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The Relationship between Top Female Executives and Corporate Investment: Empirical Evidence from Vietnamese Listed Firms

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Abstract

This study aims to investigate the relationship between the difference in gender of top executives and corporate investment. In addition, this study also extends to how the sensitivity of investment to cash flow varies with the gender of leaders. Finally, the effect of the gender of leaders on firm investment is also tested across firm types (state firms vs. private firms and high-growth firms vs. low-growth firms). Based on the dataset of Vietnamese listed firms over 2007–2017, the fixed-effect model is used to test the hypotheses. The results show that women as chairs of the board tend to lower corporate investment, whereas the gender of CEOs (Chief Executive Officers) does not influence the investment level. Moreover, top female executives are associated with a decrease in the sensitivity of investment to cash flow. These regression results also show that top female executives only have an impact on the rate of investment in private and low-growth firms. The findings of this study are useful for the board of directors in selecting a chairperson in line with the firm's strategies. Furthermore, the findings of this study are also meaningful for policymakers who should monitor the separate role of the CEO and chair of the board in a company.

Keywords: Corporate Investment, Gender, Chairs of Board, Female CEOs

JEL Classification Code: G31, G34, G41

1. Introduction

The chief executive officer (CEO) is the top position in an organization and is responsible for implementing existing plans and policies, ensuring the successful management of the business, and setting future strategies. The CEO plays a critical role in the firm's decision-making process and is ultimately responsible for the success or failure of the organization (Jensen & Meckling, 1976) as well as corporate investment (Agrawal & Mandelker, 1987). Jensen and Meckling (1976) and Majluf and Myer (1984) have proposed an agency theory and asymmetric information as ways in which the characteristics of decision-makers would influence a firm's investment (Faccio et al., 2016; Huang et al., 2016; Shin et al., 2019). Subsequently, evidence for the effect of manager's characteristics such as age, tenure, education, and career experiences on a variety of corporate finance settlements have been presented in the literature (Bertrand & Schoar, 2003; Hambrick & Mason, 1984; Hu & Liu, 2015; Malmendier & Tate, 2005a; Tahir et al., 2020).

The difference in managers' gender may lead to discrepancies in action and behavior that finally affect business activities. Possible explanations include risk-aversion differences (Bertrand, 2011; Croson & Gneezy, 2009), overconfidence (Malmendier & Tate, 2005a, 2005b, 2008; Malmendier et al., 2011), the differences in incentives structures and unemployment risk, as well as social norms related to the women in a given society (Akerlof & Kranton, 2000; Altonji & Blank, 1999; Guiso et al., 2008). The roles of gender have been examined in several decision-making aspects in companies, including corporate cash holding (Zeng & Wang, 2015), agency cost (Jurkus et al., 2011), firm performance (Isidro & Sobral, 2015), earning quality (Peni & Vähämaa, 2010; Srinidhi et al., 2011), and sustainable investment (Atif et al., 2020). Furthermore, gender is the most important explanatory factor in investment decisions (Powell &

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Ansic, 1997), but it has been rarely studied in existing literature related to investment levels, with the exception of related articles in investment efficiency (Shin et al., 2019; Ullah et al., 2020a), capital allocation (Faccio et al., 2016), and acquisition activities (Huang & Kisgen, 2013).

Vietnam is an interesting case to explore the relationship between the gender of top executives and investment decisions. Many of the previous studies use the dataset from developed countries where gender equality is assumed to be better due to cultural and long-historical development. For example, according to Global Gender Gap Report 2021 by World Economic Forum, Vietnam has ranked 87th, lower than the United States (30th) and Australia (50th). Even though women have had more opportunities to obtain middle and top-level positions in firms recently, it is rare to see women reach the top positions (Chairs or CEOs) even in the developed countries, surprisingly. For instance, according to an article in The Wall Street Journal, "Women today lead 167 of the country's top 3,000 companies. That is more than double the share a decade ago, but still under 6%" (Fuhrmans, 2020). In addition, among the 2020 Fortune 500 list, there were only 37 female CEOs, accounting for merely 7%, while the vast majority were occupied by men (Hinchliffe, 2020). On the contrary, in the Vietnamese context, a report from a management consulting firm by The Boston and Consultant Group in 2018 has revealed that top-level female executives have been promoted in Vietnam as the most progressed advanced-economy Southeast Asian nation. As shown by this study, Vietnamese women hold a quarter of CEO and Board committee positions, whereas that of Malaysia, Singapore, and Indonesia were only 14%, 10%, and 6%, respectively. Therefore, even in Vietnam, females still have more opportunities to reach the top position despite the historical and oriental culture where men have more chances to work, and women are in charge of housework. Hence, the relationship between the gender of top-level management and corporate decisions is essential to consider.

This study aims to investigate the impact of cognitive abilities of the top executives, such as risk attitude and confidence, on investment choice. Notably, we directly examine how different gender could affect corporate investment decisions and the influence of gender on the sensitivity of investment to cash flow as well as the executive behavioral difference across firm types. Alternatively, the purpose of this study is to explore whether firm investments are associated with the gender of directors and board chairs. We hypothesize that female managers and board committees evaluate risks more conservatively and may hold a lower investment level, given that women are generally more conservative and less inclined to take excessive risks.

Based on the sample of Vietnamese listed firms from 2007 to 2017, we found that women, as chairs of the board, tend to withhold corporate investment, whereas the gender of directors does not influence company investment. These results suggest that chairs involve too much in the corporate decision-making process that actually should belong to CEOs. When we extend the study to cover the relationship between the chief's gender and financial constraints, top female executives also decrease the sensitivity of investment to cash flow. That suggests that corporations may face fewer financial constraints when women acted as board chairs. We also observed that top female executives reduce investment rates only in private companies and companies with modest growth rates.

This study contributes to the current literature in many ways. First, it emphasizes the role of female leaders in investment decisions rather than in other corporate financing decisions (Adhikari, 2018; Kim et al., 2017; Peni & Vähämaa, 2010). Second, rather than focusing on the gender diversity in investment, this study focuses on the role of female leaders in firms. (Almor et al., 2019; Hohl et al., 2021; Bogan et al., 2013; Ullah et al., 2020b). Third, the role of female leaders in a company's financial constraints is also documented in this study. It suggests that firms having chairwomen are less sensitive to cash flow than firms having chairmen. Fourth, this study shows the differences in leadership decision-making in Vietnam, where chairmen and chairwomen behave differently while making investment decisions. Finally, this study contributes to the Vietnamese context in several ways. It proposes the role of top executive gender in the private sector when gender differences affect firm investment. It implies that women have more opportunities to promote their position in private firms than state firms. In addition, if their companies are undervalued, chairwomen will make more prudent investment decisions. Further, this study also reveals that women's participation is meager in developing economies (Vietnam).

The remainder of this paper is organized as follows. We present the literature review and hypothesis development in the next section, while the data and model used in our analyses are provided in Section 3. Section 4 provides evidence of the gender differences between women and men in corporate investment decisions in Vietnamese listed firms, how gender differences affect the sensitivity of investment to cash flow, and gender behaviors across firm types in an investment decision. Section 5 is conclusions and implications.

2. Literature Review and Hypotheses

2.1. Literature Review

2.1.1. Gender and Firm Investment

We argue that the gender of top executives may influence corporate investment since females are less confident

than males in making financial and investment decisions. Several articles have confirmed that male executives exhibit overconfidence about their abilities in corporate decision-making compared to their female peers (Barber & Odean, 2001; Huang & Kisgen, 2013; Lenney, 1977; Lundeberg et al., 1994; Prince, 1993). These results are maintained even after controlling factors such as age, experience, education, knowledge, and asset holdings (Powell & Ansic, 1997). On the other hand, Malmendier and Tate (2005a, 2005b) investigated the relationship between overconfident top managers and corporate investment. They argued that the profits of the investment projects are usually overestimated by overconfident leaders, and they often consider external funds excessively expensive. Therefore, they are more likely to make superfluous investments when internal funds are abundant, while in case external financing is required, they tend to invest insufficiently. The proposed hypothesis was tested using panel data on the personal portfolio and corporate investment decisions of Forbes 500 CEOs. They found that the level of CEO's confidence is important for corporate investment. Huang and Kisgen (2013) and Levi et al. (2014) also examined the relationship between the gender of top executives and investment decisions from the view of overconfidence. They found that firms with female executives are less likely to make acquisition transactions relative to firms led by men.

In addition, factors other than overconfidence, for example, risk attitude, were also inspected. Women behave differently from men in a risky situation (Charness & Gneezy, 2012; Croson & Gneezy, 2009; Cumming et al., 2015; Eckel & Grossman, 2008). Due to the lack of confidence in their abilities, women tend to take less risk than males in investment decisions (Agnew, 2006; Cohn et al., 1975; Huang & Kisgen, 2013; Riley & Chow, 1992; Sundén & Surette, 1998). Various studies showed that women are more conservative with accruals (Peni & Vähämaa, 2010) and investments (Yao & Hanna, 2005). Zuckerman and Kuhlman (2000) illustrated that men overall engage in riskier behavior than women. Faccio et al. (2016) investigated the relationship between top executive gender, risk-taking, and corporate investment. This article examined how the top manager's gender affects the efficiency of capital allocation. Using data from 18 countries covering the 1999–2009 period, they found that firms with female executives tend to make low-risk investment decisions than firms led by male CEOs.

2.1.2. Gender and the Sensitivity of Investment to Cash Flow

The empirical literature confirms the robust existence of investment-cash flow sensitivity (Fazzari et al., 1988, 2000; Kaplan & Zingales, 1997). In this section, rather than focusing on firm-level characteristics, we investigate the relationship between the investment-cash flow sensitivity and the gender of the top decision-makers inside the firm. We argue that a critical link between investment levels and cash flow may be influenced by the top executive behavior caused by the differences in overconfidence and risk attitude between males and females. According to various studies, male top executives who are overconfident have a heightened sensitivity of corporate investment to cash flow (Heaton, 2002; Malmendier & Tate, 2005a). Lower risk aversion, on the other hand, implies lower investment–cash flow sensitivity, as risk-averse managers are more likely to increase the leverage (that is, use of debt) of the company. Therefore, top female executives who are risk-averse (Agnew, 2006; Cohn et al., 1975; Huang & Kisgen, 2013; Riley & Chow, 1992) can lower the sensitivity of investment to cash flow.

2.1.3. Gender and Corporate Investment Across Firm Types

The effect of state-ownership on a firm's behavior has been examined by several studies in corporate finance (Ding et al., 2007; Ferrarini & Hinojales, 2019; Lızal & Svejnar, 2002; Shleifer & Vishny, 1997; Wang et al., 2008). In the case of Vietnam, various research showed that state-owned firms have more advantages than private companies in terms of investment since they have more access to bank loans and land (Nguyen & Freeman, 2009). However, there are various factors that contribute to the significant behavioral differences between top executives of state-owned and private firms, including their objectives, agency issues, and incentive structures. In general, private companies focus on maximizing their value, while state-owned firms focus on both commercial and non-commercial objectives. Second, private enterprises may be concerned with the self-interested behavior of management or controlling shareholders, whereas state firms are concerned with the self-interested behavior of not only their managers but also politicians. Third, private firms have significant market-driven incentives, such as bankruptcy threats or performance-based compensation, whereas state firms do not have such incentives, such as strong job protection for employees or restricted performance-based pay. Therefore, the gender differences of CEOs between the two groups of firms are revealed in several aspects, such as compensation (Pan et al., 2009), firm value (Ullah et al., 2020a, 2020b), debt finance (Ho et al., 2020) and cash holdings (Zeng & Wang, 2015). Moreover, Liu et al. (2014) demonstrated that state-controlled firms are less likely to be beneficial from female directors.

High-growth firms tend to invest more because they have more advantages in accessing external finance for their investment (Dittmar & Thakor, 2007; Mclean et al., 2012). They could issue new equity because their stock

prices are overvalued (Asquith & Mullins, 1986; Baker & Wurgler, 2002; Dong et al., 2012; Jensen, 2005; Jung et al., 2008; Polk & Sapienza, 2009). From the view of gender differences, more women on corporate boards can increase firm value (Isidro & Sobral, 2015) and female CEOs help create shareholder value (Levi et al., 2014).

2.2. Hypotheses

Based on the Literature Review, the author give the following research hypotheses:

H1: *Firms with top female executives will exhibit a lower level of investment in Vietnamese listed firms.*

H2: *Top female executives will decrease the sensitivity of investment to cash flow in Vietnamese listed firms.*

H3: *Top female executives behave differently in investment choice between private firms and state-shareholding firms.*

H4: *Top female executives behave differently in investment choice between high-growth firms and low-growth firms.*

3. Research Methods and Materials

3.1. Research Model

We investigate the role of top executive's gender in investment decisions by the following equation:

$$\begin{aligned}\text{Investment}_{it} = {} & \beta_0 + \beta_1\,\text{Female}_{it} + \beta_{(2\text{–}7)}\,(\text{Control\_Firm})_{it} \\ & + \beta_{(8\text{–}9)}\,(\text{Individual\_Control})_{it} \\ & + \beta_{(10\text{–}19)}\,(\text{Year dummies})_{it} + \upsilon_i + \varepsilon_{(i,t)}\end{aligned} \quad (1)$$

Where represents the investment of firm *i* in year *t*, which is measured by the ratio of capital expenditures in year t to the start-of-year tangible fixed assets. is a dummy variable that takes value 1 if the CEO or chair of the board is a woman and 0 otherwise. is unobservable time-invariant individual fixed effects, such as firm-specific innate attainments and abilities. is the idiosyncratic error. We run the regressions separately when female plays the role of CEO and Chair of the board.

For equation (1), our interest lies in the coefficient of "Female" , which captures the effect of top female executives on the investment level.

Corporate leverage, tangibility, firm size, cash flow, and sales growth are among the control variables for firm characteristics associated with the firm's investment, and are captured by Tobin's *Q*, as described in various studies (Faccio et al., 2016; Phan, 2018). Tobin's *Q* is measured by the ratio of market value to the book value of total assets. Leverage is the proportion between total debts and total assets. Tangibility is the ratio of tangible fixed assets to total assets. Firm size is calculated by the natural logarithm of total assets. Cash flow is the ratio of the sum of net income before extraordinary items, depreciation, amortization expenses, research and development expenses scaled by the beginning-of-year tangible fixed assets. Sales growth is the increase of sales to tangible fixed assets.

The group of control variables for top manager characteristics (), are captured by the degree and age of top executives. The educational background of the company's leaders has considerable influence on investment activities (Barker & Mueller, 2002; Datta & Guthrie, 1994; Gupta et al., 2018). Simultaneously, elderly executives tend to be more conservative (Hambrick & Mason, 1984) and more risk-averse (MacCrimmon & Wehrung, 1986), and invest less (Gupta et al., 2018). Age is measured by the natural logarithm of age while degree reflects the education level and consists of four items, 1= below Bachelor's degree, 2 = Bachelor's degree, 3 = Master's degree, and 4 = Doctor of Philosophy level.

By using the fixed effect estimator on equation (1) on separate samples, we can compare the impact of top female executives on corporate investment decisions across groups of firms classified by growth opportunity and state ownership. The sample of high-growth firms includes the firm-years that have Tobin's *Q* value equal to or greater than 1, which indicates the high expectation of the market for these companies. Meanwhile, the firm-year observations with Tobin's *Q* value smaller than 1 are grouped into the subsample of low-growth firms. The firm-year observations that have no state ownership in initial capital requirement are classified as private firms, while state-shareholding firms consist of firm-year observations that state holders keep their shares in initial capital requirement.

The effect of the top female executive on the sensitivity of investment to cash flow is evaluated by adding an interaction term between gender and cash flow.

$$\begin{aligned}\text{Investment}_{it} = {} & \beta_0 + \beta_1\,\text{Cash flow}_{it} + \beta_2\,\text{Female}_{it} \times \\ & \text{Cashflow}_{it} + \beta_{(3\text{–}6)}\,(\text{Control\_Firm})_{it} \\ & + \beta_{(7\text{–}9)}\,(\text{Individual\_Control})_{it} \\ & + \beta_{(10\text{–}19)}\,(\text{Year dummies})_{it} + \varepsilon_{(i,t)}\end{aligned} \quad (2)$$

For equation (2), we are specifically interested in the coefficient on "Cash flow" β_1, which captures the effect of cash flow on the investment level, and the coefficient β_2, which is the interaction term between cash flow and gender. The sum of the two coefficients, $\beta_1 + \beta_2$ captures the impact of top female executives on investment rates among firms.

Table 1: Descriptive Statistics for the Full Sample

Variables	Number of Observations	Mean	Standard Deviation	Minimum	Maximum
Investment	4,876	0.202	0.586	–0.335	2.120
Female_Directors	4,876	0.066	0.248	0.000	1.000
Female_Chairs	4,876	0.059	0.237	0.000	1.000
Tobin's *Q*	4,876	0.850	0.269	0.409	1.533
Leverage	4,876	0.510	0.209	0.136	0.839
Sales growth	4,876	2.423	7.090	–8.055	25.244
Cash flow	4,876	1.481	2.368	–0.033	9.377
Tangibility	4,876	0.188	0.176	0.007	0.628
Size	4,876	27.034	1.330	24.703	29.668
Age_Directors	4,876	3.878	0.170	3.091	4.304
Degree_Directors	4,876	2.293	0.544	1.000	4.000
Age_Chairs	4,876	3.932	0.156	3.135	4.382
Degree_Chairs	4,876	2.283	0.589	1.000	4.000

3.2. Sample and Descriptive Statistics

Descriptive statistics for financial performance, firm-specific characteristics, and top executive-specific characteristics are presented in Table 1.

Data was collected available from the Ha Noi Stock Exchange (HNX) and the Ho Chi Minh City Stock Exchange (HOSE) between 2007 and 2017 for all listed firms. However, banks, financial institutions, and firm-year observations that have inadequate data are excluded. In order to diminish the outlier effect, all consecutive variables were winsorized at 5% and 95% levels.

4. Results and Discussion

4.1. Main Results

Table 2 presents the regression results of model (1). It shows that the behavior of the female board chair significantly affects the investment decision-making process in Vietnamese listed firms. Particularly, companies run by chairwomen tend to have a lower level of corporate investment. This result is consistent with the perception that women take less risk and are reluctant to invest in the long term with high potential risk. On the other hand, the investment levels of female-CEO firms are similar to male-CEOs.

Regarding the effect of the firm characteristics on investment, Tobin's *Q*, leverage, sales growth, cash flow, tangibility, and size have all have an impact on corporate investment in Vietnam. Coefficients for Tobin's *Q* are negative and significant at 10%, which implies that firms would be cautious in making investment decisions when the market expectation for the company is higher. The coefficients for the other firm-characteristic variables are positive and significant. This suggests that investment is positively associated with the potential debt access, the expansion of the firms, the availability of internal funds (Le & Kim, 2020), the ability of tangible fixed assets to be used as collateral for firm debt, and the scale of firms. In contrast, the top-executive characteristics, represented by age and educational background, are insignificant in all estimations.

4.2. Gender and the Sensitivity of Investment to Cash Flow

The regression results of model (2), which investigate the effect of the top executive's gender on the sensitivity of investment to cash flow, are presented in Table 3. This table shows that the cash flow has a profound impact on the investment of Vietnamese listed firms, implying that these companies rely on internal funds for their investments. The coefficient on the interaction term between cash flow and gender shows that female board chairs rather than female directors decrease the sensitivity of investment to cash flow. This result could be interpreted as female leaders may help firms face fewer financial constraints if the sensitivity of investment to cash flow is considered as a good proxy for

Table 2: Top Female Executives and Corporate Investment

Variables	Investment	
	CEOs (1)	Board Chairs (2)
Female	–0.0618 (0.060)	–0.252*** (0.075)
Tobin's Q	–0.0886* (0.043)	–0.0922* (0.043)
Leverage	0.363** (0.112)	0.367** (0.111)
Sales growth	0.0063*** (0.002)	0.0062*** (0.002)
Cash flow	0.118*** (0.009)	0.119*** (0.009)
Tangibility	2.293*** (0.146)	2.285*** (0.145)
Size	0.143*** (0.033)	0.138*** (0.033)
Age	–0.0336 (0.100)	–0.104 (0.112)
Degree	–0.0016 (0.040)	–0.0133 (0.031)
Year dummies	Yes	Yes
Number of observations	4876	4876
Adj. *R*-squared	0.217	0.219

Notes: *, **, *** shows significance at 10%, 5% and 1% respectively. Robust standard errors are given in the parentheses. Columns (1) and (2) show the regression results in equation (1) when the female is 1, indicating that the CEO and chair of the board are both women.

Table 3: Top Female Executives and the Sensitivity of Investment to Cash Flow

Variables	Investment	
	CEOs (1)	Board Chairs (2)
Cash flow	0.117*** (0.010)	0.124*** (0.010)
Cashflow×Female	0.0075 (0.023)	–0.0535* (0.021)
Tobin's Q	–0.0883* (0.043)	–0.0878* (0.044)
Leverage	0.364** (0.112)	0.370*** (0.112)
Sales growth	0.0062*** (0.002)	0.0061** (0.002)
Tangibility	2.291*** (0.146)	2.294*** (0.145)
Size	0.143*** (0.033)	0.138*** (0.034)
Female	–0.0752 (0.065)	–0.163* (0.075)
Age	–0.0333 (0.100)	–0.110 (0.113)
Degree	–0.0015 (0.040)	–0.0133 (0.031)
Year dummies	Yes	Yes
Number of observations	4876	4876
Adj. *R*-squared	0.217	0.221

Notes: *, **, *** shows significance at 10%, 5% and 1% respectively. Robust standard errors are given in the parentheses. Columns (1) and (2) show the regression results in equation (1) when the female is 1, indicating that the CEO and chair of the board are both women.

financial constraints. Similar results are also found in the study of Malmendier and Tate (2005a).

Regarding the influence of firm characteristics on investment, consistent with the regression results of the model (1), other firm-specific characteristics, such as Tobin's *Q*, leverage, sales growth, cash flow, tangibility, and size, affect investment decisions in Vietnamese listed firms.

4.3. Gender and Corporate Investment Across Firm Types

4.3.1. State-shareholding Firms and Private Firms

Table 4 shows the regression results of model (1) for the samples of state-shareholding firms and private companies. Table 5 indicates that the gender of the board chair only affects corporate investment in private firms, while the differences in gender of leaders do not affect investment rates in state-owned companies. In the case of private companies, the chairperson of the board is usually the founder and owner. Therefore, they have served in the role of CEO before becoming chairperson. Hence, private-firm chairpersons would be directly involved in day-to-day operations, particularly investment decisions. On the contrary, the state-owned firm chairpersons are not allowed to serve as CEOs, and in some cases, board chairs will retire after a few years. As control variables, leverage, cash flow, and tangibility are the key factors affecting corporate investment in state-owned firms, whereas leverage, sales growth, cash flow, tangibility, and firm size are factors affecting corporate investment in private firms.

Table 4: Top Female Executives and Corporate Investment between State-shareholding Firms and Private Firms

Variables	Investment			
	State-Shareholding Firms		Private Firms	
	CEOs (1)	Board Chairs (2)	CEOs (3)	Board Chairs (4)
Female	0.0251	–0.186	–0.123	–0.255*
	(0.145)	(0.098)	(0.075)	(0.101)
Tobin's *Q*	–0.0780	–0.0840	–0.0947	–0.0926
	(0.069)	(0.070)	(0.058)	(0.059)
Leverage	0.403*	0.399*	0.358*	0.369*
	(0.191)	(0.191)	(0.148)	(0.148)
Sales growth	0.0038	0.0038	0.0072**	0.0071**
	(0.003)	(0.003)	(0.002)	(0.002)
Cash flow	0.130***	0.131***	0.114***	0.114***
	(0.017)	(0.017)	(0.011)	(0.011)
Tangibility	2.273***	2.272***	2.505***	2.485***
	(0.232)	(0.232)	(0.193)	(0.191)
Size	0.119	0.118	0.170***	0.162***
	(0.067)	(0.067)	(0.042)	(0.042)
Age	0.0348	–0.0366	–0.0556	–0.0652
	(0.166)	(0.189)	(0.138)	(0.143)
Degree	0.0066	–0.0177	0.0008	–0.0290
	(0.055)	(0.038)	(0.056)	(0.056)
Year dummies	Yes	Yes	Yes	Yes
Number of observations	2087	2087	2789	2789
Adj. *R*-squared	0.191	0.192	0.238	0.239

Notes: *, **, *** shows significance at 10%, 5% and 1% respectively. Robust standard errors are given in the parentheses. Columns (1) and (2) show the regression results in equation (1) when the female is 1, indicating that the CEO and chair of the board are both women .while columns (3) and (4) present the regression results in equation (1) when the female is 1, indicating that the CEO and chair of the board are both women.

4.3.2. High-Growth Firms and Low-Growth Firms

Table 5 presents the regression results of model (1) for the samples of high-growth firms and low-growth firms. Table 5 demonstrates that low-growth firms with female board chairs decrease their investment level, whereas high-growth firms with female CEOs and board chairs do not change their investment level. This means that if the firms have lower market expectations, their chairwomen would take greater caution when investing in new projects. Regarding firm-characteristic variables, leverage, the growth of sales, cash flow, tangibility, and firm size are the factors that impact the investments of firms with low growth opportunities, while the amount of debt does not influence the investments of high-growth firms.

5. Conclusion and Implications

This study explores how the gender of top executives influences investment level and the sensitivity between investment and cash flow in Vietnamese listed firms. In addition, the effect of the gender of leaders on firm investment is also tested across firm types - state ownership and growth opportunities. This study confirms that female board

Table 5: Top Female Executive and Corporate Investment between High-growth Firms and Low-growth Firms

Variables	Investment			
	High-Growth Firms		Low-Growth Firms	
	CEOs (1)	Board chairs (2)	CEOs (3)	Board chairs (4)
Female	0.0710	–0.0224	–0.0608	–0.206*
	(0.135)	(0.139)	(0.081)	(0.085)
Tobin's *Q*	–0.329*	–0.339*	0.0603	0.0555
	(0.150)	(0.150)	(0.099)	(0.099)
Leverage	0.584	0.559	0.271*	0.277*
	(0.351)	(0.349)	(0.135)	(0.135)
Sales growth	–0.0038	–0.0038	0.0071***	0.0070***
	(0.004)	(0.004)	(0.002)	(0.002)
Cash flow	0.181***	0.178***	0.120***	0.121***
	(0.027)	(0.027)	(0.010)	(0.010)
Tangibility	2.259***	2.279***	2.532***	2.530***
	(0.438)	(0.437)	(0.177)	(0.175)
Size	0.240**	0.253**	0.103*	0.0983*
	(0.088)	(0.090)	(0.041)	(0.041)
Age	0.0212	0.123	–0.0296	–0.106
	(0.254)	(0.291)	(0.110)	(0.142)
Degree	0.0515	0.0551	–0.0312	–0.0336
	(0.100)	(0.076)	(0.046)	(0.037)
Year dummies	Yes	Yes	Yes	Yes
Number of observations	995	995	3881	3881
Adj. *R*-squared	0.253	0.253	0.227	0.228

Notes: *, **, *** shows significance at 10%, 5% and 1% respectively. Robust standard errors are given in the parentheses. Columns (1) and (2) present the regression results in equation (1) 'female' is 1 if the CEO and Chair of the board in high-growth firms is a woman while columns (3) and (4) present the regression results in equation (1) 'female' is 1 if the CEO and Chair of the board in low-growth firms is a woman.

chairs significantly lower the investment level of Vietnamese listed firms, whereas there is no difference between female-CEO and male-CEO in investment choices. The influence of a chair's gender is more profound in private firms and low-growth firms. Moreover, we also demonstrate that female board chairs decrease the sensitivity of investment to cash flow.

Based on the results, some practical implications are proposed that could strengthen the role of top executives, particularly the power of CEOs in strategic decision-making such as investment decisions, and the role of women in management and boards. In general, directors are responsible for overseeing corporate activities and determining the business direction and strategy, while the board chairs influence the direction of the board. However, the outcome of this study raises a questionable issue when board chairs rather than CEOs directly influence investment decisions in Vietnamese listed firms. This suggests further research on the role of directors and board chairs in other corporate financial decisions such as debt decisions and capital structure as well as the clear separation of the roles between directors and board chairs in the Vietnam context.

Second, firms having chairwomen show less sensitivity between investment and cash flow. Thus, women should hold the top-most position on the board if firms expect to maintain a low level of risk attitude. Third, firms that would like to actively expand their business should prefer chairmen rather than chairwomen.

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