1	
SG	−0.0018	−0.0041	0.0002	−0.0056	−0.0028	−0.0058	−0.0063	1

4. Empirical Results and Discussion

4.1. The Effects of Corporate Governance on Financial Leverage

To ascertain the impact of corporate governance, the main variables are board size, board independence, women directorship and CEO Duality. Table 5 demonstrates that the coefficient of firm size on ROA is negative. Firm size negatively related to financial leverage in the context of emerging economies, while CEO duality and board size are positively significantly associated with financial leverage. However, financial leverage is not associated with board independence and women directorship. For developed economies, Table 6 shows the opposite impact. In developed countries, CEO duality and board size are

negatively significantly associated with financial leverage. While there are no significant impacts of board diversity on firm leverage in emerging countries, female directors are negatively associated with corporate leverage.

Table 5. Two-step system dynamic panel estimation across emerging countries.

	Equation (1)	Equation (2)	Equation (3)	Equation (4)
	ROA	LEV	ROA	ROA
L1	0.014 *** (27.20)	−4.245 *** (−8.16)	0.032 *** (19.19)	0.1194 *** (17.50)
L2	0.047 *** (8.61)	−0.037 *** (−25.37)	0.04 *** (7.55)	0.04 *** (7.59)
LEV			−0.40 *** (−772.56)	−0.46 *** (−259.68)
CEOD	−1.27 *** (−1027.77)	0.10 *** (20.13)		−1.29 *** (−994.39)
BI	0.02 *** (1106.21)	0.00 (0.68)		0.02 *** (976.15)
BSIZE	0.09 *** (308.48)	0.01 *** (6.80)		0.08 *** (260.75)
WD	−0.99 *** (−717.65)	0.00 (0.07)		−1.02 *** (−638.65)
FSIZE	−0.16 *** (−2829.14)	−0.02 *** (−79.94)	−0.17 *** (−7861.61)	−0.17 *** (−2369.08)
SG	0.09 *** (532.48)	−0.02 *** (−7.78)	0.07 *** (1185.01)	0.09 *** (434.26)
C	5.42 *** (1125.32)	0.59 *** (40.02)	5.90 *** (4240.97)	5.81 *** (1169.80)
Observations	2568	2568	2568	2568
R-Square	0.75	0.69	0.77	0.81
p-Value	0.00	0.00	0.00	0.00

Notes: *** denote significance at 1% levels.

4.2. The Effects of Corporate Governance and Financial Leverage on Firm Performance

To check the impact of corporate governance and leverage on firm performance, we have run a two-step dynamic panel estimation. To estimate the impact, variables added are board size, board independence, women directorship and CEO duality. Table 5 shows board size remains positive, and statistically significantly related to ROA in emerging countries. In the context of developed countries in Table 6, CEO duality and board size are negatively significantly related to ROA.

To find out the impact of leverage on firm performance, we have added leverage as an independent variable, and we found that financial leverage is negatively significantly related to ROA in the context of emerging and developed economies. The enhancement of financial leverage will decrease firm performance; these results align with Seifert et al. (2005).

Table 6. Two -step system dynamic panel estimation across developed countries.

	Equation (1)	Equation (2)	Equation (3)	Equation (4)
	ROA	LEV	ROA	ROA
L1	0.064 *** (13.46)	−0.007 *** (−5.88)	−0.0096 *** (−14.18)	−0.002 *** (−3.81)
L2	−0.01 *** (−297.60)	0.111 *** (0.00)	−0.00 *** (−890.73)	−0.01 *** (−285.93)
LEV			−7.21 *** (−7.23)	−7.24 *** (−7.25)
CEOD	−29.919 *** (−11.12)	−30.096 *** (−11.21)		−0.23 *** (−4.62)
BI	−7.48 *** (−158.90)	−7.85 *** (−884.45)		−0.00 *** (−7.07)
BSIZE	−1.29 *** (−994.3)	0.000 *** (552.60)		−29.7 *** (−11.19)
WD	0.01 *** (939.18)	−1.28 *** (−972.44)		−29.9 *** (−11.31)
FSIZE	−1.28 *** (−972.44)	−0.04 *** (−32.45)	−0.906 *** (−3.61)	−0.911 *** (−3.62)
SG	−7.239 *** (−7.25)	0.044 *** (5.97)	−6.888 *** (−7.18)	−6.928 *** (−7.21)
C	6.36 (1.53)	0.07 (1.18)	8.45 (2.07)	8.71 (2.11)
Observations	2568	2568	2568	2568
R-Square	0.88	0.77	0.68	0.74
p-Value	0.00	0.00	0.00	0.00

Notes: *** denote significance at 1% levels.

4.3. The Mediating Effect of Financial Leverage

To test whether financial leverage mediates the relationship between corporate governance and firm performance, conditions of mediation must be fulfilled. The first condition of mediation effect is that the independent variables must relate to the mediator. The second condition is that the independent variables relate to the dependent variable. The third condition of mediation is that the mediator is associated with the dependent variable. Fourth, if all the conditions hold true, and the impact of an independent variable on a dependent variable becomes insignificant, there is evidence of full mediation. As per the results, financial leverage mediates the relationship between corporate governance and firm performance in the context of developed economies, and also in emerging economies.

From Table 7, the main variables and control variables remain significantly related to firm leverage in the context of overall selected countries. Corporate performance is negatively associated with firm performance through excessive leverage (Wu et al. 2020b). This negative association could generate from the corporate governance structure associated with finance leverage. In emerging countries, independent and large-sized companies could see an increase in ROA if the board uses low leverage structure. However, in developed countries, non-independent and small-sized firms may increase ROA if the board uses a low leverage structure. The findings show firm leverage has a full mediation effect on firm performance.

Table 7. Two-step system dynamic panel estimation across all countries.

	Equation (1)	Equation (2)	Equation (3)	Equation (4)
	ROA	LEV	ROA	ROA
L1	−0.031 *** (−3.34)	−0.008 *** (−5.88)	0.464 ** (3.01)	0.216 *** (20.57)
L2	0.04 *** (7.31)	0.017 *** (14.04)	0.038 *** (7.27)	0.038 *** (7.3)
LEV			−7.85 *** (−884.45)	−7.48 *** (−158.90)
CEOD	−1.29 *** (−994.3)	0.000 *** (552.60)		−1.28 *** (−972.44)
BI	0.018 *** (976.15)	0.000 *** (2625.20)		0.01*** (939.18)
BSIZE	0.082 *** (260.75)	0.001 *** (2080.52)		0.08 *** (293.67)
WD	−1.01 *** (−638.6)	0.000 *** (390.52)		−1.02 *** (−573.70)
FSIZE	−0.16 *** (−2369.0)	0.000 *** (1579.35)	−0.17 *** (−9560.9)	−0.16 *** (−2304.6)
SG	0.085 *** (434.26)	−0.00 *** (−331.69)	0.072 *** (1152.9)	0.082 *** (0.01)
C	7.94 (8.46)	0.28 (12.90)	9.03 (9.65)	9.26 (9.11)
Observations	2568	2568	2568	2568
R-Square	0.81	0.68	0.85	0.71
p-Value	0.00	0.00	0.00	0.00

Notes: ** and *** respectively denote significance at 5% and 1% levels.

For the firms in 17 countries, key findings can be abridged as follows. Corporate administration is positively related with financial leverage in the context of the entire group of countries. These results are different to earlier research (Berger et al. 1997; Wen et al. 2002) that reports no connection between corporate administration and financial influence.

Board size, board independence, female membership of a board, and CEO duality have an association with financial leverage and firm performance in the context of overall countries; however, the impacts are found differently across countries. One plausible explanation for this may be that emerging and developed countries have different structures regarding corporate governance (Mulili and Wong 2011).

5. Conclusions

This study examines the mediating effects of financial leverage on the relationship between corporate governance and firm performance measured by return on asset (ROA). Corporate administration is probably the most heated subject, particularly in the context of firm disappointments as well as a banking/financial emergency. Two significant questions have frequently been posed. The first question is whether solid corporate administration can diminish the firm's hazards (e.g., speculation chance and financing risks). The second question is whether firms with solid corporate governance perform better than those with weak corporate governance. While observational outcomes seem, by all accounts, to be mixed, numerous controllers around the globe have the firm conviction that solid corporate administration would lessen the likelihood of the firm going out on a limb (e.g., over-utilized) and improve firm execution. In this paper, we utilize an extensive sample of firms during the period 2002–2017 to provide insights into the connections between

corporate governance, financial leverage, and firm performance. The study demonstrates that for a normal firm, corporate governance affects firm performance and execution in developed economies. As far as we know, our study is one of the first to show that corporate administration has an indirect effect on firm execution by means of financial influence for firms in an emerging business sector economy.

The study supports hypotheses 1.1 to 1.4, in that corporate governance is significantly associated with financial performance. Additionally, the study supports hypotheses 2.1–2.4, in that corporate governance structure relates to the financial leverage of firms. These relationships are found to be different in emerging and developed countries. Hypotheses 3 and 4 are also supported with the findings that firm performance is negatively affected by corporate governance through excessive leverage; however, the effects differ between countries. Independent and large-sized boards which adopt low leverage levels could enhance corporate performance of firms in emerging countries, while in developed countries, firms with non-independent and small-sized boards using low financial leverage tend to increase the ROA.

This study contributes to the literature on financial leverage, firm performance, and corporate governance structure in several ways. The study provides empirical evidence of the mechanisms underlying the improvement of firm performance. The research not only considers corporate governance structure, but also examines how corporate boards utilize financial leverage levels to enhance firm performance. The empirical findings of this study are significant for listed firms in both emerging and developed countries to consider suitable corporate governance structures which can enable them to use low leverage to enhance firm performance. Policy makers in different countries can use the findings of this paper to implement governance system allowing firms with various corporate conditions to access debt finance via different channels including banks and non-banks as well as crowdfunding portals.

While the findings confirm the impact of corporate governance and mediating effects of financial leverage across different countries, the data used are only for the period from 2002 to 2017. Future studies can extend the period of study as well as adding other indicators measuring the corporate performance namely ROE and Tobin's Q. Moreover, the majority of the firms in the sample are from the United States; the results could be different if samples from this country are excluded.

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References

- Abobakr, Mohamed G., and Khairy Elgiziry. 2016. The effect of board characteristics and ownership structure on the corporate financial leverage. *Accounting and Finance Research* 5: 1–14. [\[CrossRef\]](#)
- Adams, Renée B. 2016. Women on boards: The superheroes of tomorrow? *The Leadership Quarterly* 27: 371–86. [\[CrossRef\]](#)
- Agustia, Dian, Iman Harymawan, and John Nowland. 2022. Joint board-management meetings and firm performance. *Australasian Accounting, Business and Finance Journal* 16: 1–15. [\[CrossRef\]](#)
- Alabdullah, Tariq Tawfeeq Yousif, Adala Laadjal, E. Ries, and Yousif Ali Abed Al-Asadi. 2018. Board features and capital structure in emerging markets. *Journal of Advanced Management Science* 6: 74–80. [\[CrossRef\]](#)
- Amin, Ali, Rizwan Ali, Ramiz Ur Rehman, Muhammad Akram Naseem, and Muhammad Ishfaq Ahmad. 2022. Female presence in corporate governance, firm performance, and the moderating role of family ownership. *Economic Research-Ekonomska Istraživanja* 35: 929–48. [\[CrossRef\]](#)
- Amorelli, María-Florencia, and Isabel-María García-Sánchez. 2020. Critical mass of female directors, human capital, and stakeholder engagement by corporate social reporting. *Corporate Social Responsibility and Environmental Management* 27: 204–21. [\[CrossRef\]](#)

- Anderson, Ronald C., Sattar A. Mansi, and David M. Reeb. 2004. Board characteristics, accounting report integrity, and the cost of debt. *Journal of Accounting and Economics* 37: 315–42. [\[CrossRef\]](#)
- Arellano, Manuel, and Olympia Bover. 1995. Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics* 68: 29–52. [\[CrossRef\]](#)
- Arellano, Manuel, and Stephen Bond. 1991. Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economic Studies* 58: 277–97. [\[CrossRef\]](#)
- Arnaboldi, Francesca, Barbara Casu, Elena Kalotychou, and Anna Sarkisyan. 2020. The performance effects of board heterogeneity: What works for EU banks? *The European Journal of Finance* 26: 897–924. [\[CrossRef\]](#)
- Awasthi, Kshitij. 2017. Taking stock of the principal–principal agency perspective: A review and the way ahead. In *International Business Strategy*. London: Palgrave Macmillan, pp. 17–42.
- Azila-Gbettor, Edem M., Ben Q. Honyenuga, Marta M. Berent-Braun, and Ad Kil. 2018. Structural aspects of corporate governance and family firm performance: A systematic review. *Journal of Family Business Management* 8: 306–30. [\[CrossRef\]](#)
- Bae, John, Sang-Joon Kim, and Hannah Oh. 2017. Taming polysemous signals: The role of marketing intensity on the relationship between financial leverage and firm performance. *Review of Financial Economics* 33: 29–40. [\[CrossRef\]](#)
- Bae, Seong Mi, Md Abdul Kaium Masud, and Jong Dae Kim. 2018. A cross-country investigation of corporate governance and corporate sustainability disclosure: A signaling theory perspective. *Sustainability* 10: 2611. [\[CrossRef\]](#)
- Balla, Andrea, and Cesário Mateus. 2002. An empirical research on capital structure choices. Paper presented at the Conférence Internationale en Finance, Strasbourg, France, June 24.
- Belaounia, Samia, Ran Tao, and Hong Zhao. 2020. Gender equality's impact on female directors' efficacy: A multi-country study. *International Business Review* 29: 101737. [\[CrossRef\]](#)
- Berger, Allen N., and Emilia Bonaccorsi Di Patti. 2006. Capital structure and firm performance: A new approach to testing agency theory and an application to the banking industry. *Journal of Banking & Finance* 30: 1065–102.
- Berger, Philip G., Eli Ofek, and David L. Yermack. 1997. Managerial entrenchment and capital structure decisions. *The Journal of Finance* 52: 1411–38. [\[CrossRef\]](#)
- Bhagat, Sanjai, and Brian Bolton. 2008. Corporate governance and firm performance. *Journal of Corporate Finance* 14: 257–73. [\[CrossRef\]](#)
- Bhagat, Sanjai, and Brian Bolton. 2019. Corporate governance and firm performance: The sequel. *Journal of Corporate Finance* 58: 142–68. [\[CrossRef\]](#)
- Bhatt, Padmanabha Ramachandra, and R. Rathish Bhatt. 2017. Corporate governance and firm performance in Malaysia. *Corporate Governance: The International Journal of Business in Society* 5: 896–912. [\[CrossRef\]](#)
- Blundell, Richard, and Stephen Bond. 1998. Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics* 87: 115–43. [\[CrossRef\]](#)
- Brahma, Sanjukta, Chioma Nwafor, and Agyenim Boateng. 2021. Board gender diversity and firm performance: The UK evidence. *International Journal of Finance & Economics* 26: 5704–19.
- Buallay, Amina, Allam Hamdan, and Qasim Zureigat. 2017. Corporate governance and firm performance: Evidence from Saudi Arabia. *Australasian Accounting, Business and Finance Journal* 11: 78–98. [\[CrossRef\]](#)
- Cao, Qingzi, Ming Fang, and Yuying Pan. 2022. Minority shareholders protection and corporate financial leverage: Evidence from a natural experiment in China. *Pacific-Basin Finance Journal* 73: 101742. [\[CrossRef\]](#)
- Carter, David A., Betty J. Simkins, and W. Gary Simpson. 2003. Corporate governance, board diversity, and firm value. *Financial Review* 38: 33–53. [\[CrossRef\]](#)
- Chau, Gerald, and Sidney J. Gray. 2010. Family ownership, board independence and voluntary disclosure: Evidence from Hong Kong. *Journal of International Accounting, Auditing and Taxation* 19: 93–109. [\[CrossRef\]](#)
- Cheng, Shijun. 2008. Board size and the variability of corporate performance. *Journal of Financial Economics* 87: 157–76. [\[CrossRef\]](#)
- Choi, Jongmoo Jay, Sae Woon Park, and Sean Sehyun Yoo. 2007. The value of outside directors: Evidence from corporate governance reform in Korea. *Journal of Financial and Quantitative Analysis* 42: 941–62. [\[CrossRef\]](#)
- Clarkson, Peter M., Yue Li, Gordon D. Richardson, and Florin P. Vasvari. 2008. Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis. *Accounting, Organizations and Society* 33: 303–27. [\[CrossRef\]](#)
- Creary, S., Mary-Hunder McDonnell, Sakshi Ghai, and Jared Scruggs. 2019. When and why diversity improves your board's performance. *Harvard Business Review* 27: 2–6.
- Dakhlallah, Mohammad Mustafa, N. M. M. Rashid, Wan Amalina Wan Abdullah, and Abdalrahman Mustafa Dakhlallah. 2019. The moderating effect of the CEO duality towards the influence of the ownership structure on the firm performance among Jordanian public shareholders companies. *International Journal of Academic Research in Progressive Education and Development* 8: 32–49. [\[CrossRef\]](#)
- Dakua, Sarada. 2019. Effect of determinants on financial leverage in Indian steel industry: A study on capital structure. *International Journal of Finance & Economics* 24: 427–36.
- Dalci, Ilhan. 2018. Impact of financial leverage on profitability of listed manufacturing firms in China. *Pacific Accounting Review* 30: 410–32. [\[CrossRef\]](#)
- Danoshana, S., and T. Ravivathani. 2019. The impact of the corporate governance on firm performance: A study on financial institutions in Sri Lanka. *SAARJ Journal on Banking & Insurance Research* 8: 62–67.
- De Grauwe, Paul, and Frauke Skudelny. 2000. The impact of EMU on trade flows. *Weltwirtschaftliches Archiv* 3: 381–402. [\[CrossRef\]](#)

- Detthamrong, Umawadee, Nongnit Chancharat, and Chaiporn Vithessonthi. 2017. Corporate governance, capital structure and firm performance: Evidence from Thailand. *Research in International Business and Finance* 42: 689–709. [[CrossRef](#)]
- Didier, Tatiana, Federico Huneeus, Mauricio Larrain, and Sergio L. Schmukler. 2021. Financing firms in hibernation during the COVID-19 pandemic. *Journal of Financial Stability* 53: 100837. [[CrossRef](#)]
- Dirman, Angela. 2020. Financial distress: The impacts of profitability, liquidity, leverage, firm size, and free cash flow. *International Journal of Business, Economics and Law* 22: 17–25.
- Duchin, Ran, John G. Matsusaka, and Oguzhan Ozbas. 2010. When are outside directors effective? *Journal of Financial Economics* 96: 195–214. [[CrossRef](#)]
- Duppatti, Geeta, Narendar V. Rao, Neha Matlani, Frank Scrimgeour, and Debasis Patnaik. 2020. Gender diversity and firm performance: Evidence from India and Singapore. *Applied Economics* 52: 1553–65. [[CrossRef](#)]
- Elgadi, Entissar, and Wafa Ghardallou. 2022. Gender diversity, board of director's size and Islamic banks performance. *Journal of Islamic and Middle Eastern Finance and Management* 15: 664–80. [[CrossRef](#)]
- Fernando, Guy D., Shalini Sarin Jain, and Arindam Tripathy. 2020. This cloud has a silver lining: Gender diversity, managerial ability, and firm performance. *Journal of Business Research* 117: 484–96. [[CrossRef](#)]
- Ferreira, Aldonio, Carly Moulang, and Bayu Hendro. 2010. Environmental management accounting and innovation: An exploratory analysis. *Accounting, Auditing & Accountability Journal* 23: 920–48.
- Fields, L. Paige, Donald R. Fraser, and Avanidhar Subrahmanyam. 2012. Board quality and the cost of debt capital: The case of bank loans. *Journal of Banking & Finance* 36: 1536–47.
- Francoeur, Claude, Réal Labelle, and Bernard Sinclair-Desgagné. 2008. Gender diversity in corporate governance and top management. *Journal of Business Ethics* 81: 83–95. [[CrossRef](#)]
- Gan, Dennis, and Truls Erikson. 2022. Venture governance: CEO duality and new venture performance. *Journal of Business Venturing Insights* 17: e00304. [[CrossRef](#)]
- Ghardallou, Wafa. 2022. Capital structure decisions and corporate performance: Does firm's profitability matter? *Journal of Scientific and Industrial Research (JSIR)* 81: 859–65.
- Giannetti, Mariassunta, and Mengxin Zhao. 2019. Board ancestral diversity and firm-performance volatility. *Journal of Financial and Quantitative Analysis* 54: 1117–55. [[CrossRef](#)]
- Guest, Paul M. 2009. The impact of board size on firm performance: Evidence from the UK. *The European Journal of Finance* 15: 385–404. [[CrossRef](#)]
- Guo, Haifeng, Tenkir Seifu Legesse, Jiqiang Tang, and Zhen Wu. 2021. Financial leverage and firm efficiency: The mediating role of cash holding. *Applied Economics* 53: 2108–24. [[CrossRef](#)]
- Hajawiyah, Ain, Agus Wahyudin, Kiswanto, Sakinah, and Indra Pahala. 2020. The effect of good corporate governance mechanisms on accounting conservatism with leverage as a moderating variable. *Cogent Business & Management* 7: 1779479.
- Hassan, Rohail, and Maran Marimuthu. 2018. Bridging and bonding: Having a Muslim diversity on corporate boards and firm performance. *Journal of Islamic Accounting and Business Research* 3: 457–78. [[CrossRef](#)]
- Hu, Xiaoyuan, Danmo Lin, and Onur Kemal Tosun. 2022. The effect of board independence on firm performance—new evidence from product market conditions. *The European Journal of Finance*, 1–30. [[CrossRef](#)]
- Iqbal, Umer, and Muhammad Usman. 2018. Impact of financial leverage on firm performance: Textile composite companies of Pakistan. *SEISENSE Journal of Management* 1: 70–78. [[CrossRef](#)]
- Isidro, Helena, and Márcia Sobral. 2015. The effects of women on corporate boards on firm value, financial performance, and ethical and social compliance. *Journal of Business Ethics* 132: 1–19. [[CrossRef](#)]
- Jensen, Michael C. 1986. Agency costs of free cash flow, Corporate finance, and takeovers. *The American Economic Review* 76: 323–29.
- Jensen, Michael C. 1993. The modern industrial revolution, exit, and the failure of internal control systems. *The Journal of Finance* 48: 831–80. [[CrossRef](#)]
- Jin, Guangchun, and Jian Xu. 2022. Does intellectual capital affect financial leverage of Chinese agricultural companies? Exploring the role of firm profitability. *Sustainability* 14: 2682. [[CrossRef](#)]
- Kao, Mao-Feng, Lynn Hodgkinson, and Aziz Jaafar. 2019. Ownership structure, board of directors and firm performance: Evidence from Taiwan. *Corporate Governance* 19: 189–216. [[CrossRef](#)]
- Khan, Arifur, Mohammad Badrul Muttakin, and Javed Siddiqui. 2013. Corporate governance and corporate social responsibility disclosures: Evidence from an emerging economy. *Journal of Business Ethics* 114: 207–23. [[CrossRef](#)]
- Khan, Asad, Memoona Bibi, and Sarfaraz Tanveer. 2016. The impact of corporate governance on cash holdings: A comparative study on the manufacturing and service industry. *Financial Studies* 20: 40–79.
- Khan, Sajjad Nawaz, Muhammad Noman Yaseen, Fakhra Mustafa, and Sidra Abbasi. 2019. The interaction effect of financial leverage on the relationship between board attributes and firm performance: Evidence of non-financial listed companies of Pakistan. *Journal of Accounting and Finance in Emerging Economies* 5: 115–22. [[CrossRef](#)]
- Kim, Daehyun, and Laura T. Starks. 2016. Gender diversity on corporate boards: Do women contribute unique skills? *American Economic Review* 106: 267–71. [[CrossRef](#)]
- Konrad, Alison M., Vicki Kramer, and Sumru Erkut. 2008. The impact of three or more women on corporate boards. *Organizational dynamics* 37: 145–64. [[CrossRef](#)]

- Lee, Sang-Youn, and Eun-Jeong Ko. 2022. Effects of founder CEO duality and board size on foreign IPOs' survival in US markets. *Corporate Governance: The International Journal of Business in Society* 22: 1054–77. [\[CrossRef\]](#)
- Lemennicier, Bertrand, Joël Hermet, and Duraisamy Palanigounder. 2019. Corporate governance, firm performance and executive pay: A comparison of defense and non-defense firms. *Corporate Governance and Sustainability Review* 3: 8–17. [\[CrossRef\]](#)
- Linck, James S., Jeffrey M. Netter, and Tina Yang. 2008. The determinants of board structure. *Journal of Financial Economics* 87: 308–28. [\[CrossRef\]](#)
- Lopez-Gracia, Jose, and Reyes Mestre-Barberá. 2015. On the relevance of agency conflicts in SME debt maturity structure. *Journal of Small Business Management* 53: 714–34. [\[CrossRef\]](#)
- Mahmood, Zeeshan, Rehana Kouser, Waris Ali, Zubair Ahmad, and Tahira Salman. 2018. Does corporate governance affect sustainability disclosure? A mixed methods study. *Sustainability* 10: 207. [\[CrossRef\]](#)
- Mak, Yuen Teen, and Yuanto Kusnadi. 2005. Size really matters: Further evidence on the negative relationship between board size and firm value. *Pacific-Basin Finance Journal* 13: 301–18. [\[CrossRef\]](#)
- Marquez-Cardenas, Valentina, Juan David Gonzalez-Ruiz, and Eduardo Duque-Grisales. 2022. Board gender diversity and firm performance: Evidence from Latin America. *Journal of Sustainable Finance & Investment* 12: 785–808.
- Martinez-Jimenez, Rocio, María Jesús Hernández-Ortiz, and Ana Isabel Cabrera Fernández. 2020. Gender diversity influence on board effectiveness and business performance. *Corporate Governance: The International Journal of Business in Society* 20: 307–23. [\[CrossRef\]](#)
- Maseda, Amaia, Txomin Iturralde, and Blanca Arosa. 2015. Impact of outsiders on firm performance over different generations of family-owned SMEs. *Journal of Small Business Management* 53: 1203–18. [\[CrossRef\]](#)
- McCabe, Margaret, and Margaret Nowak. 2008. The independent director on the board of company directors. *Managerial Auditing Journal* 23: 545–66. [\[CrossRef\]](#)
- Merendino, Alessandro, and Rob Melville. 2019. The board of directors and firm performance: Empirical evidence from listed companies. *Corporate Governance: The International Journal of Business in Society* 1: 118–21. [\[CrossRef\]](#)
- Mohan, Aswathy, and S. Chandramohan. 2018. Impact of corporate governance on firm performance: Empirical evidence from India. *IMPACT: International Journal of Research in Humanities, Arts and Literature* 6: 209–18.
- Moreno-Gómez, Jorge, Esteban Lafuente, and Yancy Vaillant. 2018. Gender diversity in the board, women's leadership and business performance. *Gender in Management: An International Journal* 33: 104–22. [\[CrossRef\]](#)
- Mulili, Benjamin Mwanzia, and Peter Wong. 2011. Corporate governance practices in developing countries: The case for Kenya. *International Journal of Business Administration* 2: 14–27. [\[CrossRef\]](#)
- Muniandy, Balachandran, and John Hillier. 2015. Board independence investment opportunity set and performance of South African firms. *Pacific-Basin Finance Journal* 35: 108–24. [\[CrossRef\]](#)
- Muttakin, Mohammad Badrul, Arifur Khan, and Dessalegn Getie Mihret. 2018. The effect of board capital and CEO power on corporate social responsibility disclosures. *Journal of Business Ethics* 150: 41–56. [\[CrossRef\]](#)
- Nicholson, Gavin J., and Geoffrey C. Kiel. 2007. Can directors impact performance? A case-based test of three theories of corporate governance. *Corporate Governance: An International Review* 15: 585–608. [\[CrossRef\]](#)
- Nielsen, Lyngé. 2011. *Classifications of Countries Based on Their Level of Development: How It Is Done and How It Could Be Done*. IMF Working Paper No. WP/11/31. Washington, DC: International Monetary Fund, pp. 1–46.
- Nuanpradit, Sirada. 2018. The relationship between information asymmetry and real earnings management: The role of CEO duality in Thailand. *JBA Business Administration Journal* 41: 48–69.
- O'Connell, Vincent, Naser AbuGhazaleh, Yasean Tahat, and Garvan Whelan. 2022. The Impact of R&D Innovation Success on the Relationship between R&D Investment and financial leverage. *Journal of Open Innovation: Technology, Market, and Complexity* 8: 129.
- Obradovich, John, and Amarjit Gill. 2013. The impact of corporate governance and financial leverage on the value of American firms. *International Research Journal of Finance and Economics* 91: 1–14.
- Panda, Brahmadev, and N. M. Leepsa. 2017. Agency theory: Review of theory and evidence on problems and perspectives. *Indian Journal of Corporate Governance* 10: 74–95. [\[CrossRef\]](#)
- Pham, Hanh Song Thi, and Duy Thanh Nguyen. 2019. The effects of corporate governance mechanisms on the financial leverage-profitability relation: Evidence from Vietnam. *Management Research Review* 43: 387–409. [\[CrossRef\]](#)
- Pillai, Rekha, and Husam-Aldin Nizar Al-Malkawi. 2018. On the relationship between corporate governance and firm performance: Evidence from GCC countries. *Research in International Business and Finance* 44: 394–410. [\[CrossRef\]](#)
- Pucheta-Martínez, María Consuelo, and Isabel Gallego-Álvarez. 2020. Do board characteristics drive firm performance? An international perspective. *Review of Managerial Science* 14: 1251–97. [\[CrossRef\]](#)
- Puni, Albert, and Alex Anlesinya. 2020. Corporate governance mechanisms and firm performance in a developing country. *International Journal of Law and Management* 62: 147–69. [\[CrossRef\]](#)
- Rai, Arun, Ravi Patnayakuni, and Nainika Patnayakuni. 1997. Technology investment and business performance. *Communications of the ACM* 40: 89–97. [\[CrossRef\]](#)
- Ramalho, Joaquim J. S., and J. Vidigal da Silva. 2013. Functional form issues in the regression analysis of financial leverage ratios. *Empirical economics* 44: 799–831. [\[CrossRef\]](#)
- Rashid, Kashif. A. 2008. Comparison of Corporate Governance and Firm Performance in Developing (Malaysia) and Developed (Australia) Financial Markets. Ph.D. dissertation, Victoria University, Footscray, Australia.

- Roodman, David. 2009. A note on the theme of too many instruments. *Oxford Bulletin of Economics and Statistics* 71: 135–58. [\[CrossRef\]](#)
- Santoso, Eko Budi, and Sherly Novia Salim. 2022. Pengaruh profitabilitas, financial leverage, dividen, Ukuran Perusahaan, Kepemilikan institusional, Dan Kelompok Usaha Terhadap Perataan Laba Studi Kasus Pada Perusahaan Non-Finansial Yang Terdaftar Di BEI. Paper presented at the Conference in Business, Accounting, and Management (2022CBAM), Semarang, Indonesia, December 6–7; pp. 185–213.
- Seifert, Bruce, Halit Gonenc, and Jim Wright. 2005. The international evidence on performance and equity ownership by insiders, block holders, and institutions. *Journal of Multinational Financial Management* 15: 171–91. [\[CrossRef\]](#)
- Setó-Pamies, Dolors. 2015. The relationship between women directors and corporate social responsibility. *Corporate Social Responsibility and Environmental Management* 22: 334–45. [\[CrossRef\]](#)
- Shan, Yuan George. 2019. Managerial ownership, board independence and firm performance. *Accounting Research Journal* 32: 203–20. [\[CrossRef\]](#)
- Sila, Vathunyoo, Angelica Gonzalez, and Jens Hagendorff. 2017. Independent director reputation incentives and stock price informativeness. *Journal of Corporate Finance* 47: 219–35. [\[CrossRef\]](#)
- Strøm, R. Øystein, Bert D'Espallier, and Roy Mersland. 2014. Female leadership, performance, and governance in microfinance institutions. *Journal of Banking and Finance* 42: 60–75.
- Teti, Emanuele, Alberto Dell'Acqua, Leonardo Etro, and Michele Volpe. 2017. The impact of board independency, CEO duality and CEO fixed compensation on M&A performance. *Corporate Governance: The International Journal of Business in Society* 17: 947–71.
- Tran, Ly Thi Hai. 2022. Reporting quality and financial leverage: Are qualitative characteristics or earnings quality more important? Evidence from an emerging bank-based economy. *Research in International Business and Finance* 60: 101578. [\[CrossRef\]](#)
- Tulung, Joy Elly, and Dendi Ramdani. 2018. Independence, size and performance of the board: An emerging market research. *Corporate Ownership & Control* 15: 201–08.
- Ullah, Md Hafij, and Mohammad Afjalur Rahman. 2015. Corporate social responsibility reporting practices in banking companies in Bangladesh: Impact of regulatory change. *Journal of Financial Reporting and Accounting* 13: 200–25. [\[CrossRef\]](#)
- Vafeas, Nikos, and Adamos Vlittis. 2018. Independent directors and defined benefit pension plan freezes. *Journal of Corporate Finance* 50: 505–18. [\[CrossRef\]](#)
- Vijayakumaran, Sunitha, and Ratnam Vijayakumaran. 2019. Corporate governance and capital structure decisions: Evidence from Chinese listed companies. *Journal of Asian Finance, Economics and Business* 6: 67–79. [\[CrossRef\]](#)
- Vithessonthi, Chaiporn, and Jittima Tongurai. 2015. The effect of leverage on performance: Domestically oriented versus internationally oriented firms. *Research in International Business and Finance* 34: 265–80.
- Wang, Xu, Shengliang Deng, and Ilan Alon. 2021. Women executives and financing pecking order of GEM-listed companies: Moderating roles of social capital and regional institutional environment. *Journal of Business Research* 136: 466–78. [\[CrossRef\]](#)
- Wasiuzzaman, Shaista. 2019. Resource sharing in interfirm alliances between SMEs and large firms and SME access to finance: A study of Malaysian SMEs. *Management Research Review* 42: 1375–99. [\[CrossRef\]](#)
- Weck, Michelle K., Dennis B. Veltrop, Jana Oehmichen, and Floor Rink. 2022. Why and when female directors are less engaged in their board duties: An interface perspective. *Long Range Planning* 55: 102123. [\[CrossRef\]](#)
- Wen, Yu, Kami Rwegasira, and Jan Bilderbeek. 2002. Corporate governance and capital structure decisions of the Chinese listed firms. *Corporate Governance: An International Review* 10: 75–83. [\[CrossRef\]](#)
- Wu, Tai-Hsi, Pei Ju Lucy Ting, Mei-Chen Lin, and Chia-Chi Chang. 2020a. Corporate ownership and firm performance: A mediating role of innovation efficiency. *Economics of Innovation and New Technology* 31: 292–319. [\[CrossRef\]](#)
- Wu, Wuqing, Fei Peng, Yuan George Shan, and Lu Zhang. 2020b. Litigation risk and firm performance: The effect of internal and external corporate governance. *Corporate Governance: An International Review* 28: 210–39. [\[CrossRef\]](#)
- Xin, Kuang, Yuchun Sun, Ran Zhang, and Xiao Liu. 2019. Debt financing and technological innovation: Evidence from China. *Journal of Business Economics and Management* 20: 841–59. [\[CrossRef\]](#)
- Yang, Ruili, Kui Xia, and Hongxing Wen. 2016. Venture capital, financial leverage and enterprise performance. *Procedia Computer Science* 91: 114–21. [\[CrossRef\]](#)
- Yasser, Qaiser Rafique, Harry Anak Entebang, and Shazali Abu Mansor. 2011. Corporate governance and firm performance in Pakistan: The case of Karachi Stock Exchange (KSE)-30. *Journal of Economics and International Finance* 3: 482–91. [\[CrossRef\]](#)
- Yermack, David. 1996. Higher market valuation of companies with a small board of directors. *Journal of Financial Economics* 40: 185–211. [\[CrossRef\]](#)
- Yilmaz, Mustafa K., Umit Hacıoglu, Fatuma Abdallah Nantebelele, and Samba Sowe. 2021. Corporate board diversity and its impact on the social performance of companies from emerging economies. *Global Business and Organizational Excellence* 41: 6–20. [\[CrossRef\]](#)
- Zelechowski, Deborah Dahlen, and Diana Bilimoria. 2004. Characteristics of women and men corporate inside directors in the US. *Corporate Governance: An International Review* 12: 337–42. [\[CrossRef\]](#)
- Zhang, Letian. 2020. An institutional approach to gender diversity and firm performance. *Organization Science* 31: 439–57. [\[CrossRef\]](#)
- Zhang, Ling, Sheng Zhang, and Yingyuan Guo. 2019. The effects of equity financing and debt financing on technological innovation: Evidence from developed countries. *Baltic Journal of Management* 14: 398–715. [\[CrossRef\]](#)
- Zhou, Mengling, Kexin Li, and Zhongfei Chen. 2021. Corporate governance quality and financial leverage: Evidence from China. *International Review of Financial Analysis* 73: 101652. [\[CrossRef\]](#)