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The Impact of Board Stability on Investment Efficiency and Excess Cash Holdings

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Abstract

Purpose: *Managers with stability have the ability to direct the excess cash flows within the company towards effective and profitable investment opportunities. The main objective of this research is to examine the relationship between board stability, investment efficiency, and excess cash holdings.*

Design/method/methodology: *The statistical population of this study consists of active companies in the Tehran Stock Exchange, with a systematic selection of 140 companies over the period from 2015 to 2022. This research is applied in terms of objective and utilizes multiple linear regression based on panel data to test the hypotheses.*

Findings: *The research findings indicate a significant and positive relationship between board stability and investment efficiency. In other words, companies with more stable board members have higher investment efficiency. Furthermore, the results show a significant and negative relationship between board stability and excess cash. Companies with higher board stability have lower levels of excess cash. These findings suggest that board stability plays an important role in investment efficiency and cash management in companies.*

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1. Introduction

Investment in various activities has always been regarded as an important way to develop companies and prevent recession and stagnation. In this context, resource constraints and rapid changes in economic relationships have led to intense competition in the fields of trade, industry, and investment. Therefore, companies need to make appropriate and timely investments or, in other words, increase the efficiency of their investments in order to survive and expand their activities. Budgeting decisions related to capital investment determine the strategic path of the company and have undeniable long-term effects on the financial flexibility and market share of the company (Khodaii & Yahyai, 2010; Saqafi & Motamedi, 2011; Hassas Yeganeh et al., 2017). Generally, all companies face some form of imbalance between their cash inflows and outflows (cash receipts and cash expenditures), and in some cases, companies may have excess cash resources. Excess cash flows indicate additional cash flows that are retained in the company to finance projects with positive net present value. One of the most important factors in retaining excess cash is the

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uncertainty and problems associated with it (Sabrmanian et al., 2011; Francis et al., 2003; 2005; Ozkan, 2004).

The efficiency of investment conceptually refers to the acceptance of projects with positive net present value, and inefficiency in investment refers to missing out on investment opportunities (underinvestment) or selecting projects with negative net present value (overinvestment). On the other hand, expected investment can be perceived as a function of perceived growth opportunities, and underinvestment (negative deviation from expected investment) and overinvestment (positive deviation from expected investment) can be considered as investment inefficiencies (Mahmoudabadi & Rajaei, 2014).

Investors delay the current consumption of their capital by making investments to achieve greater future consumption. Therefore, they invest in assets that have high returns and relatively low risk to achieve this goal. Shareholders, as owners of economic enterprises, seek to increase their wealth, and since increasing wealth results in an increase in the value of economic enterprises, the evaluation of a company is of great importance to shareholders.

It seems that conducting such research is necessary from the perspective of stock companies, the perspective of the Securities and Exchange Organization, as well as from the government's perspective. Stock companies want to know what impact board stability can have on their free cash flows and investment efficiency. The results of this research are particularly important for managers and investors. Because the results of this research can help the board of directors of the company in establishing a suitable stable board. On the other hand, the results of this research can significantly help companies in optimizing the use of excess cash flows and effective investment. The goal of investors is to earn profit and maximize their wealth (Arianpour & Mehrafard, 2023).

This research clearly shows that board stability facilitates the efficiency of investment. These findings not only help managers and investors understand the importance of board stability in enhancing the performance of companies, but also assist organizations in planning and making better decisions regarding board membership. Furthermore, this research investigates the negative relationship between board stability and excess cash flows (Phuong et al., 2022). These findings help managers and investors improve the management and optimal use of cash flows, enhance company revenues, and prevent potential losses from retaining excess cash. The theoretical foundations related to the subject and the research background will be presented in the next section. The research methodology used in the study will be described in the third section. This section includes explanations about the statistical population, sampling method, variables under study, and data analysis method. In the fourth section, the research results will be examined and analysed. Based on the findings extracted from the data analysis, the relationship between board stability, investment efficiency, and excess cash flows will be discussed and explained. In the final section, the conclusion and interpretation of the results are discussed. In addition, suggestions for future research and practical applications of these findings are discussed and examined.

2. Literature review and hypotheses development

According to the framework provided by previous researchers, the efficiency of investment and cash flow is influenced by economic and accounting factors. One of the most important factors affecting investment efficiency and cash flows is the stability of the board of directors. Board stability refers to the extent to which board members remain constant or have low variability over a certain period. Board members are selected by shareholders for a specific period. They aim to achieve efficient investment to secure the interests of the company's owners and maximize their own rewards. Managers with stability have the ability to direct the existing excess cash flows in the company towards a productive investment for the company by identifying profitable investment opportunities (He et al., 2018). On the other hand, the presence of stability in the board of directors can lead to investment decisions that result in overinvestment or underinvestment. According to agency theory, there is a conflict of interest between management and shareholders because managers seek to maximize their own interests (Gupta et al., 2018). According to agency theory, managers (especially those with stability) may engage in investments in projects

with a negative net present value to prevent the devaluation of their wealth and to increase their own benefits. This move by managers can lead to overinvestment and reduce investment efficiency (Hitt, 2002; Bates, 2005; Zhen et al., 2007). On the other hand, agency theory suggests that company owners and shareholders delegate their authority to shareholders to make necessary decisions, but managers have personal goals that do not align with the shareholder's perspective of wealth maximization. Thus, agency theory leads to conflicts of interest and ultimately can result in investment inefficiency. Information asymmetry and agency representation have a significant impact on the efficiency of investment decisions (Astin, 2003). .In business investment, efficiency is defined when all projects with positive net present value are selected. Neglecting investment opportunities with positive net present value represents underinvestment, while selecting projects with negative net present value indicates overinvestment, both of which signify investment inefficiency (Richardson, 2006).

Deyanti Dilami et al. (2013) examined the effect of management tenure on firm value, agency costs, and information risk. Management tenure was considered as a measure of CEO decision-making horizon. Empirical tests showed that long-term CEO tenure is associated with information risk and firm value, but no significant relationship was observed between CEO tenure and agency costs. Investment efficiency represents the alignment of predictions with reality, but in the real world, complete alignment of phenomena is less likely, and relative efficiency is assessed compared to other variables. In relation to investment, efficiency can be defined as a deviation from the expected level of investment. Additionally, using the return on investment model, the expected investment efficiency can be predicted as a performance of anticipated growth opportunities, and investment inefficiency can be measured as deviations from expected investment (Wardy, 2006).

Chen et al. (2015) investigated the relationship between ownership type and investment efficiency using data from newly privatized companies in 64 countries worldwide. The time period of this study was from 2002 to 2010, with a sample of 50,920 company-years. Based on the evidence from this study, state ownership leads to a decrease in investment efficiency, while foreign ownership leads to an increase in investment efficiency. The findings of this research emphasize the importance of ownership type in the behavior and investment efficiency of companies.

Main and legal power to manage the activities of an institution primarily lies with the board of directors, which is considered the highest legal authority and decision-making body of the organization. The instability of management positions within an organization can lead to decisions being made without considering the organizational context or implementing practices that are inconsistent with the organization's performance. Frequent changes in management can result in a lack of organizational culture, with norms and values constantly shifting to align with the incoming manager's background, creating conflicts for employees (Namazi et al., 2012).

On the other hand, managers require time to fulfil their management responsibilities. Over time, they develop a sufficient and necessary understanding of their environment. Human resources, physical resources of the organization, operational matters, needs, and capabilities are examined, and based on this understanding, they can compensate for their weaknesses and engage in proper and appropriate planning that ultimately enhances the company's value. Therefore, management stability in an organization is considered an accepted principle, and any change in management essentially resets the understanding of the environment to zero, requiring a suitable period to regain that understanding (Namazi et al., 2012).

Evidence from this research indicates that a financially constrained company, due to the high cost of capital increase, will abandon projects with positive net present value, leading to underinvestment. The second factor of investment efficiency suggests that even if a company decides to increase capital, there is no guarantee that the investments will be made correctly. Often, research shows that making poor project choices pushes companies toward overinvestment (Allen et al., 2005).

In relation to the relationship between board stability and investment efficiency, the following theories are proposed:

Board Stability Theory: Board stability has been

recognized as one of the important factors in corporate management. A stable and consistent board of directors instills confidence and commitment to the company's long-term strategies and can facilitate more effective and accurate decision-making regarding investments.

Investor Attention Theory: From an investor's perspective, board stability signifies the independence and decision-making power of managers. Investors have more trust in companies with a stable and consistent board of directors because such boards may possess greater capabilities in implementing effective investment strategies.

Investment Efficiency: Investment efficiency refers to the level of return and productivity derived from the company's capital. Board stability can directly influence investment efficiency, as a stable board of directors can choose more sustainable and effective investment policies, contributing to improved investment returns.

Based on the theoretical foundations mentioned, the first hypothesis of the research is formulated as follows:

H1: There is a significant positive relationship between board stability and investment efficiency.

Regarding the relationship between board stability and excess cash, there are two theories: financial management theory and investor choice theory.

Financial Management Theory: Excess cash does not indicate the difference between a company's profitable and potentially profitable projects. Board stability can directly influence the allocation policies of excess cash. A stable board may limit short-term and non-profitable decision-making and instead focus on investing in projects with high returns and greater potential for profitability.

Investor Choice Theory: Excess cash can be one of the important factors in investors' decision-making. Investors have less confidence in companies with less excess cash because these companies may have inappropriate resource allocation policies and, as a result, lower investment returns. In this case, board stability may have a negative impact on excess cash because a stable board may make more effective decisions regarding resource allocation and cash management.

Based on these two theories, the second hypothesis of the research is formulated as follows:

H2: There is a significant negative relationship between board stability and excess cash.

3. Research Methodology

3.1. POPULATION AND SAMPLE SIZE

The population of the study includes all companies listed on the Tehran Stock Exchange from 2015 to 2022, which meet the following conditions:

- They were listed on the stock exchange before 2015 and remained listed until the end of 2022.
- They did not undergo changes in activities or fiscal year during the specified period.
- The required data for this research is available for these companies.
- To ensure similarity in the nature of items and classification in financial statements, selected companies should be manufacturing companies and not banks or financial institutions (investment companies, financial intermediaries, holding companies, and leasing companies), as the capital structure of these types of companies is different and may not be generalizable to other institutions.
- To increase comparability, their fiscal year should end in December.

According to the mentioned conditions, a sample of 140 companies and a total of 1120 company-year observations from the period 2015 to 2022 were selected as the available statistical population.

3.2. RESEARCH MODEL AND VARIABLES DEFINITION

In this study, regression models (1) and (2) were used to test the hypotheses, following the approach of Duppati et al. (2017) and Richardson (2006).

Model (1): Testing Hypothesis 1 of the research

To test Hypothesis 1, the following regression model was used:

$$InvestEff_{it} = \beta_0 + \beta_1 BoardStability_{it} + \beta_2 BoardINDP_{it} + \beta_3 BoardEXP_{it} + \beta_4 BoardGENDER_{it} + \beta_5 ROA_{it} + \beta_6 MTB_{it} + \beta_7 AGE_{it} + \beta_8 LOSS_{it} + \beta_9 LEV_{it} + \beta_{10} SIZE_{it} + \varepsilon_{it} \quad (1)$$

In this model, Investment Efficiency is the dependent variable, Board Stability is the independent variable

and, β0 and β10 are the regression coefficients to be estimated. ε represents the error term. Further details and specifications of the regression model were based on the methodology outlined by Duppati et al. (2017) and Richardson (2006).

Model (2): Testing Hypothesis 2 of the research

The second hypothesis of the study is tested using the following regression model:

$$ExCash_{it} = \beta_0 + \beta_1 BoardStability_{it} + \beta_2 BoardINDP_{it} + \beta_3 BoardEXP_{it} + \beta_4 BoardGENDER_{it} + \beta_5 ROA_{it} + \beta_6 MTB_{it} + \beta_7 AGE_{it} + \beta_8 LOSS_{it} + \beta_9 LEV_{it} + \beta_{10} SIZE_{it} + \varepsilon_{it} \quad (2)$$

To address the issue of investment efficiency, the following model, derived from Richardson (2006), will be utilized in this study:

$$I_{it} = \beta_0 + \beta_1 Q_{it-1} + \beta_2 CASH_{it-1} + \beta_3 AGE_{it-1} + \beta_4 SIZE_{it-1} + \beta_5 LEV_{it-1} + \beta_6 RETURN_{it-1} + \beta_7 I_{it-1} + \varepsilon_{it} \quad (3)$$

Where:

I_{it} represents the level of investment by the company (investment in fixed tangible and intangible assets and long-term investments) at the book value of the company's assets in year t.

Q_{it-1} is the Tobin's Q ratio in year t-1, which is the ratio of market value of assets (market value of assets equals book value of liabilities plus market value of shareholders' equity) divided by the book value of assets.

$CASH_{it-1}$ is the cash holding ratio in year t-1, which is the ratio of cash to short-term investments divided by the book value of assets.

AGE_{it-1} is the company's age in year t-1, represented by the natural logarithm of the company's age from its establishment to the research year.

$SIZE_{it-1}$ is the company's size in year t-1, represented by the natural logarithm of the book value of the company's assets.

LEV_{it-1} is the company's financial leverage in year t-1, represented by the ratio of the book value of liabilities to assets.

$RETURN_{it-1}$ is the company's annual stock return in year t-1, representing the annual stock return extracted from the Codal website.

I_{it-1} is the level of investment by the company in year t-1 (investment in fixed and intangible assets and long-term investments) at the book value of the company's assets in year t-1.

ε_{it} represents the positive residuals (positive deviation from expected investment) indicating the selection of projects with negative net present value or overinvestment ($OverINV_{it}$) and negative residuals (negative deviation from expected investment) indicating missed investment opportunities with positive net present value or underinvestment ($UnderINV_{it}$). The absolute value of the residuals in the regression equation serves as an inverse indicator of investment efficiency, i.e., investment inefficiency. The lower the value of this variable, the lower the inefficiency (higher efficiency), and the higher the value, the higher the inefficiency (lower efficiency). To address this issue, the result is multiplied by (-1) in Equation (1).

ExCash represents the excess cash holdings. Excess cash is the difference between actual cash (homogenized with the book value of assets) minus the predicted cash, obtained from the following model :

$$\frac{CASH_{it}}{Asset_{it}} = \beta_0 + \beta_1 Ln(Asset_{it}) + \beta_2 \frac{FCF_{it}}{Asset_{it}} + \beta_3 \frac{NWC_{it}}{Asset_{it}} + \beta_4 (IndustrySigma)_{it} + \beta_5 MTB_{it} + \varepsilon_{it} \quad (4)$$

where,

$CASH_{it}$ represents the cash holdings plus short-term investments of company i in year t.

$Asset_{it}$ represents the net book value of the company's assets in year t.

FCF_{it} represents the free cash flow of company i in year t, which equals operating income minus interest expense minus tax expense.

NWC_{it} represents the net working capital of company i in year t, calculated as current assets minus current liabilities minus cash.

IndustrySigmait represents the 10-year lagged industry average of the ratio FCF_{it}/NA_{it}.

After estimating the regression model 4, the residuals of the model serve as an indicator of the level of predicted cash. To obtain the excess cash, it is sufficient to subtract the predicted cash level obtained from Model 4 from the actual cash holdings.

BoardStability is the stability of the board of directors. To measure it, a dummy variable is used. If the

company under investigation has at least two board members who have been on the board for a minimum of three consecutive years or more, it is assigned a value of one (indicating board stability), and zero otherwise. BoardIND represents the independence of the board of directors, which is equal to the number of non-executive members (non- executive members are boards who are not employees of the company) divided by the total number of board members in company i in year t. BoardEXP indicates the expertise of the board members. If at least one board member has a degree in accounting, economics, or financial management, it is assigned a value of one, and zero otherwise. BoardGENDER represents the gender of the board members. If at least one board member is female, it is assigned a value of one, and zero otherwise. ROA represents the return on assets and is calculated as the ratio of net income to the book value of assets of company i in year t. MTB indicates the company's growth and is derived from the ratio of the market value of equity to the book value of equity of company i in year t. AGE measures the age of the company and is calculated by taking the natural logarithm of the age of company i in year t since its establishment. LOSS is a dummy variable indicating whether the company reported a loss during the research period. If the company reported a loss, it is assigned a value of one, and zero otherwise. CFO represents the cash flows from operations. This variable is obtained by dividing the net cash flows from operations by the book value of assets of company i in year t. LEV is the operational leverage and is equal to the ratio of debt to the book value of assets of company i in year t. SIZE refers to the size of the company and is calculated by taking the natural logarithm of the net sales of company i in year t. ε represents the residual term in the model. β_0, till β_{10} are the regression coefficients to be estimated. ε_{it} represents the error term.

4. Data analysis and research results

In the data analysis, descriptive statistics were initially used, and the data were examined qualitatively, considering parameters such as mean, standard deviation, minimum, and maximum. Comparing the mean of observations with their median and their small difference indicates the normality of the distribution of observations. The descriptive statistics of the variables are presented in the following tables.

TABLE 1- DESCRIPTIVE STATISTICS OF QUANTITATIVE VARIABLES IN THE STUDY

variable	Mean	Median	Max	Min	Std. dev.
$InvestEff_{it}$	0.059	0.028	0.539	0.0004	0.091
$InvestEff_{it}$ * (-1)	-0.059	-0.028	-0.0004	-0.539	-0.091
$ExCash_{it}$	-0.004	-0.005	0.027	-0.068	0.025
$BoardINDP_{it}$	0.638	0.600	0.833	0.142	0.161
ROA_{it}	0.064	0.062	0.470	-0.601	0.162
MTB_{it}	3.254	2.415	10.554	0.202	2.757
AGE_{it}	3.669	3.772	4.234	2.708	0.344
LEV_{it}	0.656	0.657	0.996	0.184	0.206
$SIZE_{it}$	13.868	13.855	19.566	2.564	1.530

In Table 1, the mean of the inefficiency variable is approximately 0.059, with a median of 0.028. It has a minimum value of 0.004 and a maximum value of 0.539, with a standard deviation of approximately 0.091. This indicates that the average level of inefficiency variable is around 5.9%. The statistics related to excess cash indicate that companies, on average, have faced a deficit of around 4% of the book value of their assets. Approximately 63.8% of the board structure consists of non-executive members. The net profit margin, on average, is about 6.4% of the book value of the assets. Furthermore, these results show that the market value of equity is approximately 3.2 times the book value of equity. The average natural logarithm of the company's age in the studied population is approximately 3.669, and the debt level is about 65.6% of the book value of assets. The large difference between the mean and the standard deviation of the size variable indicates varying levels of net sales in the examined companies.

TABLE 2- DESCRIPTIVE STATISTICS OF QUALITATIVE VARIABLES IN THE STUDY

variable	Condition	Absolute Frequency	Percentage
$BoardStability_{it}$	1	899	80%
	0	221	20%
	Total	1120	1
$BoardEXP_{it}$	1	927	83%
	0	193	17%
	Total	1120	1
$BoardGENDER_{it}$	1	112	10%
	0	1008	90%
	Total	1120	1
$LOSS_{it}$	1	237	21%
	0	883	79%
	Total	1120	1

According to Table 2, the relative frequency percentage of the fixed board variable is 80%. This indicates that, on average, about 80% of the observations

(approximately 899 company-years) had stability in their board of directors (at least two members of the board had been serving for more than 3 years). The relative frequency percentage of the financial expertise variable for board members is 83%. This indicates that, on average, about 83% of the observations (approximately 927 company-years) had at least one financial expert as a member of their board of directors. The relative frequency percentage of the gender variable for board members is 10%. This indicates that, on average, about 10% of the observations (approximately 112 company-years) had at least one female member in their board of directors. The relative frequency percentage of the net loss variable is 21%. This indicates that, on average, about 21% of the observations (approximately 237 company-years) experienced losses.

4.1. UNIT ROOT TEST (STATIONARITY OF VARIABLES)

In time series data, tests such as the Dickey-Fuller and Dickey-Fuller-GLS are commonly used to examine the stationarity of variables (unit root tests). However, for panel data, these tests cannot be directly applied to test the stationarity of variables. Instead, it is necessary to test the pooled stationarity of variables using tests like Im-Pesaran-Shin. In this test, the significance level should be below 5% to establish the hypothesis. As seen in table 3, the significance level and the t-statistic for the research variables indicate the stationarity of the research variables.

TABLE 3- IM- PESARAN-SHIN TEST RESULTS

variable	t-statistic	Sig.
$InvestEff_{it}$	-27.002	0.000
$ExCash_{it}$	-13.322	0.000
$BoardStability_{it}$	-12.902	0.000
$BoardINDP_{it}$	-10.122	0.000
$BoardEXP_{it}$	-9.526	0.000
$BoardGENDER_{it}$	-14.787	0.000
ROA_{it}	-13.274	0.000
MTB_{it}	-9.089	0.000
AGE_{it}	-8.461	0.000
$LOSS_{it}$	-15.399	0.000
LEV_{it}	-12.600	0.000
$SIZE_{it}$	-9.691	0.000

4.2. THE AUTOCORRELATION OF RESEARCH VARIABLES

To utilize panel methods, the underlying assumption of panel analysis should be considered. The condition for using panel methods is that the model residuals should not exhibit autocorrelation.

TABLE 4: DURBIN-WATSON TEST FOR AUTOCORRELATION EXISTENCE

model	Test type	$\|X^2$	Sig.	result
1	autocorrelation of research variables	1.106	0.355	No
2	autocorrelation of research variables	1.209	0.302	No

If the model residuals exhibit autocorrelation, panel methods cannot be used, and extended panel methods should be employed. Extended panel methods do not have underlying hypotheses, and the R^2 coefficient is not reported for them. The Godfrey test is used to examine the autocorrelation of model errors. The results of this test, presented in Table 6, indicate that there is no autocorrelation problem in the research models since the significance level is above 5%.

4.3. MULTICOLLINEARITY TEST OF RESEARCH VARIABLES

Variance inflation factor (VIF) was utilized to examine the multicollinearity among independent variables apart from the inflation factor. As the dispersion decreases, information related to the variable decreases, leading to difficulties in regression analysis. Increasing inflation factor with increasing inflation leads to increased variance of regression coefficients and makes the regression inadequate for prediction.

TABLE 5: TEST RESULTS FOR MULTICOLLINEARITY USING VIF

variable	VIF
$BoardStability_{it}$	1.016
$BoardINDP_{it}$	1.070
$BoardEXP_{it}$	1.049
$BoardGENDER_{it}$	1.059
ROA_{it}	2.943

variable	VIF
MTB_{it}	1.162
AGE_{it}	1.079
$LOSS_{it}$	1.913
LEV_{it}	1.951
$SIZE_{it}$	1.168

Empirical evidence suggests that if the inflation factor (VIF) is greater than 5, there is a potential warning, and if it is greater than 10, it indicates a serious warning, implying that the corresponding regression coefficients have been weakly estimated due to multicollinearity. When the dispersion is close to zero, there is high multicollinearity, and the standard deviation of the inflation regression will be distorted. The results of examining the inflation factor of research model in Table 7 indicate that all variables have an inflation factor less than 5, indicating no multicollinearity problem. Therefore, the classic assumption of regression (absence of multicollinearity among

independent variables) is valid.

4.4. HETEROSCEDASTICITY TEST

One of the assumptions of the regression equation is the constant variance of the error terms, known as the homoscedasticity assumption. If the error terms do not have a constant variance, it is referred to as heteroscedasticity. This problem is more common in cross-sectional data. One of the tests examined for heteroscedasticity is the White test. According to the results in Table 6, since the significance level is below 5%, heteroscedasticity exists. Therefore, the generalized regression method should be used in the research models. This method has been employed in this study as well.

TABLE 6: WHITE TEST RESULTS AT A 5% ERROR LEVEL

model	Test type	$F-statistic$	Sig.	result
1	heteroscedasticity	4.602	0.000	Yes
2	heteroscedasticity	4.217	0.000	Yes

4.5. F-LIMER (CHOW) AND HAUSMAN TESTS

The F-Limer test indicates that at a 0.05 significance level, we should use the panel regression method instead of the pooled regression method ($p<0.001$). As observed in Table 7, since the significance level is below 5%, the panel regression method should be used for both research models.

TABLE 7: RESULTS OF CHOW (LIMER) TEST

model	Test type	$F-statistic$	Sig.	result
1	Panel/Pooled selection	2.387	0.020	Panel
2	Panel/Pooled selection	5.282	0.000	Panel

Now, using the Hausman test, we need to choose between the fixed effects and random effects models. If the significance level is below 5%, the fixed effects method is preferred, and if it is above 5%, the random effects method is preferred. Based on the results obtained from the Chow and Hausman tests, the fixed effects panel method is more suitable for both research models.

TABLE 8: RESULTS OF HAUSMAN TEST

model	Test type	$\|X^2$	Sig.	result
1	Fixed effects/Random effects selection	68.81	0.000	FIXED
2	Fixed effects/Random effects selection	7.602	0.000	FIXED

4.6. ANALYSIS OF THE RESULTS OF THE FIRST HYPOTHESIS OF THE RESEARCH

In Table 9, the coefficient of the board stability variable (BoardStabilityit) is 0.290, and the t-statistic is 4.093, which is significant at the 0.05 level ($p<0.000$). Since it is less than the significance level (5%), the significance of the independent variable is confirmed with a confidence level exceeding 95%. This result indicates that there is a positive and significant relationship between board stability and investment efficiency. In other words, in years when at least two members of the board have been board members for at least three consecutive years, investment efficiency is higher. This result shows that managers with stability have the ability to direct excess cash flows in the company towards effective and profitable investments by identifying lucrative investment opportunities. Therefore, the first hypothesis of the research is confirmed, and the results align with the study by Hi et al., (2018).

TABLE 9. RESULTS OF THE FIRST HYPOTHESIS STATISTICAL TEST

variable	Coef.	t-value	Sig.
C	0.061	2.045	0.041
$BoardStability_{it}$	0.029	3.409	0.000
$BoardINDP_{it}$	0.039	5.878	0.000
$BoardEXP_{it}$	-0.010	-1.688	0.091
$BoardGENDER_{it}$	-0.006	-1.567	0.117
ROA_{it}	0.034	3.792	0.000
MTB_{it}	0.0006	1.373	0.169
AGE_{it}	-0.012	-4.370	0.000
$LOSS_{it}$	-0.031	-7.563	0.000
LEV_{it}	-0.003	-0.494	0.620
$SIZE_{it}$	0.001	2.178	0.029
Adj. R-squared	0.336		
Durbin-Watson	1.597		
F-statistic	56.144		
Sig.	0.000		

The results in Table 9 show that there is a positive and significant relationship between the independent variables board independence ($BoardINDP_{it}$), return on assets (ROA_{it}), company size ($SIZE_{it}$), and investment efficiency ($InvestEff_{it}$). Additionally, there is a negative and significant relationship between the variables company age (AGE_{it}), net loss ($LOSS_{it}$), and investment efficiency ($InvestEff_{it}$). The results do not indicate a significant relationship between the financial expertise of board members ($BoardEXP_{it}$), gender of board members (BoardGENDERit), market-to-book ratio (MTB_{it}), and financial leverage (LEV_{it}) with investment efficiency ($InvestEff_{it}$). Furthermore, the F-statistic is 144.56, and its significance level is 0.000. Since the significance level is below 5%, the multiple linear regression model is significant. The adjusted R-squared value is 0.336. The adjusted R-squared is a coefficient that represents the amount of variation in the dependent variable explained by the independent and control

variables, and its value ranges between 0 and 1. This indicates that approximately 33.6% of the variation in investment efficiency is explained by the independent variable (board stability) and the control variables.

4.7. ANALYSIS OF THE SECOND HYPOTHESIS OF THE RESEARCH

In Table 10, the coefficient of the board stability variable ($BoardStability_{it}$) is -0.009 and the t-statistic is -8.112, which is significant at the 5% level. Since it is below the significance level (5%), the significance of the independent variable is confirmed with a confidence level exceeding 95%. This result indicates that there is a negative and significant relationship between board stability and excess cash. In other words, in years when at least two members of the board have been board members for at least three consecutive years, there is less excess cash. This result shows that managers with stability have the ability to improve the cash flows of the company. Due to their stability, they make stable investment decisions that improve the company's performance and reduce excess cash. Therefore, the second hypothesis of the research is confirmed, and the results align with the study by Hi et al. (2018).

TABLE 10. RESULTS OF THE SECOND HYPOTHESIS STATISTICAL TEST

variable	Coef.	t-value	Sig.
C	-0.284	-4.520	0.000
$BoardStability_{it}$	-0.009	-2.811	0.005
$BoardINDP_{it}$	-0.008	-2.947	0.003
$BoardEXP_{it}$	0.023	7.421	0.000
$BoardGENDER_{it}$	-0.003	-1.870	0.061
ROA_{it}	-0.019	-2.802	0.005
MTB_{it}	-0.0008	-3.465	0.000
AGE_{it}	0.001	0.723	0.469
$LOSS_{it}$	0.002	1.183	0.236
LEV_{it}	-0.016	-3.563	0.000
$SIZE_{it}$	0.046	5.239	0.000
Adj. R-squared	0.315		
Durbin-Watson	1.976		
F-statistic	41.693		
Sig.	0.000		

The results of Table 10 indicate that there is a negative and significant relationship between board independence ($BoardINDP_{it}$), return on assets (ROA_{it}), market-to-book ratio (MTB_{it}), and financial leverage (LEV_{it}) with excess cash. Furthermore, the results of the research show that there is a positive and significant relationship between the financial expertise of board members ($BoardEXP_{it}$) and the company's size ($SIZE_{it}$) with excess cash. The results of the research do not indicate a significant relationship between the gender of board members ($BoardGENDER_{it}$), company age (AGE_{it}), and net loss ($LOSS_{it}$) with excess cash. Moreover, the F-statistic is 693.41, and its significance level is 0.000, which is below the 5% significance level. Thus, the multiple linear regression model is significant. Additionally, the adjusted R-squared value is 0.315, indicating that approximately 31.5% of the variation in excess cash is explained by the independent (board stability) and control variables.

5. Conclusion

The present study aimed to investigate the relationship between board stability and investment efficiency as well as the relationship between board stability and excess cash holdings.

The first hypothesis suggested a positive and significant relationship between board stability and investment efficiency. The findings of our study supported this hypothesis, indicating that companies with a stable board of directors tend to exhibit higher levels of investment efficiency. A stable board provides a conductive environment for effective decision-making and strategic planning, leading to improve investment decisions and resource allocation. This highlights the importance of board stability in enhancing investment efficiency within organization.

The second hypothesis proposed a negative and significant relationship between board stability and excess cash holdings. Our empirical analysis confirmed this hypothesis, revealing that firms with a stable board of directors tend to hold lower levels of excess cash. A stable board facilitates effective monitoring and governance, reducing the agency costs associated with excess cash holdings. This suggest that a stable board can play a crucial role in promoting efficient capital management and discouraging the accumulation of idle cash.

Overall, the results of this study contribute to the existing literature by highlighting the importance of board stability in influencing both investment efficiency and excess cash holdings. The findings support the notion that a stable board of directors plays a crucial role in enhancing corporate performance and financial decision-making. Future research could explore

additional factors that may moderate or mediate the relationships examined in this study to provide a more comprehensive understanding of the dynamics between board stability and firm level outcomes.

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