THE EFFECT OF CASH HOLDINGS AND CORPORATE GOVERNANCE ON FIRM VALUE: EVIDENCE FROM THE AMMAN STOCK EXCHANGE

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Abstract

Much effort has been expended by the regulators in Jordan to enhance the code of corporate governance (CG); however, the effectiveness of CG mechanisms in monitoring management and enhancing the value of a firm is still a puzzle. This study aims to investigate the impact of CG and cash holdings (CH) on firm value as measured by the market-to-book ratio. The sample consists of all manufacturing firms listed on the Amman Stock Exchange (ASE) over the years 2010–2017. The study hypotheses were tested using panel regression analysis. The research findings suggest that CH have a positive association with firm value, supporting the transaction and precautionary motives for holding cash. An interesting finding is that board expertise was found to be negatively associated with firm value. Gender diversity was found to be positively related to firm value, while board size, independence, and frequency of meetings were found to be insignificant. It seems that firms in Jordan regard strong CG mechanisms to be expensive and of little value in mitigating the negative effects of a weak legal system. These findings shed new light on the influence (or the lack of it) of boards in Jordanian firms. Consequently, the study recommends that the regulatory agencies in Jordan should consider improving governance codes and Rules to increase the effectiveness of the board and governance in general.

Keywords: Cash Holdings, Governance, Firm Value, Board of Directors, Market-to-Book Ratio

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1. INTRODUCTION

In a world where it is easy for firms to raise funds any time they need, the level of cash holdings (CH) may appear inconsequential. However, this is rarely the case. While holding cash can help firms to operate and invest at low cost, it can also involve opportunity costs due to missed investments and growth opportunities, given that cash is considered a non-earning asset. Such costs and benefits associated with accumulating cash are expected to

influence the value of the firm (Opler, Pinkowitz, Stulz, & Williamson, 1999).

Simply put, Opler et al. (1999) propose two benefits from holding cash. First firms can finance their operating and investing activities regardless of the availability and cost of other financing sources, a benefit that Keynes (1936) calls a precautionary motive. The second benefit is that firms can save the transaction costs that arise from external financing activities, a benefit that Keynes (1936) calls the transaction motive. However, holding too much cash is not without costs, such as higher taxes (Faulkender & Wang, 2006) and missed investment opportunities in a higher rate of return assets (Kim, Mauer, & Sherman, 1998), not to mention the higher agency costs associated with greater levels of CH (Jensen, 1986). Therefore, deciding the level of cash to hold is an important decision for managers and an important question for researchers.

Two dominant theories existing regarding the level of CH: the trade-off theory and the pecking order theory. The trade-off theory states that the CH must be at a level where the marginal utility and the marginal costs of holding cash are equal (Opler et al., 1999). The latter theory claims that firms tend to choose their financing options in the following order: internal finance, debt, equity. So long as internal financing sources are available, firms tend to avoid external financing.

Regardless of the strategy followed to determine the level of CH, it is down to management discretion to decide on the strategy and the level. However, managers may try to accomplish their own goals and maximize their personal advantages at the expense of the shareholders. It can be expected that poor monitoring of CH might encourage managers to misuse cash for private benefit, or that holding high levels of cash may mean missing out on beneficial investment opportunities. This, in turn, decreases firm value (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1998) and creates agency costs related to CH (Harford, 1999; Jensen, 1986).

Owners may try to monitor and control managers' behavior — hence the importance of corporate governance (CG). Governance mechanisms can prevent managers from undertaking value-decreasing projects (Jensen & Meckling, 1976). Strong CG is expected to monitor management behavior, keep it in line with the interests of the shareholders, and increase firm value. The current study will examine the impact of CH and CG on firm value.

There are limited studies on this issue in the Middle East and North American countries (Anton & Afloarei Nucu, 2019), where different institutional frameworks and underdeveloped financial markets and legal systems exist. Jordan represents an interesting environment to analyze when compared to other developing countries, where imperfections of the capital market, political uncertainty and its repercussions on the country, tribalism and Wasta are met with constant attempts by the Jordanian government to enhance capital market and CG. Moreover, the bond secondary market in Jordan is very small and less active than the stock market, therefore constraining firms' ability to raise funds, adding to an imperfect financial market and high dependence on international flows. According to Chang, Benson, and Faff (2017), this makes the level of cash held by firms more relevant, especially taking into consideration that such constraints are likely to negatively affect firms' growth and performance. Therefore, it is interesting to study cash and firm value in a country like Jordan.

The effect of CH on firm value was addressed by several studies in Jordan (Afifa, Saleh, & Haniah, 2021; Shubita, 2019). But to the best of our knowledge and belief, none of this research has taken into consideration the effect of CG, although the interaction of CG and CH can affect firm value. Under weak governance mechanisms, managers might squander CH instead of investing them in value-enhancing projects (Harford, Mansi, & Maxwell, 2008). On the contrary, strong governance ensures that managers do not waste CH and act in the shareholders' best concerns, which is expected by the agency theory (Jensen, 1993).

This study complements the existing literature by examining CG and CH in a country like Jordan. First, examining the effects of CG and CH on firm value in a country where investor protection and law enforcement are weak provides an opportunity to compare the same relation in countries with better law enforcement, stronger capital markets, and better investor protection. For example, according to Pinkowitz, Stulz, and Williamson (2006), the relation between CH and firm value is more likely to be weak in countries where investor protection is weak. Moreover, an important question can be answered by this research:

RQ1: Do firms in a weak enforcement environment with lax regulations find adopting strong CG mechanisms to be expensive, or do they find it valuable in mitigating the negative effects of such a system?

To sum up, Jordan represents a fertile ground for research, where continuous enhancements to CG meet a weak enforcement environment and developing institutional context.

The following Section 2 presents the literature review and hypothesis development; Section 3 presents the data and methodology; Section 4 displays the analysis and the results discussion; and eventually, Section 5 presents the conclusion, practical implications, and expected consequences of the research.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Cash holdings

Jensen (1986) shows that by holding high levels of cash, managers have more control over assets and over their investment decisions and less need for external financing; hence less need to explain their numbers to outside parties. In a similar vein, Myers and Rajan (1998) suggest that liquid assets can be employed by managers to accomplish private benefits. However, holding high levels of cash may increase a firm's financial flexibility and enable it to deal with market changes that affect growth opportunities; it also saves transaction costs resulting from external finance and opportunity costs from foregoing investments in the case of cash shortage.

Therefore, it is a never-ending debate. Trade-off theory suggests that holding cash increases the chance of exploiting valuable investments when they arise that will otherwise be lost (Keynes, 1936) and decreases the chance of financial distress costs in the case of inadequate operating cash flow to meet debt obligations (Faulkender & Wang, 2006). Pecking order theory, on the other hand, opines that having liquid assets saves a firm the higher costs of external financing. However, holding cash entails opportunity costs, which, according to the free cash flow theory (Jensen, 1986), increases conflict between managers and shareholders and agency costs, decreasing firm value.

Empirically, research suggests an inverse relation between firm value and CH (Myers & Rajan, 1998; Easterbrook, 1984; Jensen, 1986). However, a positive relation between firm value and level of CH was reported by Boyle and Guthrie (2003) and Mikkelson and Partch (2003). In Jordan, Afifa et al. (2021) reported a negative association, while Shubita (2019) reported a positive association.

Based on the inconclusive theoretical arguments and empirical results, the following non-directional hypothesis is established:

H1: There is a correlation between the level of CH and firm value.

2.2. Board size

The board of directors is responsible for supervising management to ensure that it acts in the best interest of the shareholders (Jensen & Meckling, 1976). It is responsible for establishing the firm strategy and providing the firm with experience and connections, adding value to stakeholders.

According to the resource dependency theory, larger boards are expected to enrich firms with more resources and experience (Pfeffer & Salancik, 1978). Larger boards are likely to incorporate executives from differing areas, increasing the chance of specialization, which in turn enhances effectiveness (Klein, 2002), and helps drive the performance of the company (Dalton, 1999; Pearce & Zahra, 1992). Moreover, the more people on a board, the greater the monitoring capacity (Goodstein, Gautam, & Boeker, 1994).

On the other hand, larger boards might bring communication and coordination problems (Jensen, 1993), and increase the possibility of conflict. However, Beiner, Drobetz, Schmid, and Zimmermann (2006) expressed that the management capabilities of huge boards can make up for issues in communication, and that small boards with busy directors may have higher workloads, which in turn reduces their monitoring effectiveness (Ahmed, Hossain, & Adams, 2006).

Empirically, researchers reported a direct relation between board size and performance (Dalton, 1999; Kathuria & Dash, 1999; Pearce & Zahra, 1992). Conversely, an inverse relation between board size and performance of companies was also reported (Bonn, Yoshikawa, & Phan, 2004).

In the Jordanian context, most studies found a positive association between board size and performance (Alabdullah, Yahya, & Ramayah, 2014; Qadorah & Fadzil, 2018; Zayed, 2017), while Marashdeh (2014) did not find any significant relation. Based on the above discussion and the empirical findings in Jordan, the following is expected:

H2: There is a positive correlation between board size and firm value.

2.3. Board members' experience

The board's ability to oversee management depends on the knowledge and experience of the directors (Lorsch, 1995). Mace (1971) suggests that "directors serve as a source of advice and counsel" (p. 178). It can be inferred that the board serves as an advisor to top management, benefiting from the directors' knowledge in their fields of expertise. Therefore, it is prudent to say that if the directors, or at least one of them, have accounting and finance experience, they will be in a better position to oversee management in matters such as CH. Financially experienced directors can better understand CH challenges and opportunities, analyze any information related to the matter, and evaluate managers' decisions.

The agency theory suggests that better boards education increases its capacity to monitor management (Cabedo & Tirado, 2004), and to protect shareholders' interests. Moreover, board expertise is considered a link to external resources by the resource dependence theory (Ingley & Van der Walt, 2001).

Empirically, Fairchild and Li (2005) found that board experience, measured by the age and tenure of the directors, is directly related to performance, and Cheng, Chan, and Leung (2010) reported a direct relationship between higher education and business performance. In Jordan, Zayed (2017) found that board experience is directly related to firm performance. Dakhlallh, Rashid, Abdullah, and Al Shehab (2020) reported that the financial experience of the audit committee members has a direct impact on firm performance. Based on the discussion above, it is expected that:

H3: There is a positive correlation between board experience and firm value.

2.4. Gender diversity

Female directors have additional skills and perspectives that male directors do not have, and these new perspectives can improve the decision-making process according to Fauzi and Locke (2012). The literature discussed several benefits of having females on the board, who may take their role more seriously and are better prepared for meetings. They tend to ask more questions (Konrad, Kramer, & Erkut, 2008), and better understand diverse customers (Daily & Dalton, 2003). Concurring to Hillman and Dalziel (2003), these extra qualities of female chiefs can improve the board's capacity to successfully administer management. Based on resource dependence theory, female directors with their different experiences and perspectives can attach a new resource to the firm (Hillman, Shropshire, & Cannella, 2007) which might enhance its overall value. From the theoretical point of view of the agency, a diverse board lowers the possibility of an individual or minority dominating the decision-making process, and hence adds value to the firm.

Empirical studies found a direct impact on the performance of gender diversity on the board (Carter, Simkins, & Simpson, 2003; Bonn et al., 2004; Adams & Ferreira, 2009). Young and Thyil (2009) found that gender diversity has a direct effect on social responsibility disclosures. In the Jordanian context, Alqatamin (2018) found that gender diversity in the audit committee is directly related to firm performance. Accordingly, the following is posited:

H4: There is a positive correlation between gender diversity and firm value.

2.5. Board independence

Board independence has a positive impact on shareholders' wealth and improves the discipline of top management (Elad, Wong, & Bongbee, 2018). Adams and Mehran (2003) argued that independent boards can reduce the risk of fraudulent internal controls and fraudulent disclosure of accounting information. Baysinger and Butler (1985) stated that firms with additional outsiders on their boards outperformed other firms.

Resource dependency theory holds that independent directors bring resources and experience to the company (Pfeffer & Salancik, 1978), in addition to balancing the board and supervising top management. Agency theory argues in favor of independence of the board. Due to the split between management and owners (Jensen & Meckling, 1976), an independent director is required to ensure that management is acting in shareholders' best interests.

Empirical evidence has documented that the independence of the board is directly related to performance (Pearce & Zahra, 1992; Choi, Park, & Yoo, 2007; Joh & Jung, 2012). On the other hand, Hermalin and Weisbach (2003) reported an inverse relationship between board independence and corporate performance. In Jordan, a significant direct relation between firm performance and board independence was found (Zayed, 2017; Qadorah & Fadzil, 2018). Alqatamin (2018) found that audit committee independence is directly related to company performance.

The governance literature suggests that the independence and supervisory capacity of the board of directors is much greater, the better the likelihood of curbing management opportunistic behavior (Harford et al., 2008). Therefore, based on most of the research, and according to agency theory arguments, the following is posited:

H5: There is a positive correlation between board independence and firm value.

2.6. Board meetings

The frequency of board meetings is expected to have a positive impact on management oversight (Conger, Finegold, & Lawler, 1998). The benefits of board meetings include keeping directors informed about company affairs so that they can react quickly to problems (Mangena & Taringana, 2008) and supervise management (Vafeas, 1999). Agency theory favors higher meeting frequency, arguing that more meetings enhance the effectiveness of the monitoring and advisory functions of the board.

Empirically, Isshaq, Bokpin, and Mensah Onumah (2009) reported that the frequency of board meetings is positively associated with firm value. Moreover, board meetings are found to be positively associated with firm financial performance (Liao, Lin, & Zhang, 2018; Saeidi, Sofian, Saeidi, Saeidi, & Saaeidi, 2015; Ntim & Oser, 2011). However, a negative association was reported by García-Sánchez (2010). In Jordan, Altawalbeh (2020) found that a higher meeting frequency of the board enhances firm performance. Accordingly, the following is expected:

H6: There is a positive correlation between board meeting frequency and firm value.

3. DATA AND METHODOLOGY

3.1. Data

The sample examined included all the manufacturing firms listed on the Amman Stock Exchange (ASE) between 2010 and 2017. The data used were extracted from the annual financial statements published on the official website of the ASE.

3.2. Methodology

This paper aims to examine the effects of CG variables and CH on the value of the firm. The study employs panel regression analysis as this reduces collinearity among explanatory variables, provides more efficient estimates, and allows controlling for omitted variables. The following empirical model will be applied:

$$FV_{it} = \beta_0 + \beta_1 BZ_{it} + \beta_2 BI_{it} + \beta_3 BE_{it} + \beta_4 GD_{it} + \beta_5 BM_{it} + \beta_6 CH_{it} + \varepsilon_{it} \quad (1)$$

The dependent variable firm value (*MBV*) is measured as the market-to-book ratio according to the works of Pinkowitz et al. (2006) and Gupta, Kennedy, and Weaver (2009). Market-to-book ratio is used since it measures the incentive to firm growth from additional capital investments (Goranova, Dharwadkar, & Brandes, 2010; Tong & Ruer, 2006). Therefore, the ratio is a measure of asset utilization and potential growth.

Board size (*BZ*) is defined as the number of board members (Dalton, 1999; Kathuria & Dash, 1999; Pearce & Zahra, 1992). Board independence (*BI*) is measured as the percentage of independent (non-executive) directors relative to the total number of directors (Latif, Kamardin, Mohd, & Adam, 2013; Chau & Gray, 2010). Board experience (*BE*) was measured as a dummy variable, that is, experience equals 1 if a firm has one director on the board with experience in accounting or finance, or otherwise zero (Defond, Hann, & Hu, 2005; Dhaliwal, Naiker, & Navissi, 2010).

Gender diversity (*GD*) was measured as the proportion of women on the executive board (Hassan & Marimuthu, 2016). Board meetings (*BM*) were measured as the number of meetings during the year (Vafeas, 1999). *CH* refer to the ratio of cash and cash equivalents to total assets (Gitman, Juchau, & Flanagan, 2015). The model controls for profitability, leverage, and size of the firm, where profitability is measured as return on assets (*ROA*),

since *ROA* is an indicator of a firm's ability to create value (Varaiya, Kerin, & Weeks, 1987), and that there is a direct relation between profitability and market value of the firm (Sudiyatno, Puspitasari, Nurhayati, & Rijanti, 2021). Moreover, profits can be used as a cushion for future investments which are expected to improve firm value.

Leverage (*LVR*) was controlled since according to Isshaq et al. (2009), the impact of CH on firm value is affected by the financing structure of the firm. An increase in the level of debts causes the marginal value of money to decrease for equity holders since the value of the firm is controlled by debt holders.

The size of the company was entered as a control variable (*LTA*). The size of the company was measured as the natural logarithm of the total assets of a company since larger firms are expected to outperform smaller firms (Kuncová, Hedija, & Fiala, 2016). Theoretically, this positive relation is explained by economies of scale. Moreover, larger firms are expected to provide greater equity guarantees and to be more stable.

Table 1. Measurement of determinants

Determinants	*Measurement*
MBV (firm value)	The market value of total assets divided by the book value of total assets.
BZ (board size)	The number of members sitting on the board.
BE (board experience)	A dummy variable, 1 when a firm has one director on the board with experience in accounting or finance; 0 otherwise.
GD (gender diversity)	The ratio of female directors to the total number of directors.
BM (board meeting)	The number of meetings per year.
BI (board independence)	The ratio of non-executive directors to total directors on the board.
CH (cash holding)	Cash and cash equivalents divided by total assets.
ROA (return on assets)	The ratio of net income to total assets.
LVR (leverage)	The ratio of total company debt to total assets.
LTA (firm size)	The logarithm of total assets.

This research tests the effect of multi-corporate governance variables and CH on firm value. Therefore, multiple regression was considered appropriate for this research. Since the model contains continuous and dummy variables, ordinary least squares (OLS) will be employed. To decide whether a random or fixed framework was appropriate, the researcher used the Hausman test, which focuses on testing whether the unobserved effect is not correlated with the explanatory variables. The Hausman test results indicate that the fixed effect is favored over the random effect. Moreover, in testing for normality, the researchers found that data were normally distributed. A heteroscedasticity test was also applied, and no heteroscedasticity problem exists. In the previous literature, other approaches were used to determine the impact of CG on firm value, Carter et al. (2003) controlled for the possibility of endogeneity through estimating the relationship using two-stage least squares (2SLS), while Ammann, Oesch, and Schmid (2011), to account for endogeneity, employed the dynamic panel GMM approach to investigate the dynamics of the relation between CG and firm value.

4. ANALYSIS AND RESULTS

4.1. Descriptive analysis

Table 2 summarizes the descriptive statistics of all the variables and the correlations between them. The matrix of correlation coefficients of the independent variables indicates low collinearity. This shows that all the correlations except for the coefficients between *BE* and *BI* with a value of 0.885 are low. According to Hair, Ringle, and Sarstedt (2011), multicollinearity exists if the correlation between two independent variables is more than 0.90. Furthermore, the variable *BE* is a dummy variable. Therefore, checking the non-multicollinearity condition and the matrix of correlation coefficients suggests that this problem between predictors does not exist.

Table 2. Descriptive statistics and correlations

Variable	*Mean*	*S.D*	*BE*	*BI*	*BM*	*BZ*	*CH*	*GD*	*LTA*	*LVR*	*MBV*	*ROA*
BE	0.432	0.230	100.0%									
BI	3.446	2.230	88.5%	100.0%								
BM	6.676	2.384	11.6%	2.4%	100.0%							
BZ	7.949	2.158	2.4%	42.5%	-18.4%	100.0%						
CH	0.071	0.134	12.2%	24.2%	9.2%	23.7%	100.0%					
GD	0.140	0.347	-10.8%	-6.5%	-5.2%	16.0%	1.7%	100.0%				
LTA	7.371	0.625	-21.7%	-18.1%	-4.1%	14.0%	-11.4%	15.9%	100.0%			
LVR	0.334	0.228	8.8%	3.3%	3.3%	-15.8%	-29.6%	-7.6%	-5.3%	100.0%		
MBV	1.344	1.618	-5.5%	-6.0%	-8.1%	-3.3%	16.8%	4.3%	-7.5%	6.5%	100.0%	
ROA	0.008	0.144	-6.1%	-8.3%	-2.4%	-0.4%	8.0%	4.3%	33.6%	-30.0%	-23.8%	100.0%

4.2. Diagnostic tests

Table 3 shows the unit root stationarity test. The null hypothesis of non-stationarity is carried out at the significance levels of 1%, 5% and 10%. In Table 4, the test result shows that all data series at the level are not stationary, except for board experience which was stationary at level 1. The results of the Kao residual cointegration test in Table 4 show that there is no long relationship between the variables.

Table 3. Unit root test

Variable	Common sample (LLC test)			Individual sample (IPS test)	
	None	Intercept	Intercept & trend	Intercept	Intercept & trend
BE	0.154	-1.825**	-5.841***	-1.713***	-1.712***
BI	-2.176**	-1.546*	-7.712***	-4.713***	-4.912***
BM	-0.711	-5.881***	-8.475***	-1.914***	-1.813***
BZ	-1.588*	-1.092	-6.822***	1.346	-0.022
CH	-34.375***	-27.418***	-30.756***	-10.289***	-3.064***
LTA	1.827	-24.911***	-9.357***	-5.346***	1.149
LVR	4.431	-4.995***	-11.814***	-0.822	0.468
MBV	-6.188***	-8.266***	-23.719***	-3.289***	-1.107
ROA	-4.831***	-9.565***	-19.109***	-1.529*	-0.32267

Notes: BE was significant at the first difference, while the rest of the variables were significant at the levels.
**** significant at 1%; ** significant at 5%; * significant at 10%.*

Table 4. Kao residual cointegration test

Results	Test
Augmented Dickey-Fuller (ADF)	-9.701***
Residual variance	0.000797
Heteroskedasticity and autocorrelation consistent (HAC) variance	0.00049

Notes: Results show that there is no long relationship between the variables.

4.3. Hypotheses testing

Table 5 shows estimates of the tested variables that affect firm value. Regarding CH, the figures suggest a positive significant impact on firm value, implying that the higher the CH, the higher the firm value. In other words, firms with a higher book to market ratio, which are expected to be more profitable and have higher investment opportunities, hold more cash and regard cash shortages negatively.

Several explanations can be provided for this result. First, firms use CH in value-increasing investments. Second, by holding more cash, a firm decreases its dependence on external sources of financing, hence decreasing transaction costs. Finally, firms tend to hold more cash to be used in case of any unforeseen contingency. This result is consistent with previous research, for example, Boyle and Guthrie (2003), and Mikkelson and Partch (2003). It is also in line with the precautionary and transaction motives mentioned earlier. However, it contradicts the theory of cash flow, which predicts that managers with more cash tend to have a low market-to-book ratio because they invest in projects, regardless of their negative net present value, that might negatively impact firm value (Le, Tran, Ta, & Vu, 2018).

Board size (*BZ*) and board independence (*BI*), on the other hand, were found to be insignificant. This indicates that the size and independence of the board do not affect the value of the firm. This is in line with the view of Shao (2010) that large boards do not necessarily represent stakeholders, which is supported by the fact that stakeholder protection is weak in Jordan and is characterized by highly concentrated ownership (La Porta et al., 1998). In Jordan, boards tend to be dominated by block-holders, typically family members, therefore, board members may interfere with management decisions, leaving the monitoring function of the board disabled, and decisions taken based on kin and nepotism. In other words, directors fail to add value to the firm. This result is consistent with the research of Mangena and Tauringana (2008), Topak (2011), and Marashdeh (2014) in Jordan.

The insignificant effect of board independence supports the view of Daily and Dalton (2003), who stated that "there is no predicate, either in logic or inexperience, to suggest that a majority of independent directors on a board will guarantee good CG or better financial returns for shareholders" (p. 35). Moreover, this might support other arguments in the literature. For starters, outside directors can serve on several boards, which can have an impact on their ability to supervise. Second, because insiders know more about the organization than outsiders, outside managers must rely on them to make decisions (Finkelstein & Hambrick, 1996). This is consistent with the works of Daily and Dalton (2003) and Hermalin and Weisbach (2003).

The results show an interesting negative association between board experience (*BE*) and firm value (*MBV*), but further research is needed to explain this result. One possible explanation is that management of new opportunities and investments requires entrepreneurial, interpersonal, and strategic thinking skills. Moreover, finance experts are more aware of the possible risks and threats and hence tend to be more cautious when it comes to potential investments and opportunities. The result is consistent with Bhagat, Bolton, and Subramanian (2010) and Van-Ness, Miesing, and Kang (2010) but is contrary to the expectations of agency theory and resource dependence theory.

Gender diversity (*GD*) was found to be inversely related to firm value, consistent with Shrader, Blackburn, and Iles (1997) and Adams and Ferreira (2009). This could be explained by the risk-averse nature of female members (Yahya, Abbas, Ahmed, & Hashmi, 2020). Moreover, according to Joecks, Pull, and Vetter (2013), studies reporting negative or insignificant results might be affected by low or high female representation on the board. In Jordan female representation is very low.

Board meetings (*BM*) were found to be negatively related to firm value, however insignificant. This indicates that it is not the frequency of meetings that enhances firm value, but rather the quality of meetings and the actions taken afterwards to timely implement the decisions taken. This result is consistent with the findings of Francis, Hasan, and Wu (2015) and Qadorah and Fadzil (2018).

Table 5. Main results

Dependent variable: MBV	*OLS*	*Random*	*Fixed*
Constant	1.318	0.545	1.651***
CH	3.288***	2.569***	1.162***
BZ	0.001	-0.076	-0.085**
BE	1.231*	-0.421	-0.858*
BI	-0.215***	-0.022	0.097
GD	0.212	-0.641	-7.345***
BM	-0.084***	-0.051**	-0.015
Control variables			
ROA	-2.958***	-3.453***	-1.329***
LVR	0.498	0.215	0.333***
LTA	0.052	0.253	0.183***
Diagnostic tests			
R2	0.132	0.113	0.799
F-statistic	6.747***	5.639***	23.467***
Heteroscedasticity test	889.279***	880.248***	795.822***
Pesaran CD	0.829	1.556	1.993*
JB test	6738.802***	6925.330***	21.028
Hausman test		41.494***	
Redundant fixed effects			19.410***

*Notes: *** significant at 1%; ** significant at 5%; * significant at 10%.*

5. CONCLUSION

The main objective of this research was to examine the impact of CG and CH on firm value for a sample of Jordanian companies listed between 2010 till 2017. It is concluded that CH is significantly positively associated with business value, while the formation of boards and gender diversity show a negative association. The size of the board of directors, the independence and the frequency of meetings were negligible.

The results indicate that CH are key in determining the value of the firm, positive association between cash levels and firm values shows that the advantages of higher CH outweigh the disadvantages. More CH enable the firm to exploit the chance of profitable projects and enhance firm value. This is inconsistent with Pinkowitz et al. (2006), who argued that the association between CH and firm value is weaker in countries where investor protection is weak. CH are relevant to firm value in a country where investor protection and law enforcement are weak.

Moreover, independence, size, and meetings were found to be inconsequential in determining firm value. Therefore, it seems that firms in Jordan regard strong CG mechanisms to be expensive and not valuable in mitigating the negative effects of a weak legal system. As a result, regulators in Jordan are advised to consider improving CG codes and rules to improve the board of directors' efficacy, which can help to advance firm value.

The research provides implications for policymakers, who are recommended to evaluate the code of governance to improve existing monitoring mechanisms in order to enhance firm value and protect the rights of shareholders. Investors are also recommended to consider the level of CH when evaluating their investments and the associated unsystematic risk of firms. The research also has implications for directors, who are advised to consider the level and nature of experience required on the board.

This research is not without limitations, only focusing on manufacturing firms. Future research could extend the analysis to include all the firms listed on the ASE. Moreover, the research does not take into consideration the effect of the COVID-19 epidemic, due to lack of available information.

Future research might investigate Jordan's negative association between board education and company value, as well as the factors that influence this intriguing relationship. Future research might investigate several types of ownership arrangements, such as family ownership, managerial ownership, and foreign ownership, to better understand the effects of ownership structure and other CG mechanisms on company value.

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