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# Impact of Board Ownership Structure on Firm Value and Excessive Cash Holdings: Evidence from Pakistan

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**Abstract**

**Objective:** This study investigates the influence of board ownership structure on firm value and the management of excessive cash holdings.

**Methods:** Data from the financial statements of 72 Pakistani firms were collected and analyzed using a Fixed Effect Model (FEM).

**Findings:** The statistical analysis reveals a significant correlation between the board ownership structure and firm value, emphasizing the pivotal role of efficient management in enhancing firm value and optimizing the utilization of excess cash holdings. The study also demonstrates the significance of the coefficient of determination about board size and firm value.

**Implications**: Based on the findings, we recommend that companies actively promote diversity among board members, encompassing not only in terms of gender, age, and nationality but also in knowledge, skills, and information. Such diversity plays a crucial role in ensuring compliance with good corporate governance mechanisms and governance codes, offering valuable insights for firm managers seeking to optimize their firm's value. Additionally, we suggest that firms consider the sensitivity of their board ownership structure when making decisions regarding excessive cash holdings and firm value. This study's focus on board ownership structure, firm value, and cash holdings in Pakistan provides valuable insights that can inform decision-making theory, corporate governance decisions, and policy discussions, making it relevant to the broader field of decision sciences.

**Novelty**: While the study acknowledges the well-explored relationship between corporate governance and firm performance, it focuses explicitly on the impact of board ownership structure, highlighting the significance of understanding how the composition of boards, including ownership patterns, influences firm value and financial practices.

**Keywords**: Board Ownership Structure; Firm Value; Excessive Cash Holdings; Corporate Governance; PSX

**JEL Classification**: G30, G32, G38

## 1. Introduction

The relationship among board ownership structure, firm value, and firm excessive cash holdings is complex and multifaceted. The board ownership structure, which encompasses the composition and ownership stakes of board members, plays a crucial role in shaping the decision-making processes within a company. When the board consists of independent directors with significant ownership stakes, it can foster good corporate governance practices, align the interests of shareholders and management, and enhance firm value (Herachwati, et al., 2023). Such a structure promotes transparency, accountability, and effective oversight, which can lead to value creation and optimal resource allocation. In the context of excessive cash holdings, the board ownership structure can influence the company's decision regarding the accumulation or distribution of cash reserves. A balanced board, with a mix of inside and outside directors, is more likely to advocate for efficient capital allocation and reduced cash hoarding. Independent directors representing shareholder interests may encourage the distribution of excess cash through dividends, share buybacks, or strategic investments that generate higher returns. This can mitigate agency costs, improve resource efficiency, and enhance firm value. However, a board ownership structure lacking independence or including controlling shareholders may lead to suboptimal outcomes (Pham, et al., 2022). Controlling shareholders or CEOs with significant influence may prioritize personal objectives or control retention, resulting in excessive cash holdings beyond what is necessary for operational needs. This can hinder value creation and diminish the company's performance (Ramadan & Safavi, 2022).

In this competitive era, businesses need to be ready for the competition, which urges them to reconsider the decisions regarding board ownership structure, firm values, and excessive cash holdings decisions again and again (Lok, et al., 2022). Therefore, this study tries to find the link between boar ownership structure, firm value, and excessive cash holdings. The motivation of this study is to examine the impact of board ownership structure on firm value and the management of excessive cash holdings within Pakistani firms. This research aims to shed light on how the composition of boards, including ownership patterns, influences these crucial aspects of corporate performance. The study seeks to provide valuable insights into the role of efficient management, corporate governance, and diversity among board members in enhancing firm value and optimizing the utilization of excess cash holdings (Mahmood, et al., 2022). In the context of Pakistani firms, a critical need exists to understand the relationship between board ownership structure and its impact on firm value and the management of excessive cash holdings. While corporate governance and its influence on firm performance have been widely explored, the role of board ownership structure, including ownership patterns, in shaping these outcomes remains underexamined. This study addresses this knowledge gap by investigating how board ownership structure affects firm value and the efficient management of excess cash holdings. By exploring this relationship, the study seeks to provide valuable insights for companies and policymakers in Pakistan looking to enhance corporate governance practices and optimize financial management strategies.

Generally, the firm's value may increase and decrease depending on the board's ownership structure (BOS) (Bajagai, et al., 2019). In addition, a more profound association between the board's ownership structure and the firm's performance could be found in the existing literature. Khan, et al.

(2020) proposed a strategy to mitigate the costs associated with significant management ownership by implementing counterbalancing measures that align with the overall value of the firm. Similarly, the value of corporate assets declines when they are managed by board owners who demonstrate imprecision from checks and balances in corporate finance and assets. However, using linear modeling, another study found no significant liaison between firm value and board ownership structure (Patel, 2019). However, using linear modeling, Yousaf, et al. (2019) explored the influence of board ownership structure on firm value. Parallel to this, studies by Usman and Alam (2020) utilized nonlinear modeling. They found a positive effect due to a significant association between the board's ownership structure and the firm's value per its performance. Iftikhar's (2017) work has observed positive and negative liaisons between firms' excessive cash holdings and firm values. Moreover, when firms face uncertain future cash flows, they hold more cash to tackle uncertain situations. However, firms also have more money for further investment, which shows a positive connection between excessive cash holdings and firm values (Nguyen, et al., 2023). This study's focus on board ownership structure, firm value, and cash holdings in Pakistan provides valuable insights that can inform decision-making theory, corporate governance decisions, and policy discussions, making it relevant to the broader field of decision sciences.

However, it could be noted that the board's ownership structure is concerned with majorly three characteristics of the process of decision-making in a firm that is first, who is authorised to make a decision, secondly, whose interest is required to be given high priority in making a specific decision (Trang, et al., 2022; Usman & Alam, 2020). Finally, it kept in view factors, i.e., the political, economic, sociological, technological, legal, and environmental factors (PESTLE), and their impact on the decision-making process and conclusion of these decisions. The emergence of developing economies, i.e., China, Korea, Europe, and a majority of African countries, has further led to empirical research solely based on economies and has grabbed the attention of researchers worldwide (Yousaf, et al., 2019). The only difference in these empirical studies' outcomes is the difference in institutions between the developed and developing economies. Given the emerging economies, corporate governance mechanisms correlate significantly with the performance of Pakistani-listed firms. Ullah, et al. (2019) state that well-functioning corporate governance frameworks are crucially significant for foreign and local investors who find the opportunities for investment and development provided by these emerging economies. In brief, this work found a substantial link between board ownership structure and firm value.

This research explores excessive cash holdings and firm value of the company concerning the characteristics and attributes of the company deals. The results disclose that managing cash and cash equivalents is essential for management and managers (Ha, 2016). The main aspect of the firm value can be enhanced by decreasing the organization's state-owned functions and increasing management efficiency in operations and corporate governance to increase the firm's value. Cash holdings, leverage, dividend payments, and profitability with a state-owned partnership are more complex than privately owned ones (Egozcue, et al., 2015). Operating the firm to create more value is the main objective of the shareholders, and increasing performance to raise the return of the company's stocks or shares is the primary aim of each board member. Expanding the firm's investment to develop practical corporate value in the market is the firm's primary function. Moreover, generating high cash and holding excess cash also decreases the marginal value of the money. Thus, increasing the company's costs is one of the main significant aspects of the study (Lee & Powell, 2011).

In addition, this research contributes to several aspects of the corporate finance and governance mechanism to build organizational cash balances. This research is also significant for managing companies, especially those in Pakistan. Moreover, it contributes to a systematic overview that could assist the firm management and shareholders in making substantial changes in the board structure, which may establish an effective marketplace. Moreover, a critical discussion regarding the board attributes and other aspects of the firm's board members could enhance the firm’s value by reducing the firm's threat in determining the cash holdings (Lo, et al., 2021; Sheikh & Khan, 2016). Moreover, excessive and inadequate cash holdings are significant for the companies to determine and analyze their financial condition that could be used to meet their obligations and financial requirements. Corporate economic policies and other aspects are also critical to examine and to influence cash management (Boubaker, et al., 2015; Nguyen, et al., 2020).

The study highlights the novelty of its focus on the board ownership structure's specific impact, emphasizing that the composition of boards, including ownership patterns, can significantly influence firm value and financial practices. The study's methodology combines data collection and analysis techniques to investigate the relationship between board ownership structure and firm value. This contributes to a better understanding of corporate governance practices in Pakistani firms.

This study is divided into six sections. Section 1 introduces the study, and Section 2 discusses a review of the literature. The explanation of the material and method is in Section 3. Moreover, the results are reported in Section 4, and their explanation is in Section 5. In the end, Section 6 explains the conclusion of the study and policy recommendations of the study.

## 2. Literature Review

### *2.1 Theoretical Framework*

Various theories discuss the relationship between board ownership structure and firm value. The agency cost theory is an economic and financial concept that describes the conflict of interest between a firm's owners and the managers within an organization due to the separation of ownership and control in a corporation. As a result, rising conflict increases the expenses or losses. Moreover, this theory deals with mitigating the problems and seeks to strengthen the relationship of both parties by providing a framework for understanding (Guo & Wong, 2019; Jensen & Meckling, 1976; Panda & Leepsa, 2017). This understanding boosts the board directors' confidence, which leads to hoisting firm value by managing excessive cash holdings efficiently. Similarly, stakeholder theory examines the responsibility of the firm's board of directors and how each firm is enhancing its products or services to satisfy the stakeholders' requirements. Furthermore, this theory strives to develop effective relationships and attempts to influence the coordination of the firm among stakeholders (Abid, et al., 2015; Freeman, et al., 2010). It also deals with the two perspectives, corporate governance, and transparent control, used to develop effective relationships between the firm and its stakeholders, i.e., customers, society, community, and others. An effective board of owners structure has a minimum conflict and interest, and they give their best to increase firm value (Fontaine, et al., 2006; Freeman, et al., 2010; Ullah & Kamal, 2018).

Iftikhar's (2017) work has noted positive and negative relationships between excessive cash holdings and firm values. Moreover, Ameer (2012) asserted that there is an inverse relationship between excessive cash holdings and firm values. However, Boubaker, et al. (2015) have found a positive connection between board ownership structures and firm value. Similarly, Schauten, et al. (2013) found a direct association between corporate governance and firm value. Recent studies by Widagdo, et al. (2022) and Nassirzadeh, et al. (2023) have explored the link between corporate governance characteristics, intellectual capital on gender on earnings management. However, existing studies have not shed enough light concerning the board ownership structure, firm values, and excessive cash holdings. Therefore, this study fills this literature gap.

### *2.2 Board Ownership Structure and Firm Value*

As per the general view, a promoter is viewed as a person who has been associated with the organization since the beginning. According to Muttakin and Subramaniam (2015), promoters are a group of people who come up with an innovative idea of setting up a business; however, the group of people who joined after the formation and functioning of the company are usually recognized as shareholders. In this regard, a promoter is recognized as necessary for the company's incorporation and stays highly important until the beginning of a business. Promoter ownership is also widely recognized as one of the important types of board ownership structure that can influence a firm's value. Gill, et al. (2015) find that promoter ownership is often regarded as concentrated board ownership by relatives, family members, and friends. The findings of the same study reveal that promoter ownership often reduces a firm's leverage, as most of the shareholders in promoter ownership belong to the same relatives and family. On the other hand, the study conducted by Sasidharan and Varghese (2019) identifies promoter ownership as having a significant and positive impact on firms' value. The same study identifies CEO duality and institutional ownership as two other types of board ownership structure (Broll, et al., 2015).

Promoter ownership is those who hold the company's overall operations and can manage the control over the organizational performance. The promoter shareholders of the company work to develop a significant impact on the company's overall value and increase the result of the decision through developing a substantial effect on the affairs of the company and suggest that promoter shareholders carry a significant impact on the organizational decision-making environment (Ganguli & Agrawal, 2009). The decisions of the economy strongly influence the management of the firms. The promoter shareholders of the company work for the value enhancement of a corporate entity by making decisions regarding the firm's value or board structural changes. The decisions regarding holding cash highly influence the firm's management. Moreover, these changes are required to minimize and mitigate the risk of threats and obstacles that are faced by the organizational management regarding their financial obligations and financial analysis (Gill, et al., 2015; Chan & Chu, 2022).

Institutional ownership is another common form of ownership structure in which the ownership stake in a firm is held by the giant pension endowments or funds, financial organisations (Khan, et al., 2017). In this manner, these institutions purchase large chunks of the firm's outstanding shares and influence the firm's management considerably. Similarly, Al-Sartawi and Sanad (2019), institutional ownership is the amount of a firm's stock that pension or mutual funds, private foundations, investment firms, endowments, insurance companies, and other large institutions own. Several studies examined the impact of institutional ownership on a firm's value. The study conducted by Sasidharan and Varghese (2019) identifies the negative impact of institutional ownership on a firm's value, as it negatively influences the decision-making process. Moreover, the study carried out by Lin and Fu (2017) argues that institutional ownership is generally considered an important form of ownership structure that makes a positive impact on firm performance; however, it is also essential to consider that not all institutional owners or investors offers active monitoring and make a positive impact on firm's performance. Hence, the influence of institutional ownership can vary in organisational contexts and situations.

The concept of CEO duality is explained as the situation in which the company's CEO also carries out the position of board's chairman (Duru, et al., 2016). The influence of CEO duality on firm value has been widely debated in the business world and academia. Many studies indicate the negative impact of CEO duality on a firm's value. Tang (2017), when the roles and responsibilities of performing the board's chairman duties are restricted to one individual, it generally positively impacts the decision-making process, eventually increasing the firm's value. Therefore, having CEO duality of board ownership structure can hurt a firm's value. This is also validated by Duru, et al. (2016); according to them, CEO duality negatively influences a firm's performance, as this form of structure comprises the control and monitoring of the CEO.

In contrast, some of the studies also identify CEO duality as advantageous for the organisation, as it promises to provide clear direction under a single leadership (Song & Kang, 2019; Wang, et, al., 2019). CEO duality is expected as the organisational shareholders prefer that members with ownership and a high stake in the company should run the firm's operations. It is understood that a person in charge should also face the company's operational management challenges and personally look over the business functions to enhance the firm's value. The CEO duality is very effective in some cases but is considered ineffective in others. The CEO in charge is also responsible for managing the board ownership and has a clear idea regarding the company's required changes that would influence the board committee and organisational dynamics (Krause, et al., 2014). A person who is a significant corporate and financial management decision-maker would face the company's financial concerns. The organization's overall control depends on one individual, which is not exemplary.

Board independence is when all or most board members are not associated with the firm but are directors (Rashid, 2018). In other words, most of the board's members under this concept tend to be independent from the company. The study by Uribe-Bohorquez, et al. (2018) argues that not all independent directors are independent in decision-making. Instead, they tend to perform in the interest of large shareholders, who have a huge say in the company's performance. Moreover, independent directors control the firm's activities at all levels and possess the authority to dismiss and appoint top-level managers and make decisions in the organisation's best interest. The study's findings conducted by Fuzi, et al. (2016) showed mixed relationships between the number of independent directors and the firm's value. However, according to the same study, companies holding a significant number of independent directors are insufficient to influence the firm's value positively. Hence, it is imperative for companies to closely monitor the existence of independent directors on the board to increase the firm's value.

Board size is generally viewed in terms of the overall number of directors in the corporate governance board, including chairman and CEO (Nguyen, et al., 2016). It also involves all types of directors, e.g., non-executive, executive, and outside directors. Board size is often regarded as one of the most important determinants of board ownership structure, which also holds the potential to affect a firm's value. According to Kalsie and Shrivastav (2016), large board size comprises more directors who put their combined efforts towards the stakeholder's interests in controlling and monitoring, thus increasing the firm's value. According to the same study, board size has become one of the major concerns for organizations, as they often find it difficult to set the optimum level of board size, which can positively impact firm performance. As per Guest (2009), small board size is found to have a positive and significant association with a firm's performance, suggesting that small board size enhances the quality of the board's actions and the firm performance. The firm's board size matters to the firm's financial performance. To establish an effective corporate governance mechanism in the overall organization, a large board size can be effective and a challenge for the board structure and ownership (Pan, et al., 2018).

***H1: There is a significant link between promoter ownership structure and firm value.***
***H2: There is a significant link between institutional ownership structure and firm value.***
***H3: There is a significant link between CEO duality structure and firm value.***
***H4: There is a significant link between board independence and firm value.***
***H5: There is a significant link between board size and firm value.***

### *2.3 Board Ownership Structure on Firm Excessive Cash Holding*

Within this current digital age, organizations have been looking forward toward large businesses and administering the standardized structure to be followed that can be used for better sustainability and profitability of the organization (Talab, et al., 2018). Chiu, et al. (2021) have included the board ownership structure in the study and have shown that the board ownership structure has a significant positive relationship with the firm's excessive cash holdings. The researchers have investigated various aspects for assessing the board structure and firm performance within the organizations that can be treated as a connection between the variables and showing a higher influence on the firm's value (Chiu, et al., 2021). It is highly based on the relationship between the organization's current assets and current liabilities. However, Farwis and Azeez (2019) and Vu, et al. (2018) have also argued that the relationship between board structure and the value of the firms is significant and can be used for further management and organization of the cash holdings within the organizations.

Susilawati and Rakhman (2018) has highlighted the aspects that the firm's performance and values have been utilized to manage the organizational culture's responses and behaviors. Lepore, et al. (2018) have also added that the structure followed within the board has been relatively effective and can be used within multinational organizations for managing and operating the business measures and dealing with structural model of the organization. The firm's value has been integrated and assessed in terms of dealing with the human behavior and responses that can be used to gather the significant relationship between corporate governance and the firm's value (Susilawati & Rakhman, 2018). The literature has provided different kinds of findings that have supported the features of ownership structure and have also been managing the responses of the firm's structure that can be owned about the promoter's holdings and other such aspects. It has been observed that the factors of CEO duality have also been present within the organization for referring to the situation for holding the institutional ownership. Board ownership structure can indeed have an impact on a firm's excessive cash holdings. Excessive cash holdings refer to accumulating large cash reserves beyond what is necessary for the company's operations and investment needs.

***H6: There is a significant link between promoter ownership structure and the firm's excessive cash holdings.***

***H7: There is a significant link between institutional ownership structure and the firm's excessive cash holdings.***

***H8: There is a significant link between CEO duality structure and the firm's excessive cash holdings.***

***H9: There is a significant link between board independence and the firm's excessive cash holdings..***

***H10: There is a significant link between board size and the firm's excessive cash holdings.***

### *2.4 Conceptual Framework*

The conceptual framework depicted in the Figure 1 outlines the central elements under investigation in the study, focusing on corporate governance and its effects on firm value and excessive cash holdings. Positioned on the left-hand side as independent variables are promoter ownership, institutional ownership, CEO duality, board independence, and board size. Promoter ownership reflects the stake held by the company's founders, institutional ownership represents the shareholding by large financial entities, CEO duality examines the combined roles of CEO and Chairman, board independence assesses the presence of unbiased directors, and board size accounts for the number of board members. On the right-hand side, the dependent variables include firm value, a metric assessing the financial worth of the company, and excessive cash holdings, indicating the surplus of cash beyond operational needs. The study aims to scrutinize the relationships and influences these independent variables exert on both firm value and the propensity for holding excessive cash, providing insights into the dynamics of corporate governance and its impact on financial performance.

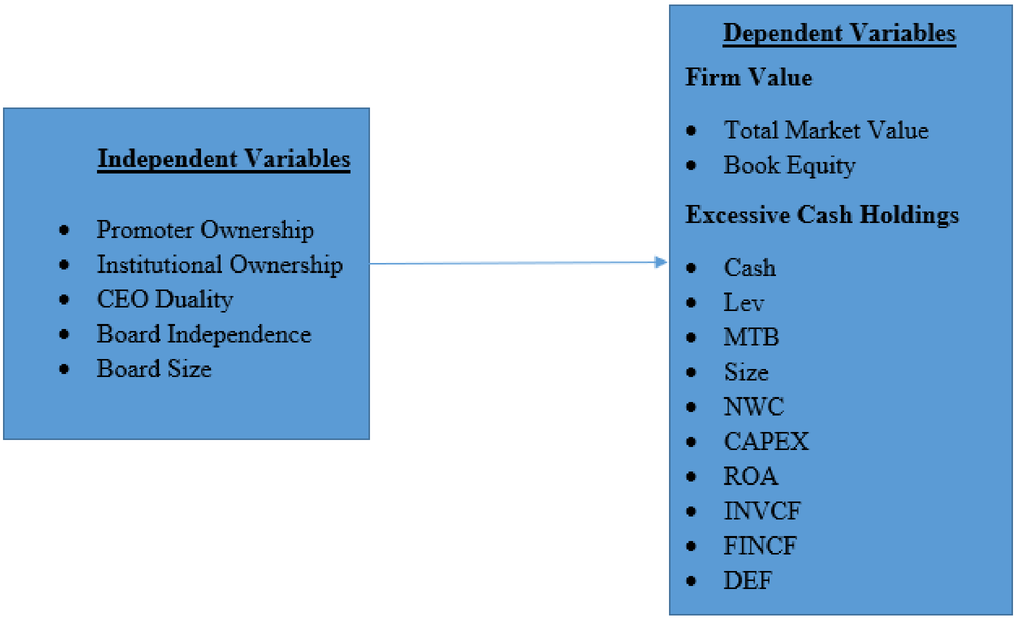


**Figure 1.** Conceptual Framework

## 3. Methodological Design

### *3.1 Data and Sample*

In this study, we aim to explore the impact of board ownership structure on both firm value and the accumulation of excessive cash holdings. We chose to conduct our empirical analysis on Pakistani firms due to the distinctive governance culture prevalent in the region and the suboptimal quality of corporate governance (Ashfaq & Rui, 2019; Khan, et al., 2022). Furthermore, we adopted a deductive research approach, enabling the researcher to test hypotheses formulated during the study's initial stages. Our data was sourced from the financial statements of the selected companies in quantitative form. This study focuses on three key variables: excess cash holdings, firm value, and board of directors (BOD) characteristics. However, it is essential to note that analyzing these variables requires considering several sub-factors for data collection. Thus, the data was collected based on these factors from the companies' annual reports, and their interrelationships were analyzed to derive the study's findings. We deemed it necessary to have a substantial sample size to ensure robust results. As a result, we selected 76 companies from the Pakistan Stock Exchange (PSX) and collected data from 2010 to 2018.

### *3.2 Measurement of Variable*

The main variables of the study are excess cash holdings of the companies, firm value, and the BOD Characteristics. It has been observed that the excess cash holdings and the firm value are being analyzed through the equation where several sub-factors can be studied, such as Cash, Leverage, MTB, SIZE, NWC, CAPEX, ROA, INVCF, FINCF & DEF for excess cash holdings (Lim & Lee, 2019). In addition, market and book equity are for firm value, while several characteristics define the BOD characteristics. These characteristics include BOD Size, Independent Board Members, Women Members on the Board, Share Holdings of Board Members, Chairman and CEO Position, Proportion of Shares held by the CEO and Time of the President or Chairman (Vu, et al., 2018). While it is generally prudent for companies to maintain a certain level of cash reserves for liquidity purposes, excessive cash holdings can indicate inefficient capital allocation. Instead of deploying the funds in more productive investments or distributing them to shareholders through dividends or share buybacks, the company hoards the cash.

Table 1 provides a comprehensive overview of the measurement of variables central to the study's exploration of corporate governance and its implications. The independent variables, namely promoter ownership, institutional ownership, CEO duality, board independence, and board size, are meticulously quantified to facilitate a thorough analysis. For promoter ownership, the table likely details the percentage of ownership held by the company's founders or promoters. Institutional ownership is likely measured as the proportion of shares held by institutional investors, encompassing entities such as mutual funds and pension funds. The measurement of CEO duality involves assessing whether the roles of CEO and Chairman of the Board are held by the same individual, capturing the governance structure's concentration or separation. Board independence is likely quantified by determining the ratio of independent directors to the total board members, shedding light on the level of unbiased oversight. The measurement of board size reflects the numerical count of directors constituting the board. By offering precise metrics for each of these independent variables, Table 1 lays the groundwork for a rigorous examination of their impact on the dependent variables—firm value and excessive cash holdings. This meticulous detailing in Table 1 is crucial for establishing a robust foundation for the subsequent analysis of corporate governance dynamics and their financial ramifications.

**Table 1.** Variables Measurement

| Factor | Measurement/Definitions | Sub-factors |
|---|---|---|
| Excess Cash Holdings | Excessive cash holdings of a firm refer to a situation where a company holds a significantly high amount of cash and cash equivalents on its balance sheet that exceeds its immediate operational and investment needs. It means the firm retains an abnormally large amount of cash beyond what is considered optimal or necessary for its day-to-day operations and future growth prospects. | CASH: Cash and cashable assets/(Assets – Cash and cashable assets)<br>LEV: Liabilities/(Liabilities + Total market value)<br>MTB: (Liabilities + Total market value)/Assets<br>SIZE: Ln(Assets)<br>NWC: (Current assets – Current liabilities)/Assets<br>CAPEX: (Fixed assets – Prior year fixed assets + Depreciation cost)/Assets<br>ROA: Earnings before interest and taxes/Assets<br>INVCF: Cash flow from investing activities/Assets<br>FINCF: Cash flow from financing activities/Assets<br>DEF: [Cash flow from operating activities after interest and taxes – (Cash dividends + Net investment + Change in net working capital)]/Assets<br>η: Firm characteristics |

| | | |
|---|---|---|
| | | ε: Error term |
| Firm Value | *Tobin;s Q=* $\frac{\textit{Market Equity}}{\textit{Book Equity}}$ | Market Equity<br>Book Equity |
| BOD Characteristics | Board of Director characteristics refer to the specific attributes, skills, and qualities that individuals serving on a company's board of directors possess. These characteristics are crucial in determining the board's effectiveness in providing strategic guidance, oversight, and decision-making for the organization. | BOD Size<br>Independent Board Members<br>Women Members in Board<br>Share Holdings of Board Members<br>Chairman and CEO Position<br>Proportion of Shares held by CEO<br>Time of President or Chairman |
| Firm Leverage | Leverage Ratio (LR) | Total Debt Divided Total Assets |
| Firm Liquidity | Liquidity Ratio (FL) | Current Assets divided by Current Liabilities |

**Abbreviations:** ECH= Excess Cash Holding, FV= Firm Value, BS= Board Structure, IBD= Proportion of Independent members in BOD, WBD= Women members in BOD, SBD= The number or proportion of shares held by BOD members, CCP= Chairman and CEO position, SCEO= Proportion of shares held by CEO, TOP= Time of president or chairman in post.

### *3.3 Econometric Models*

The research models used in this study are defined below with the help of the equation the researcher has analysed and the explanation of the characteristics.

$$FV_{it} = \alpha_\theta + \beta_1 BS_{it} + \beta_2 IBD_{it} + \beta_3 WBD_{it} + \beta_4 SBD_{it} + \beta_5 CCP_{it} + \beta_6 SCEO_{it} + \beta_7 TOP_{it} + \beta_8 FL_{it} + \beta_9 LR_{it} + \mu_{it} + \varepsilon_{it}\,, \quad (1)$$

$$ECH_{it} = \alpha_\theta + \beta_1 LEV_{it} + \beta_2 MTB_{it} + \beta_3 SIZE_{it} + \beta_4 NWC_{it} + \beta_5 CAPEX_{it} + \beta_6 ROA_{it} + \beta_7 INVCF_{it} + \beta_8 FINCF_{it} + \beta_7 DEF_{it} + \beta_8 FL_{it} + \beta_9 LR_{it} + \mu_{it} + \varepsilon_{it}, \quad (2)$$

where, in Equation (1), FV is firm value, BS is board structure, IBD is the proportion of independent members in bod, WBD is women members in bod, SBD is the number or proportion of shares held by bod members, CCP is chairperson and CEO position, SCEO is the proportion of shares held by CEO, TOP is time of president or chairman in post, LR is leverage ratio, and FL is financial leverage. In Equation (2), ECH is excess cash holding; LEV is leverage ratio; MTB is market to book ratio; SIZE is a firm size; NWC is net working capital, CAPEX is capital expenditures, ROA is the firm's profitability, INVCF is inward cash flow, FINCF is final cash flow, DEF is debt to equity ratio, FL is financial leverage, LR is a liquidity ratio.

The study conducted statistical analysis to examine the relationship between board ownership structure and firm value. This analysis likely involved regression analysis to measure the correlation and significance of this relationship. Additionally, the study may have used statistical measures like the coefficient of determination (R-squared) to assess the impact of board size on firm value. The data was analyzed using a Fixed Effect Model (FEM). The Fixed Effect Model is a statistical technique commonly used in panel data analysis to account for individual-specific effects or variations that could impact the variables of interest. It helps control for factors specific to each firm in the dataset. In addition, we check the stationarity of variables by employing a unit root test and report the statistics in Table A1. The analysis shows that all variables are stationary at level I(0). In addition, we analyze the heterogeneity by employing Hausman Test and report the statistics in Table A2. The significant p-values denotes that fixed effect is appropriate in current settings of research.

## 4. Results Reporting

### *4.1 Descriptive analysis*

Table 2 presents the descriptive analysis of the variables, offering insights into each variable's central tendencies and distributions. The mean values for these variables are as follows: The mean value of BS (Board Structure) is 8.775, which signifies the average board structure within the sample, providing information about how the board of directors is structured in the companies being studied. The mean value of CCP (Chairman and CEO Position) is 0.136, indicating the average proportion of chairperson and CEO positions held by a single individual within the sample. This value suggests that, on average, the chairperson and CEO roles are not typically consolidated in the studied companies. The mean value of FV (Firm Value) is 29.772, offering an average firm value for the companies included in the analysis and understanding the typical firm value in the sample. The mean value of IBD (Proportion of Independent members in BOD) is 6.645, reflecting the average proportion of independent members on the board of directors within the sample. This figure suggests that, on average, a substantial portion of the board members are considered independent. The mean value of SDB (Number or Proportion of shares held by BOD members) is 30.975, indicating the average number or proportion of shares held by members of the board of directors in the sample. This mean value suggests that, on average, board members have a significant stake in the company through shares.

The mean value of SCEO (Proportion of shares held by the CEO) is 4.820, representing the average proportion of shares held by the CEO within the sample. This value suggests that, on average, CEOs have a relatively smaller proportion of shares in the studied companies. The mean of LR (Liquidity Ratio) is 0.298, providing the average value of the liquidity ratio and indicating the typical level of liquidity for the companies in the sample. The mean value of FL (Financial Leverage) is 0.451, reflecting the average financial leverage within the model. This figure indicates that, on average, the companies have a certain level of economic power in their capital structure. Collectively, these statistics offer a comprehensive view of the central tendencies and characteristics of the variables, aiding in understanding the key trends and characteristics within the dataset.

**Table 2.** Descriptive Statistics.

| Variables | Mean | Median | Maximum | Minimum | Std. Dev. | Probability |
|---|---|---|---|---|---|---|
| BS | 8.775 | 8.000 | 15.000 | 6.000 | 1.962 | 0.000 |
| CCP | 0.136 | 0.000 | 1.000 | 0.000 | 0.034 | 0.000 |
| ECH | -0.011 | -0.072 | 1.390 | -0.828 | 0.400 | 0.000 |
| FV | 29.722 | 0.162 | 3662.290 | -3.525 | 264.288 | 0.000 |
| IBD | 6.645 | 7.000 | 11.000 | 3.000 | 1.907 | 0.000 |

| | | | | | | |
|---|---|---|---|---|---|---|
| SBD | 30.975 | 16.645 | 98.790 | 0.000 | 31.730 | 0.000 |
| SCEO | 4.820 | 4.700 | 53.7000 | 0.000 | 7.006 | 0.000 |
| LR | 0.298 | 0.271 | 0.400 | 0.120 | 0.192 | 0.000 |
| FL | 0.451 | 0.411 | 0.474 | 0.101 | 0.221 | 0.00 |

**Note:** Authors' Own calculations Abbreviations: ECH= Excess Cash Holding, FV= Firm Value, BS= Board Structure, IBD= Proportion of Independent members in BOD, SBD= The number or proportion of shares held by BOD members, CCP= Chairman and CEO position, SCEO= Proportion of shares held by CEO, LR=liquidity ratio,

### *4.2 Correlation Analysis*

Table 3 presents a correlation analysis among key variables, shedding light on the relationships within the studied corporate governance and financial framework. The correlation coefficients indicate the strength and direction of linear associations. Firm Value (FV) exhibits weakly negative correlations with Board Structure (BS) and the Proportion of Independent members in the Board of Directors (IBD), suggesting minimal linear relationships. Notably, a moderately strong negative correlation is observed between FV and Women members in the Board of Directors (WBD), implying a more substantial inverse relationship. The number or proportion of shares held by Board members (SBD) demonstrates a weak positive correlation with FV. The Chairman and CEO position (CCP) and FV, as well as the Proportion of shares held by the CEO (SCEO) and FV, exhibit weakly negative and positive correlations, respectively. The Time of president or chairman in post (TOP) is weakly negatively correlated with FV. Excess Cash Holding (ECH) and FV display a weakly negative correlation. Additionally, FV shows moderately positive correlations with Leverage Ratio (LR) and Financial Leverage (FL). These correlation coefficients provide preliminary insights into potential associations between corporate governance variables and financial outcomes, forming a foundation for further analysis in understanding the dynamics of the examined factors.

**Table 3.** Correlation Analysis.

| Variables | FV | BS | IBD | WBD | SBD | CCP | SEO | TOP | EC | LR | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **FV** | 1.000 | | | | | | | | | | |
| **BS** | -0.041 | 1.000 | | | | | | | | | |
| **IBD** | -0.031 | 0.825 | 1.000 | | | | | | | | |
| **WBD** | -0.326 | -0.168 | -0.253 | 1.000 | | | | | | | |
| **SBD** | 0.112 | -0.255 | -0.121 | 0.057 | 1.000 | | | | | | |
| **CCP** | -0.042 | -0.124 | -0.116 | -0.117 | -0.205 | 1.000 | | | | | |
| **SCEO** | 0.122 | 0.264 | 0.105 | -0.161 | 0.364 | -0.166 | 1.000 | | | | |
| **TOP** | -0.107 | -0.158 | -0.291 | 0.0114 | -0.399 | 0.366 | -0.294 | 1.000 | | | |
| **ECH** | -0.114 | -0.072 | -0.140 | 0.133 | -0.259 | 0.441 | -0.313 | 0.264 | 1.000 | | |
| **LR** | 0.212 | 0.177 | -0.188 | 0.111 | -0.228 | 0.541 | 0.281 | 0.377 | 0.481 | 1.000 | |
| **FL** | 0.333 | -0.091 | 0.271 | 0.281 | -0.089 | 0.391 | 0.481 | 0.321 | 0.420 | 0.213 | 1.000 |

**Abbreviations:** ECH= Excess Cash Holding, FV= Firm Value, BS= Board Structure, IBD= Proportion of Independent members in BOD, WBD= Women members in BOD, SBD= The number or proportion of shares held by BOD members, CCP= Chairman and CEO position, SCEO= Proportion of shares held by CEO, TOP= Time of president or chairman in post. LR= leverage ratio, FL=financial leverage

### *4.3 Regression Analysis*

Table 4 presents the results of a regression analysis investigating the relationship between board ownership structure and firm value in a fixed-effect model. The coefficients provide insights into the impact of each variable on the dependent variable, Firm Value. The constant term (C) is 87.987, with a statistically significant probability of 0.016, indicating the intercept value when all independent variables are zero. Board Structure (BS) has a coefficient of 2.224, showing a positive effect on firm value, although the probability of 0.082 suggests marginal significance. Proportion of Independent members in the Board of Directors (IBD) has a significant negative impact, with a coefficient of -11.322 and a probability of 0.027. Women members in the Board of Directors (WBD) also exhibit a negative influence, as indicated by the coefficient of -16.188 and a probability of 0.036. The number or proportion of shares held by Board members (SBD) has a positive effect (coefficient = 0.357) with marginal significance (probability = 0.079). Chairman and CEO position (CCP) and Proportion of shares held by CEO (SCEO) both contribute positively to firm value with coefficients of 2.123 (probability = 0.094) and 3.137 (probability = 0.057), respectively. Time of president or chairman in post (TOP) negatively affects firm value (coefficient = -3.542), with marginal significance (probability = 0.089). Leverage Ratio (LR) has a significant negative impact (coefficient = -11.801, probability = 0.001), while Firm Liquidity (FL) positively influences firm value with a coefficient of 4.051 and a highly significant probability of 0.000. The adjusted R-squared is 0.017, indicating a limited proportion of variance explained by the model. The Durbin-Watson statistic is 2.679, suggesting no substantial autocorrelation, and the probability associated with the F-statistic is 0.009, indicating the overall significance of the model.

**Table 4.** Regression Analysis between Board Ownership Structure and Firm Value

| Fixed Effect Model | | |
|---|---|---|
| **Variables** | **Co-efficient** | **Probability** |
| C (Constant) | 87.987*** | 0.016 |
| BS (Board Structure) | 2.224** | 0.082 |
| IBD (Proportion of Independent members in BOD) | -11.322*** | 0.027 |
| WBD (Women members in BOD) | -16.188*** | 0.036 |
| SBD (The number or proportion of shares held by BOD members) | 0.357** | 0.079 |
| CCP (Chairman and CEO position) | 2.123** | 0.094 |
| SCEO (= Proportion of shares held by CEO) | 3.137** | 0.057 |
| TOP (Time of president or chairman in post) | -3.542** | 0.089 |
| LR (Leverage Ratio) | -11.801*** | 0.001 |
| FL (Firm Liquidity) | 4.051*** | 0.000 |
| Adjusted R-squared | | 0.017 |

| | |
|---|---|
| Durbin-Watson Stat | 2.679 |
| Prob(F-statistic) | 0.009 |

**Standard errors are in parenthesis** *** p < 0.01, **p < 0.05, *p < 0.1

**Table 5.** Regression Analysis between Board Ownership Structure and Excessive Cash Holding.

| Fixed Effect Model | | |
|---|---|---|
| **Variables** | **Co-efficient** | **Probability** |
| C (Constant) | 0.056** | 0.047 |
| BS (Board Structure) | 0.009*** | 0.043 |
| IBD (Proportion of Independent members in BOD) | -0.020*** | 0.011 |
| WBD (Women members in BOD) | 0.097*** | 0.000 |
| SBD (The number or proportion of shares held by BOD members) | -0.001*** | 0.000 |
| CCP (Chairman and CEO position) | 0.477*** | 0.003 |
| SCEO (= Proportion of shares held by CEO) | -0.006** | 0.050 |
| TOP (Time of president or chairman in post) | 0.004* | 0.098 |
| LR (Leverage Ratio) | 8.101*** | 0.050 |
| FL (Firm Liquidity) | 4.051*** | 0.003 |
| Adjusted R-squared | | 0.274 |
| Durbin-Watson Stat | | 1.975 |
| Prob(F-statistic) | | 0.004 |

**Standard errors are in parenthesis** *** p < 0.01, **p < 0.05, *p < 0.1.

Table 5 presents the results of a regression analysis exploring the relationship between board ownership structure and excessive cash holding, employing a Fixed Effect Model. The coefficient values offer insights into the impact of various independent variables on the dependent variable, Excessive Cash Holding. The constant term (C) is 0.056, indicating the expected value of excessive cash holding when all independent variables are zero. Notably, Board Structure (BS) has a positive coefficient of 0.009, suggesting a positive association with excessive cash holding. In contrast, the Proportion of Independent members in the Board of Directors (IBD) exhibits a negative coefficient of -0.020, implying that an increase in independent board members is associated with a decrease in excessive cash holding. The presence of Women members in the Board of Directors (WBD) is positively associated with excessive cash holding, as indicated by the coefficient of 0.097. The number or proportion of shares held by board members (SBD) shows a negative association with excessive cash holding, with a coefficient of -0.001. The Chairman and CEO position (CCP) has a substantial positive coefficient of 0.477, suggesting a strong positive relationship with excessive cash holding. The Proportion of shares held by the CEO (SCEO) has a negative coefficient of -0.006, indicating a negative impact on excessive cash holding. Time of president or chairman in post (TOP) and Leverage Ratio (LR) exhibit positive coefficients of 0.004 and 8.101, respectively, suggesting positive associations with excessive cash holding. Firm Liquidity (FL) has a positive coefficient of 4.051, indicating a positive relationship. The Adjusted R-squared is 0.274, signifying the proportion of the variance in excessive cash holding explained by the model. The Durbin-Watson statistic of 1.975 suggests limited autocorrelation. The Prob (F-statistic) is 0.004, indicating that the overall model is statistically significant at a conventional significance level. These coefficient values collectively provide valuable insights into the nuanced relationships between board ownership structure variables and excessive cash holding, contributing to a comprehensive understanding of corporate financial behavior.

## 5. Discussion

In examining the influence of board ownership on the firm value and excessive cash holdings of publicly listed companies in Pakistan, our findings reveal a significant overall impact of board ownership on firm value. This observation is consistent with the research conducted by Farwis and Azeez (2019), which underscored the substantial and noteworthy relationship between board structure and a firm's value. This relationship carries significant implications for the effective management and organization of cash holdings within firms. In essence, the structure of board ownership can exert positive and negative effects on a company's value and decision-making processes regarding accumulating excessive cash. When the board ownership structure is aligned with the interests of shareholders and promotes sound corporate governance practices, it tends to yield a positive impact on firm value. For instance, a board comprising independent directors with substantial ownership stakes is well-positioned to monitor and provide vigilant management oversight actively, ensuring that decisions are made in the company's and its shareholders' best interests. This, in turn, enhances transparency, accountability, and long-term value creation. Conversely, a board ownership structure that lacks independence or includes controlling shareholders primarily focused on their interests rather than the company's welfare can harm firm value. This can lead to governance issues, a lack of accountability, and a potential decline in the company's overall value. Therefore, it becomes imperative for firms to carefully consider and optimize their board ownership structure to align with shareholder interests and foster effective corporate governance, ultimately impacting firm value and cash-holding decisions positively.

In such cases, self-interest may influence decisions, leading to suboptimal outcomes for minority shareholders and potential value destruction. On the other hand, similar results were depicted by Vu, et al. (2018) which stated that there is a significant relationship between the board ownership and the firm's value which the companies must consider. Moreover, this will help the company increase its value. In addition, the effect of board size on the firm's value was significant. This depicts that the size of the board will have a considerable influence on the firm's value. However, the findings of Kalsie and Shrivastav (2016) noted that a large board size comprises more directors who put their combined efforts towards the stakeholder’s interests in controlling and monitoring, thus increasing the firm’s value. In addition, the proportion of shares held by the CEO also significantly affected the firm value. This portrays that the CEO's proportion of shares will influence the firm's value. This also aligns with the findings of Gill, et al. (2015) that promoter ownership often leads towards reducing firm’s leverage, as most of the shareholders in promoter ownership belong to the same relatives and family. Another study by Sasidharan and Varghese (2019) identifies promoter ownership as having a significant and positive impact on firms’ value.

On the other hand, it has been determined that the board ownership significantly affects the firm's excess cash with respect to the excessive cash holding. This is because the board owners have more control over the company's financial operations. The findings of this study also align with the results of Chiu, et al. (2021) who argued that the board ownership structure has a significant positive relationship with the firms' excessive cash holdings that can be there under the aspects of corporate finance and can also be treated as a higher association between the firms' value. A balanced board ownership structure, with a mix of inside (executive) and outside (independent) directors, can positively influence the firm's decision on excessive cash holdings. Independent directors representing shareholders' interests may advocate for more efficient capital allocation. They can encourage management to distribute excess cash to shareholders through dividends, share buybacks, or strategic investments that generate higher returns. This can reduce the agency costs associated with cash hoarding and enhance firm value (Khoa, et al., 2020).

On the other hand, a concentrated board ownership structure, with a dominant controlling shareholder or a CEO with significant influence, may lead to a preference for excessive cash holdings. The controlling shareholder or CEO might have different motivations, such as maintaining control or pursuing personal objectives, which could result in hoarding cash beyond what is necessary for operational needs. This can lead to a suboptimal allocation of resources and potentially reduce firm value. Concerning the individual effect, it has been determined that board size significantly affects excess cash. This depicts that the increase and decrease in the board's size will influence the company's excess cash. This has also been aligned with the findings of Alabdullah (2018), who found that the correlation between the large board size and the firm’s performance can be treated as a positive correlation between the variables. In addition, another study conducted by Ganguli and Guha Deb (2016) has also provided restrictions to deal with humans and gain support from the firm’s values. It has a significant positive relationship between the variables. Moreover, the impact of the proportion of independent members in BOD on excess cash has also been found to be significant and negative. Furthermore, the effect of the Chairman and CEO position on the excess cash has also been determined to be positive and significant. However, the overall impact of the board ownership on the firm's excess cash has been determined to be substantial, which the companies must consider to enhance their performance (Zhou, et al., 2023).

The study's questions examine the impact of the board ownership structure and its effect on the organisation or firm’s value. The firm's value is now a significant focus for shareholders. Each shareholder or board member seeks high operational and organisational value by creating an adequate financial condition of the business to meet essential financial obligations or any other purpose that requires cash to meet the financial requirement. Holding cash for the company is a standard process, and every company listed on the Pakistan Stock Exchange must generate some money or have cash to develop effective financial performance (Lim & Lee, 2019). The board structure is a critical aspect of the company, and each board member is structured according to the organisation's needs and requirements. Board structural changes are reviewed periodically to meet the company's needs and requirements. The board ownership structure is regularly revised, which affects the cash holding process. Moreover, the organization aims to develop suitable amounts of cash that are adequate for the requirement to cater to the organization's leverage, debt, and investment (Shin, et al., 2018). Overall, the impact of board ownership structure on firm value and excessive cash holdings decisions depends on factors such as the independence and alignment of board members, the presence of controlling shareholders, and the governance practices in place. A well-structured board that prioritizes shareholder interests and effective governance mechanisms is more likely to positively influence firm value and mitigate excessive cash holdings (Yeung & Wong, 2023).

## 6. Conclusion

This study analyses the impact of board ownership structure on both firm value and excessive cash holdings concerning companies listed on the Pakistan Stock Exchange. The sample of this research contains 76 companies listed on the Pakistan Stock Exchange. The data was collected from a financial database with financial data of listed companies in PSX. The sample for this study is quite large, which was one of the difficulties faced by the investigator; however, it was a positive aspect of the research. The researcher collected data from the firm's financial statements as the numeric data was required to execute the study and measure the impact of variables taken in this research. We used the statistical technique of the Fixed Effect model. Moreover, structural equation modeling (SEM) was also implemented to measure the variables' impact on each other. Smart PLS was used for the inferential statistical technique, and descriptive analysis was done on SPSS software. The data was run through software to check the reliability and validity of hypotheses made in the literature section. The theories were selected according to the variables set for the research, including agency theory and stakeholder theory. It was incorporated to develop an understanding of the research subject and formulate an experience that is the main contribution of the research.

A significant relationship was observed between board ownership structure and the value of firms the management considers for managing excessive cash holdings. Meaningful relationships depict that a company can use this to work or increase the value of a firm. The study also defines that board ownership significantly impacts the firms' excess cash holding. This is because board ownership has more control over the firm's financial operations and provides more authority and power towards the firm's financial development. The relationship of the board ownership is very critical. It has a significant impact on cash holdings because the central participation of the board, unlike other operations, has been seen in the company's finances. We accept H1 and H2. Various factors determine firm value; however, this study considers which factors are critical in enhancing a firm's value and excess cash holdings to improve the financial performance of the firm listed on the Pakistan Stock Exchange. This study's focus on board ownership structure, firm value, and cash holdings in Pakistan provides valuable insights that can inform decision-making theory, corporate governance decisions, and policy discussions, making it relevant to the broader field of decision sciences.

### *6.1 Recommendations*

This section outlines the recommendations for the companies and how a company can improve the board structure to improve the firm's value and excess cash holding position. The board of directors' structure and its impact on business can be determined approximately through economic stability. The recommendation is to enhance the element of diversity in the board members, such as not only gender, age, and nationality but diversity in the form of knowledge, skills, and information that is crucial in the degree of compliance towards good corporate governance mechanism and governance code (Arosa, et al., 2013; Martín & Herrero, 2018). However, the diversity in skills and knowledge does not bring various thoughts and understanding from different company dimensions that strengthen the board for enhancing the firm's value. Policymakers should consider revising and strengthening corporate governance guidelines to encourage diverse board membership. These guidelines could include specific recommendations for including individuals with varying backgrounds, expertise, and experiences on boards. Additionally, regulations may require companies to report on the diversity of their board compositions periodically. Policymakers can focus on investor education and awareness campaigns to inform shareholders about the potential impact of board ownership structure on firm value. Educated and informed investors are likelier to advocate for governance practices that enhance value creation and protect their interests. Policymakers may consider introducing reporting requirements that mandate firms to disclose detailed information about their board ownership structures and how they influence firm value. Transparency can empower shareholders and other stakeholders to make more informed decisions. These policy implications extend the study's focus on the impact of board ownership structure on firm value and emphasize the importance of promoting responsible corporate governance and financial management practices in the context of Pakistani firms.

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## Appendix

**Table A1:** Unit Root Testing

| Variables | (IPS) | | (ADF) | |
|---|---|---|---|---|
| | **At Level** | **At first difference** | **At level** | **At first difference** |
| **FV** | (-0.201) | - | (1.195) | - |
| | 0.000 | | 0.000 | |
| **BS** | (-2.200) | - | (8.513) | - |
| | 0.000*** | | 0.000*** | |
| **IBD** | (-0.121) | - | (1.109) | - |
| | 0.000*** | | 0.000*** | |
| **WBD** | (-2.205) | - | (3.127) | - |
| | 0.000*** | | 0.000*** | |
| **SBD** | (1.048) | - | (1.200) | - |
| | 0.000*** | | 0.000*** | |
| **CCP** | (-0.201) | - | (1.205) | - |
| | 0.000*** | | 0.000*** | |
| **SCEO** | (-1.057) | - | (2.105) | - |
| | 0.000*** | | 0.000*** | |

**Abbreviations:** FV= Firm Value, BS= Board Structure, IBD= Proportion of Independent members in BOD, WBD= Women members in BOD, SBD= The number or proportion of shares held by BOD members, CCP= Chairman and CEO position, SCEO= Proportion of shares held by CEO, **Source:** self-estimation **Note: ***, **, *** report the significance level at 1%, 5%, and 10% relatively.

**Table A2**: Hausman Test

| | **Hausman Test** | | |
|---|---|---|---|
| Test Summary | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob. |
| Cross-section random | 13.410 | 6 | 0.000 |

**Source:** self-estimation.