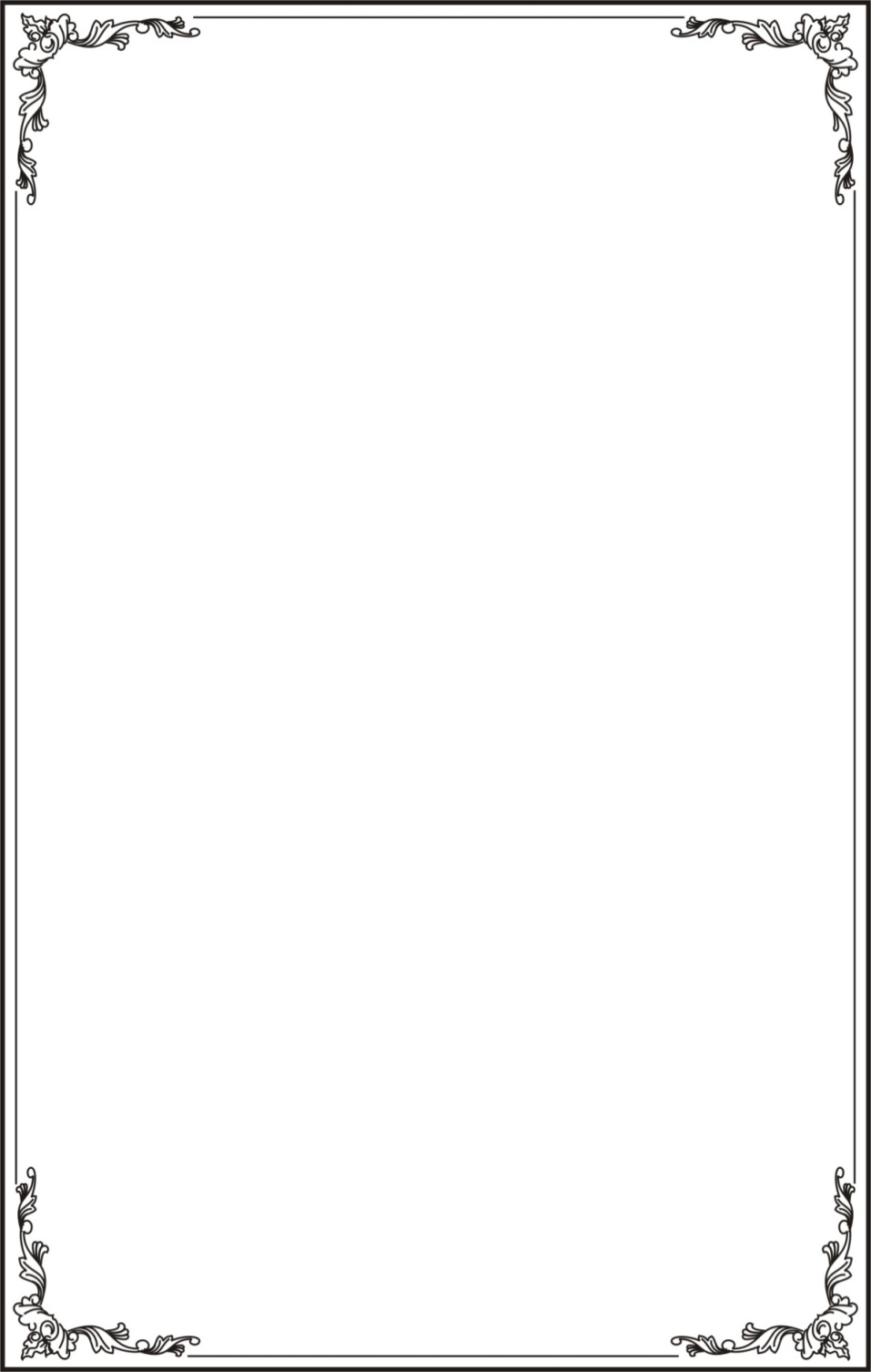
**THE UNIVERSITY OF DANANG**

**UNIVERSITY OF ECONOMICS**

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**SUMMARY OF GRADUATION PAPER**

**TITLE: BOARD COMPOSITION AND RISK TAKING BEHAVIOR: EMPIRICAL EVIDENCE FROM VIETNAM BANKING SECTOR**

Being a graduation paper submitted in partial fulfillment of

the requirements for the degree of

Bachelor of Business Administration

In Danang University of Economics

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**Specialization: Financial Management**

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**Danang, 2020**

# ABSTRACT

Board critically plays in guaranteeing a successful framework of administration, therefore, board composition and the responsibility of bank in particular governance for risk-taking behavior become to an issue of specific concern for investors, policyholders, and regulators. However, academic published paper on the effect of board composition on bank risk-taking is strikingly inadequate, especially in developing countries. In this study, the empirical relationships between demographic attributes within the members of the banks’ board (including size, age, gender, educational attainment and the presence of foreign board members) and risk-taking behaviors in Vietnam are investigated from 2011 to 2018. From the practical results, it is implicated that the rise of board age and board size would decrease risk-taking activities. Additionally, it could be seen that gender diversity of board member has certain influences on risk-taking behavior in Vietnamese commercial banks. Explicitly, the introduction of female banks’ board members to both bank boards (Board of Directors and Executive Board) could surge risk-taking involved activities but there are no more significant impacts when augmenting the quantity of female members on board after that. For the meantime, negligible effects are obtained in the case of PhD or foreign board members. In terms of other bank-specific characteristics, bank size and foreign ownership are discovered to be vital factors of banks’ risk-taking behaviors within Vietnamese context due to the significantly negative associations with taking risk activities.

Key words: banks, risk taking, board characteristics, gender, age, education, PhD

# LITERATURE REVIEW

## Overview of Vietnam banking sector

Vietnam’s banking sector is greatly potential for investment. However, a gap between international principle of corporate governance and banks’ practice is stated by Tu, Son & Khanh (2014). It is considered that the corporate governance in Vietnam banking sector is defective and feeble because of inadequate awareness of the indispensability of corporate governance.

## Board composition and risk-taking behavior theories

The board serves as defense of shareholders against ineffective incumbent management. It supervises management to guarantee the interests for shareholders (Walsh & Seward, 1990), prevent poor decision and discipline or replace incumbent management (Weisbach, 1988). Levine (2004) said that the role of the board of directors is even more quintessential in banking sector. There are three main theories that dominate the board composition literature: agency theory, stewardship theory dependency theory.

Smith & Jensen (2000) claimed that financial sector’s executives are often enthused to take excessive risk owing to their high-leverage capital structure, which has been considered as one of the financial crisis’s major causes (Kirkpatrick, 2009).

## Empirical researches

### Risk-taking behavior measures

This paper employs some of the following measures. The first one is Z-score which proposed by Boyd & Graham (1986). It is assumed that higher (lower) Z-scores relate to higher (lower) stability and lower (higher) risk (Pathan, 2009; Demirgüç-Kunt & Huizinga, 2013; Dong et al., 2014). The second one is Capital Adequacy Ratio (CAR) indicating the magnitude of the capital buffer against potential finance loss, which usually abides by Basel requirement. Thus, higher (lower) CAR is equivalent to lower (higher) risk willing taking (Shehzad, De Haan & Scholtens, 2010). The last considered one is capital structure of banks calculated by the equity to total assets ratio (ETA) proposed by Berger et al. (2009). It is believed that banks with high (low) level of debt would withstand more (less) intense risk in terms of liquidity and insolvency, reflecting low (high) risk-taking policies.

### Board composition measures

**The gender of board**

It is believed that women are more conservative than men when evaluating financial risks (Jianakoplos & Bernasek, 1998; Sunden & Surette, 1998; Agnew et al., 2013) as well as less overconfident (Barber & Odean, 2001; Niederle & Vesterlund, 2007; Goel & Thakor, 2008). However, female directors are said to be more likely to take excessive risks (Adams & Funk, 2012; Ahern & Dittmar, 2012; Berger et al., 2014).

**The size of board**

It is supposed that smaller board size would lead to the less financial risk-taking decisions confirming by McNulty et al. (2012) and Salhi & Boujelbene (2012). In contrast, according to Cheng (2008) and Pathan (2009), it is believed that the smaller bank board is more likely to associate with high risk taking.

**The age of board**

Due to experiential knowledge in solving challenging tasks (Worthy, Gorlick, Pacheco, Schnyer & Maddox, 2011) and job stable achievement (Nguyen et al., 2015), the elder are described to be more conservative when investing in equity, risky stocks and portfolios (MacCrimmon & Wehrung, 1990; Pålsson, 1996; Hunter & Kemp, 2004; Campbell, 2006; Berger et al., 2014).

**The educational attainment**

According to Graham and Harvey (2001), executives having MBA degrees use sophisticated valuation models better than those without such degrees, which could lessen risk level of investment. Conversely, aggressive strategies that leading to higher risk are followed by administrators with MBA, which is confirmed by Bertrand & Schoar (2003) and Nguyen et al. (2015). Nevertheless, as far as my knowledge goes, the impacts of PhD degree of bank’s board members are not much investigated in prior studies, except the paper of Hoang, Nguyen & Le (2018).

**The foreign members of board and bank’s risk-taking behavior**

It is said foreign board members could increase firm performance by a lot of competitive benefits such as international networks; enhanced shareholder right; managerial entrenchment reduction (Oxelheim & Randøy, 2003; Liang et al., 2013); international markets understanding (Masulis, Wang & Xie, 2012). However, according to Masulis et al. (2012), due to low board meeting attendance and higher compensation, the roles of foreign board members might be inconsequential.

### Related literature

There have been a few studies about board composition and bank’s risk-taking behavior in other nations (Boyd & De Nicolo, 2005; Berger, Klapper & Turk-Ariss, 2009; Greuning & Bratanovic, 2009; Van Greuning & Brajovic Bratanovic, 2009; Murphy, 2011; Aebi, Sabato & Schmid, 2012; Haneef et al., 2012; Zemzem & Kacem, 2014). However, the most notable thing is that the concentration of these papers is for developed nations whose roles in the banking system and corporate governance structure are relatively different from those of developing economies. In Vietnam, there are numerous studies which analyze the relation between board governance and bank’s financial risk or performance (Dao & Hoang, 2012; Trinh, Duyen & Thao, 2015). There is also another paper which demonstrates the relationship between bank risk behavior and board composition (Hoang, Nguyen & Le, 2018). Due to the fact that they use other variables and different data then the outcomes might be dissimilar.

Hence, more comprehensive evidence would be added to the literature of the interrelation between board composition and risk-taking behavior in Vietnam banking sector with the latest data from 2011 to 2018.

# RESEARCH DESIGN

## Hypothesis Development

***H1:*** *There is a negative relationship between board age and bank’s risk-taking behavior.*

***H2:*** *There is a negative relationship between board size and bank’s risk-taking behavior.*

***H3a:*** *There is a positive relationship between the presence of female on boards and bank’s risk-taking behavior.*

***H3b:*** *There is a positive relationship between the increase of female on boards and bank’s risk-taking behavior.*

***H3c:*** *There is a negative relationship between female-led board and bank’s risk-taking behavior.*

***H4a:*** *There is a positive relationship between the presence of PhD members on boards and bank’s risk-taking behavior.*

***H4b:*** *There is a positive relationship between the increase of PhD members on boards and bank’s risk-taking behavior.*

***H5a:*** *There is a positive relationship between the presence of foreign members on boards and bank’s risk-taking behavior.*

***H5b:*** *There is a positive relationship between the increase of foreign members on boards and bank’s risk-taking behavior.*

## Variable Description

### Dependent variables

Three different proxies are taken to measure bank risk. The first one is Z-score which equals to the sum of the return on assets (ROA) and the capital to assets ratio (E/A) divided by the standard deviation of ROA (σ(ROA)) proposed by Boyd’& Graham (1986). In this paper, due to the fact that Z-scores have highly positive skewness, natural logarithm of Z-score (LnZ) is used to obtain more symmetric distribution. The second proxy is Capital Adequacy Ratio (CAR), which is a measure of a bank capital to total risk assets. The third one is capital structure of banks calculated by the equity to total assets ratio (ETA).

### Independent variables

As aforementioned, there are five variables: board size (BoardSize) is the aggregate number of members in both boards of bank; board age (Age) is the average age of total members in both bank’s boards; educational attainment is expressed through PhD variable calculating as the percentage of members holding PhD degrees all both boards; gender of boards is expressed through Fem variable, which is calculated as the percentage of female members; the presence of foreign members (For) is computed as the percentage of foreign board members.

### Control variables

Following the literature of Srairi (2013), Dong et al. (2014) and Palvia et al. (2015), there are four control variables as follow: foreign ownership (ForOwn) and large ownership (LOwn) might moderate agency problem and reinforce bank administration (Jensen & Meckling, 1976; Phung & Le, 2013); larger bank size (LnTA) could reduce risk through diversification and economies of scale but also face “too-big-too-fail” problem (Stern & Feldman, 2004); annual GDP growth rate (GDPGr) controls macroeconomic conditions in Vietnam over the examination period.

## Research model

Model (1) is used to obtain the estimates:

where BRT is dependent variable representing risk taking behavior of bank. Every measure of BRT will have separate model to represent CAR, LnZ, and ETA respectively. DumKeyFem reflects whether females are taking substantial roles on boards, which takes a value of 1 for one of which CEO or the Chairman of Board of Directors is woman or 0 otherwise. DumFem is female dummy variable, equal 1 if there is at least one female on boards, 0 otherwise. DumPhd is PhD dummy variable, equal 1 if there is at least one PhD on boards, 0 otherwise. DumFor is foreign board members dummy variable, equal 1 if there is at least one foreign member on boards, 0 otherwise. They are used to examine the difference of banks with female, PhD and foreign board members respectively and of those without in risk taking behavior. Control variables in this model are ForOwn, LOwn, LnTA, and GDPGr as mentioned above.

Model (2) is used to obtain the estimates:

In model (2), percentage of female members (Fem), percentage of PhD (PhD) and percentage of foreign board members (For) and other variables are similar to the model (1).

## Data and Sample

This paper comprises of all Vietnamese commercial banks for the eight-year period of 2011 to 2018. A final unbalanced data for only 24 banks with 192 observations was collected by hand but they account for about 90% of charter capital and 77% of the number of banks, so that the sample is representative for all commercial banks in Vietnam.

# EMPIRICAL RESULTS AND DISCUSSIONS

## Descriptive Statistics

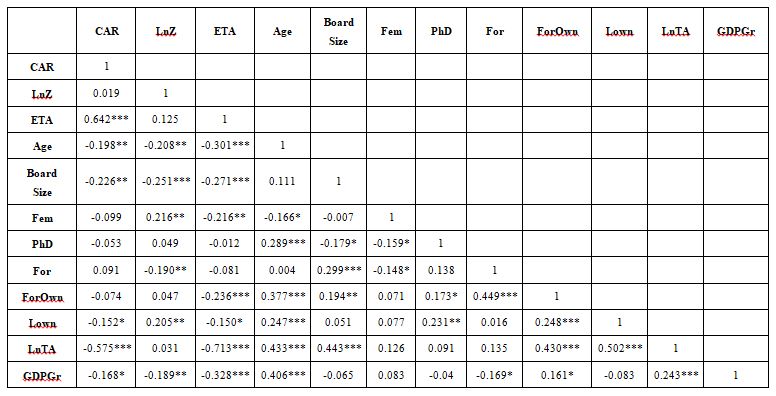
Capital Adequacy Ratio (CAR) oscillates from 9.25% to 34.40% with the mean of 13.98%. A significant gap between the minimum and maximum of data value proves that there is a clear differentiation among banks, specifically between large banks and small banks. It is understandable since large banks often hold more risky assets and also lend more loans than small ones. LnZ has the average of 3.10, ranging from 0.83 to 4.89. The mean of ETA is quite low (about 7.60%) with a quite large gap from 2.62% to 29.94%. It is justifiable since banking sector usually has relatively substantial debt proportion in structure of capital to meet specific operating requirements. The average age of board members is 47.85. It is compatible with prior study of Dong et al. (2014) in China. Meantime, the size of board fluctuates expressively from 8 to 28, with the average of 15 members. It is noteworthy that in the context of Vietnam, which has low level of equality and fairness in terms of gender problem mentioned above, the average percentage of female members representing in boards of these studied banks is considerably high (about 20.60%) to the maximum of 50%. However, banks did not disclose any available additional information related to these boards’ members such as their relative relationships or political revelry involvement, hence there is no apparent evidence to clarify this remarkable fact. There are also numerous meaningful variations observed in the proportion of PhD degrees and foreign members, from 0% to 35.29% and 0% to 41.18% with the mean of 11.22% and 8.07% respectively. Foreign ownership, large ownership, bank size and annual GDP growth rate relatively fluctuate around the average of 10.90%, 31.11%, 18.55 and 6.21% respectively, reflecting the disparity among banks in Vietnam.

**Table 3.1:** Descriptive Statistics

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** | **Obs** | **Mean** | **Std. Dev.** | **Min** | **Max** |
| CAR | 192 | 0.1398 | 0.0403 | 0.0925 | 0.3440 |
| LnZ | 192 | 3.0976 | 0.7247 | 0.8321 | 4.8864 |
| ETA | 192 | 0.0760 | 0.0359 | 0.0262 | 0.2994 |
| Age | 192 | 47.8536 | 3.2413 | 40.2000 | 56.0000 |
| BoardSize | 192 | 15.3281 | 4.4887 | 8.0000 | 28.0000 |
| Fem | 192 | 0.2058 | 0.1042 | 0.0000 | 0.5000 |
| PhD | 192 | 0.1122 | 0.0858 | 0.0000 | 0.3529 |
| For | 192 | 0.0807 | 0.0995 | 0.0000 | 0.4118 |
| ForOwn | 192 | 0.1090 | 0.1143 | 0.0000 | 0.3000 |
| LOwn | 192 | 0.3111 | 0.2649 | 0.0000 | 0.9576 |
| LnTA | 192 | 18.5515 | 1.0790 | 16.5316 | 20.9956 |
| GDPGr | 192 | 0.0621 | 0.0061 | 0.0525 | 0.0708 |

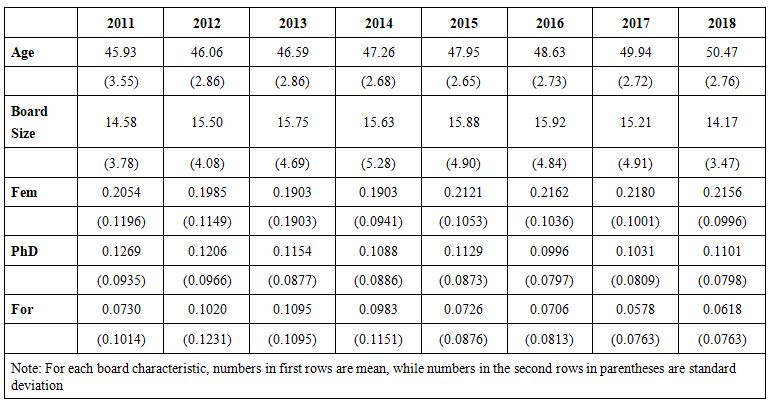
## Correlation Matrix

The correlations between each dependent variable which is the measure of banks’ risk-taking behavior are all positive (0.019, 0.642 and 0.125) and that of ETA and CAR is significant at 0.1% level, therefore it is able for these proxies to express diverse characteristics of bank risk-taking behavior. The correlation between LnTA and CAR and it of LnTA and ETA are considerably negative at -0.575 and -0.713 at 0.1% significant level respectively. Hence, it is indicated the relatively high level of risk taking among banks large in size. This fact proves that there is the existence of “too-big-to-fail” problem in Vietnam banking sector. Moreover, there are great positive relations between LnTA and Age, BoardSize, ForOwn and LOwn (0.433, 0.443, 0.430 and 0.502 at 0.1% significant level respectively). It is implied that banks with large size have older and bigger boards as well as higher level attraction of foreign capital and block ownership than the small ones. CAR and ETA witnessed negative correlations with foreign ownership, large ownership and some board characteristics, including Fem and PhD. Meanwhile, the opposite correlations are perceived in the relations of LnZ and the above variables, which are detailed presented in the table. Age and BoardSize are negatively related with CAR, LnZ, and ETA – all banks’ risk-taking proxies at at least 1% significant level. It is notable that the correlation coefficient of ForOwn and For is quite high of 0.449 and statistically significant at 0.1% level. It is understandable phenomenon once foreign investors own bank’s shares, they usually have the tendency to have their own representatives on boards to thoroughly administer the daily operations of banks.

**Table 3.2:** Correlation Matrix

## Evolution

Notwithstanding the fact that large cross-sectional differences are seen among studied banks, the characteristics of board members are generally steady in terms of both mean and standard deviation amid that period. The age of boards (Age) gradually increases over time, from 45.93 in 2011 to the number of 50.47 in 2018. At the same time, the upward trend could be seen in the data of board size (BoardSize) in the first three quarters period from 14.58 to the maximum of 15.92, then slightly decrease to 14.17 in 2018. Meanwhile, the percentages of female members (Fem), board members holding PhD degrees (PhD) and foreign board members (For) are slightly fluctuate during the 8-year period, from 20.54%, 12.69% and 7.30% to 21.56%, 11.01% and 7.63% respectively.

**Table 3.3:** Evolution of board characteristics over time

## Regression Analysis

For the reason that independent variables have high correlation coefficients, the variance inflation factor (VIF) of both model (1) and (2) is use to identify possible multicollinearity by using Collin function. The VIF and SQRT VIF results are all extreme smaller than the commonly used threshold of 10 so our models do not encounter the problem of multicollinearity.

**Table 3.4:** Effects of board characteristics on banks’ risk taking (Model (1))

| **VARIABLES** | **CAR (1)** | **LnZ (2)** | **ETA (3)** |
| --- | --- | --- | --- |
| Age | 0.0008 | 0.0148 | 0.0007 |
|  | (0.60) | (1.10) | (0.72) |
| BoardSize | 0.0003 | 0.0099 | 0.0001 |
|  | (0.36) | (1.03) | (0.14) |
| DumKeyFem | 0.0131 | -0.0409 | 0.0024 |
|  | (1.51) | (-0.47) | (0.51) |
| DumFem | 0.0420\*\*\* | -0.2306\*\*\* | -0.0068\* |
|  | (8.00) | (-4.77) | (-2.04) |
| DumPhD | -0.0189 | -0.0585 | -0.0035 |
|  | (-1.68) | (-0.70) | (-0.44) |
| DumFor | -0.0021 | -0.0352 | -0.0013 |
|  | (-0.28) | (-0.52) | (-0.21) |
| ForOwn | 0.0848\* | 1.5047\*\*\* | 0.1263\*\* |
|  | (1.97) | (3.29) | (2.56) |
| LOwn | 0.0052 | 0.2552 | 0.0054 |
|  | (0.19) | (0.96) | (0.37) |
| LnTA | -0.0317\*\* | -0.3734\*\*\* | -0.0431\*\*\* |
|  | (-2.57) | (-3.37) | (-5.38) |
| GDPGr | -0.3584 | -10.3587\*\* | -0.4778 |
|  | (-0.93) | (-2.53) | (-1.55) |
|  |  |  |  |
| Observations | 192 | 192 | 192 |
| Adjusted R-squared | 0.6249 | 0.8954 | 0.7481 |
| Robust t-statistics in parentheses | | | |
| \*\*\* p<0.01,’\*\* p<0.05, \* p<0.1 | | | |
| Firm and Year dummies are included to control for firm and year fixed effects | | | |

Firstly, the coefficients of Age are positive in all three used models (b=0.008, b=0.0148 and b=0.0007 respectively) with small t-statistics (the highest is 1.10), hence it is not allowed to reject H1 hypothesis. Due to the positive sign of the coefficients, it is implicated that older board age would decrease risk-taking behaviors, implying lower risk tolerance of older managers in Vietnamese banks. This result is in line with MacCrimmon & Wehrung (1990), Dong et al. (2014) and Nguyen et al. (2015).

Next, the BoardSize’s coefficients are insignificant positive in all three models with small t-statistics (the highest is 1.03), hence it do not allow rejecting the H2 hypothesis of zero coefficients. It is implied that board size has a statistically insignificantly positive relation to board risk taking behavior. This variable is also found being insignificant by empirical study of Tsorhe et al. (2011). In addition, it is suggested a positive impact by the sign of coefficients, indicating that smaller (larger) bank board size involves with higher (lower) risk-taking activities. This result is also supported by non-financial firm confirmation in the U.S. market of Cheng (2008) and banking sector study of Pathan (2009).

Moreover, the coefficients of DumFem are negative in LnZ and ETA regression models at least 10% statistically significant level (b=-0.236, p<0.01 and b=-0.068, p<0.1 respectively), and only positive in CAR model (b=0.0420, p<0.01). Thus, it is more likely that H3a is accepted, which is implying that the female presence in board surges the incentives of banks’ board in taking risk activities. It is worth mentioning that on average, LnZ of banks with female board members is 0.2306% point lower than that of banks without, which is shown by the point estimates of DumFem. This outcome buttresses the hypothesis of which female are presumed to be more aggressive and less risk-averse, which is consistent with the findings of Ahern & Dittmar (2012) in Norway, Berger et al. (2014) among German banks, Adams & Ragunathan (2015) in the sample of U.S. BHCs.

Meanwhile, similar statistically insignificant result is also witnessed in the case of DumKeyFem (b=0.0131, b=-0.0409 and b=0.0024 respectively) with small t-value (the highest absolute value is only 1.51). Thus, it is not allowed to reject the hypothesis H3c. The insignificant relation between females who are taking key roles on boards and bank risk-taking behavior is reinforced by empirical studies of Hoang, Nguyen & Le (2018) and Skała & Weill (2018). Due to the sign of the coefficients, it is more likely that there is a positive association between these two, meaning that female-led board would reduce risk tolerant behavior in banking sector. It is consistent with the previous finding of Skała & Weill (2018).

Furthermore, the coefficients of DumPhD are statistically insignificant negative in all three regression models (b=-0.0189, b=-0.0585and b=-0.0035 respectively) with small t-value (the highest absolute value is only 1.68), thus it is not allowed to reject H4a. It is implied that the level of risk taking tolerant is the same between banks with and without PhD members on boards. It is confirmed insignificant by Bucciol and Miniaci (forthcoming) and Hoang, Nguyen & Le (2018). Moreover, by the negative sign of coefficients, it is indicate that the more members have PhD degrees present in board would increase risk-taking behaviors. This result is supported by Bertrand & Schoar (2003), Nguyen et al. (2015) and Hoang, Nguyen & Le (2018).

Next, the coefficients of DumFor are also negatively insignificant in all three regression model with small t-value (the highest absolute value is only 0.52), hence it is also not allowed to reject H5a. Due to the insignificant statistic, it can be concluded that the presence of foreign board members leading to no difference in level of risk taking in banks’ activities, which is fortified by Carter et al. (2010) and Hoang, Nguyen & Le (2018). Additionally, the negative sign of coefficients specify that foreign members in bank board would help increase risk-taking activities. It is confirmed by the paper of Masulis et al. (2012) and Hoang, Nguyen & Le (2018).

In term of control variables, the coefficients of ForOwn are positive in all CAR, LnZ and ETA regression models and statistically significant at at least 10% level (b=0.0848, p<0.1; b=1.5047, p<0.01 and b=0.1263, p<0.05 respectively). This result denoted that higher fraction of foreign ownership in banks would help to reduce taking risk activities. It is supported by the documents of Zhong et al. (2007), Salhi & Boujelbene (2012) and Vo (2015).

Besides, there are insignificant positive coefficients of LOwn in all three regression model (b=0.0052, b=0.2552 and b=0.0054 respectively) with small t-statistics (the highest is 0.96). Hence, an insignificant impact of large ownership on risk-taking behavior of banks is indicated, which is coherent with Iannotta, Nocera & Sironi (2007), Vo & Phan (2013) and Hoang, Nguyen & Hu (2017).

Finally, the coefficients of LnTA in all three regression models are strongly significant with negative sign (b=-0.0317, b=-0.3734 and b=0.0431 respectively at at least 5% statistically significant level). Thus, it is specified that larger banks in size could reduce risk through diversification and economies of scale than smaller ones. It is strengthened by the study of Anderson and Fraser (2000).

It is notable that the R2 values from the regressions are relative high, which suggests that the selected variables and fixed effects explain a considerable portion of the variation in bank’s risk-taking behavior.

**Table 3.5:** Effects of board characteristics on banks’ risk taking (Model (2))

| **VARIABLES** | **CAR (1)** | **LnZ (2)** | **ETA (3)** |
| --- | --- | --- | --- |
| Age | -0.0000 | 0.0146 | 0.0005 |
|  | (-0.01) | (1.11) | (0.49) |
| BoardSize | -0.0002 | 0.0130 | 0.0005 |
|  | (-0.18) | (1.53) | (0.74) |
| DumKeyFem | 0.0143 | -0.0363 | 0.0042 |
|  | (1.70) | (-0.52) | (0.97) |
| ForOwn | 0.0947\*\* | 1.5566\*\*\* | 0.1309\*\*\* |
|  | (2.36) | (3.60) | (3.19) |
| LOwn | 0.0073 | 0.2187 | 0.0010 |
|  | (0.26) | (0.80) | (0.06) |
| LnTA | -0.0295\*\* | -0.3903\*\*\* | -0.0443\*\*\* |
|  | (-2.50) | (-3.78) | (-6.13) |
| GDPGr | -0.2750 | -10.9799\*\* | -0.4893 |
|  | (-0.76) | (-2.56) | (-1.63) |
| Fem | -0.0151 | -0.2318 | -0.0389 |
|  | (-0.31) | (-0.59) | (-1.28) |
| PhD | -0.0648 | 0.2487 | 0.0273 |
|  | (-1.28) | (0.52) | (0.72) |
| For | -0.0153 | -0.4810 | -0.0501 |
|  | (-0.27) | (-1.07) | (-1.34) |
|  |  |  |  |
| Observations | 192 | 192 | 192 |
| Adjusted R-squared | 0.6038 | 0.8955 | 0.7626 |
| Robust t-statistics in parentheses | | | |
| \*\*\* p<0.01,’\*\* p<0.05, \* p<0.1 | | | |
| Firm and Year dummies are included to control for firm and year fixed effects | | | |

In this model, dummy variables of female, PhD and foreign members on boards (DumFem, DumPhD and DumFor) are substituted by percentage variables (Fem, PhD and For). It is exceedingly interesting that the coefficients in all three models become statistically insignificant even at 10% level. Consequently, all H3b, H4b and H5b are rejected. This implies that the introduction of female members in banks’ board could surge risk-taking involved activities but there are no more significant impacts are seen when augmenting the proportion of female in board members after that. For the meantime, negligible effects are obtained in the case of PhD or foreign board members. The signs and significance level of Age, BoardSize, DumKeyFem, ForOwn, LOwn and LnTA virtually unchanged from previous results in Table, demonstrating the robustness of impacts of those variables on banks’ risk-taking behavior.

# CONCLUSION AND IMPLICATIONS

## Summary of findings

In this study, the empirical relationships between demographic attributes within the members of the banks’ board (including size, age, gender, educational attainment and the presence of foreign board members) and risk-taking behaviors in Vietnam are investigated from 2011 to 2018. Correlation, panel data regression analysis and robust standard errors to account for heteroscedasticity will be used to scrutinize the bearing of board composition on risk-taking behavior of Vietnamese banks.

From the practical results, it is implicated that the rise of board age and board size would decrease risk-taking activities. Additionally, it could be seen that gender diversity of board member has certain influences on risk-taking behavior in Vietnamese commercial banks. Explicitly, the introduction of female banks’ board members to both bank boards (Board of Directors and Executive Board) could surge risk-taking involved activities but there are no more significant impacts when augmenting the quantity of female members on board after that. For the meantime, negligible effects are obtained in the case of PhD or foreign board members. In terms of other bank-specific characteristics, bank size and foreign ownership are discovered to be vital factors of banks’ risk-taking behaviors within Vietnamese context due to the significantly negative associations with taking risk activities.

## Recommendations and implications

These findings contribute to the existing academic literature of the relationship between board composition and risk-taking behavior in different aspects. This paper is practically useful for bank management, bank shareholders and policy makers to understand corporate governance mechanisms in the banking sector then assist in uniting effective boards, as well as curb excessive risk-taking

## Limitations

Due to data limitations and potential endogeneity concerns, it remains certain research restrictions.

## Further research

Future research should expand the sample with a more comprehensive one or include more detailed characteristics of board composition to ameliorative analyze the relation between board composition and bank’s risk-taking behavior or explore the effect of financial distress on corporate governance mechanisms.