Financial Fragility of Banks in Vietnam: The Role of Revenue Diversification and National Governance Quality

Anh-Tuan Le, Hoai-Anh Nguyen Dang, Tieu-My Tran Thi and Hai-Ha Doan

Abstract—This paper investigates the effects of revenue diversification and national governance quality on the financial fragility of 31 commercial banks in Vietnam over the period 2005 – 2016. By using an unbalanced panel data and employing GMM estimator, this study's empirical findings show that an increase in revenue diversification is associated with a rise in bank financial fragility. Meanwhile, a higher in national governance quality drives to lower in financial fragility of Vietnam banks. This study analyses further from the interaction between diversification and national governance quality indicators show that most indicators of Vietnam governance quality tend to play an important role in relationship between diversification and bank financial fragility.

Keywords—Bank financial fragility, GMM, National governance quality, Revenue diversification.

I. INTRODUCTION

During the recent decades, the financial industry and in particular banking in developing economies has experienced huge changes. Due to the increase of competition, beside many traditional services such as loans and deposits, banks have diversified their product portfolios by developing new activities such as underwriting and trading securities, life and non-life insurance, brokerage and investment banking credit card, e-banking and other activities. This makes remarkable conversion in traditional income structure which relies only on interest income. However, does diversification of revenue always produce bank efficiency? Most empirical studies find that revenue diversification not only make a higher profit but also generate extra risk or financial fragility of bank because of their unstable nature [1].

An existing literature tests the link between diversification and financial fragility or bank stability. Some previous papers show a positive relationship where diversification activities lead to stability for banking systems or reducing potential risks [2-5]. In contrast, a variety of recent studies find that a greater level of non-traditional activities increases risks or financial fragility for banks [3, 6-10]. However, these authors focus on developed countries in US or Europe. Also, a few studies suggest that no evidence is provided to confirm the impact of

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diversification on bank stability or instability [11]. In short, the situation that it exists a mixed picture whether there is a positive or negative effect of revenue diversification on the stability of bank systems remains undecided.

In emerging countries and in the particular context of the Vietnamese banking system, commercial banks play a crucial role as a financial intermediate in supporting credit to the financial markets where the financial sources of firms are mainly from bank credit. After Vietnam became a member of international organizations, it has had to remove previous restrictions on initiating new banks, expanding new branches and adapt to international regulations. This action not only has increased competitive pressure for the local bank system but also stimulate banks in Vietnam to conduct income diversification strategies [11]. Meanwhile, diversifying sources of revenue may also mean that commercial banks get involved in new lines of business, even with the lack of expertise or experiences [7]. Thus, a bank with the higher level of revenue diversification may be riskier, less stable than others. Stiroh and Rumble [9] consider this as "the dark side of diversification". In addition, due to the financial openness in ASEAN countries, any disadvantaged shock to banking in these nations may have a infectious effect on other countries [3]. Therefore, it is essential to test the effect of income diversification on the financial fragility of banks. On the other hand, the operating of banking systems is affected by numerous macroeconomic and institutional factors. As argued by Williams [12], the failures of national governance lead to bank crisis in 2008. Although national governance in Vietnam has improved its quality in recent years, it is still in the low rank with low minority protection and low rule of law [13]. Thus, it is really crucial to consider whether the impact of these changes on the linkage between diversification and bank financial fragility in the transitional countries, Vietnam in particular.

The purpose of this study is to examine the influence of diversification and national governance quality on the financial fragility of banks in Vietnam. Furthermore, the authors ask whether the relationship between revenue diversification and bank financial fragility will vary depending on the national governance quality systems where banks operate. More particularly, this study aims to answer the research question whether the relationship between revenue diversification and

bank financial fragility is moderated by national governance quality. This paper follows a modeling approach of Ashraf, Ramady and Albinali [8], Moudud-Ul-Huq, Zheng and Gupta [3] and using a sample of 31 domestic commercial banks which are operating in Vietnam during the period 2005 - 2016. The authors employ Z-score to gauge the financial fragility of bank as well as the Herfindahl Hirschman Index (HHI) to measure revenue diversification activities.

The paper makes a number of contributions to the existing literature. First, the authors provide evidence about the relevance of revenue diversification and bank financial fragility with larger period in the Vietnam context where the income structure of commercial banks has seen a significant change from mainly focusing on traditional interest activities to expanding non-interest strategies in recent years. Some related studies discuss mostly about the developed countries such as Germany [2], Italia [14], the US [9] or nations in Africa [6, 15]. In Asia, there are some papers which investigate this topic in particular in India [6], Philippines [1], China [3, 16]. In this paper, the findings can confirm the revenue diversification – bank financial fragility nexus which is conflicting in previous papers. Le [17] suggests that diversification towards non-interest income in Vietnam banks tends to increase bank risk. In contrast, Nguyen and Vo [4] report the benefits of diversification. This means banks with higher non-traditional activities present lower risk than those with mainly interest income. However, in this study, the impacts of revenue diversification are not confirmed clearly in case of small banks of which total assets are below 30,000 billion VND.

Second, this study uses the national governance quality indicators as independent variables and investigates their direct impacts on bank fragility. Few studies find the direct effect of the quality of national governance on bank risk or stability. However, these papers add the national governance quality as control variables [5]. Others papers include aggregated national governance index, which is a sum of the value of individual indicators [18]. In this paper, the authors mostly employ all indicators of national governance quality and add individually in this paper's model to avoid their collinearity. According to Álvarez, Barbero, Rodríguez-Pose and Zofío [19] the national institutional quality indicators by Kaufmann, Kraay and Mastruzzi [20] is the most specific and comprehensive array of governance indicators currently available. There are two advantages of these indicators: (1) the authors can pick and choose either individual dimensions or incorporate all dimensions into one variable as a sum; (2) these indexes are affecting specific policy resolutions by governments, so they have become widespread and significant in the literature [21].

Third, the authors introduce the interaction between the quality of national governance and revenue diversification. By this way, the authors examine the mediating role of national governance quality in the relationship between revenue diversification and bank fragility. To the authors' knowledge, although some existing papers try to combine the interaction

between income diversification and other factors such as financial reform [11], ownership structure [22, 23], market power [5], bank type [5]. A very few studies address whether banks' revenue diversification - financial fragility nexus may be different by the effect of national governance quality. In Vietnam, Nguyen and Vo [4] focus on the interaction term of revenue diversification and bank equity, total assets of bank, the authors use the interaction between revenue diversification and macroeconomic indicators as national governance quality. According to Filatotchev, Jackson and Nakajima [24], Kumar and Zattoni [25], the interaction between firm- and national-level variables can show a much more significant contribution to the debate than the interaction between firm-level variables. In addition, it assumes that both firm-level and national-level variables can play a same key role in affecting the bank financial fragility. Therefore, at the same time, both the direct effects of national- and firm-level variables on dependent variables (in this study, it is bank financial fragility) are provided.

This study investigates the effects of national governance quality on the revenue diversification and the financial fragility of banks using data for 31 domestic commercial banks in Vietnam during the period 2005–2016. The authors acquire the following key findings. First, the authors find that rises in revenue diversification are associated with increases in bank financial fragility. Second, the improvements in national governance quality will lead to lower bank financial fragility. Finally, it is evident that the improvement of national governance quality plays a significant role in the relationship between revenue diversification and financial fragility of banks. This means the quality of national governance has more benefits of diversification than its other counterparts.

The remainder of this paper is structured as follows. Section 2 shows the existing literature on bank financial fragility, national governance quality, and revenue diversification. Section 3 describes the data sources and methodology. The empirical results and their implications are discussed in Section 4. Finally, Section 5 summarizes and concludes the main findings.

I. LITERATURE REVIEW

A. Revenue diversification and financial fragility of banks

Despite the fact that many banks have expanded their product portfolios in recent decades, there have been divergences in the existing literatures about the impact of income diversification on bank stability. While some results support non-benefit arguments of concentration on bank financial sustainability [26-28], many evidences proving the negative effects of a diversified revenue portfolio from developed economies to emerging markets have been shown [29-31].

The diversification-supporting view suggests that a diversified revenue portfolio can help banks not only to enhance their performance but also to reduce their probability of failure. For examples, Gallo, Apilado and Kolari [32] shows

that a combination of traditional banking and mutual fund activities can improve profitability and steadiness of U.S bank holding enterprises due to its low interest rate level, the Federal Reserve Board's opening regulation and its extra sales commissions and fee incomes. Nevertheless, the study also reports that those activities can only help banks to lower financial-services industry risk but have no significant influence on bank market risk and unsystematic risk. Besides, it is confirmed that retail-oriented banks having an increase in share of non-interest income are more profitable and sustainable in the banking sector picture of the EU [33] because it helps them lower their dependence on traditional income and enlarge risk diversification. Although Rossi, Schwaiger and Winkler [34] find that diversification influences negatively on cost efficiency due to an increase in monitoring costs for individual client management by analyzing Austrian commercial banks over the 1997-2003 period, they also confirm its positive impact on reduction of realized risk because the monitor intensification in turn allows banks to choose a well-qualified loan portfolio to decrease risk. Moreover, it is found that banks having a rise in share of fee-based revenue show better performance and stability in the banking sector picture of the GCC region [35], emerging economies [6, 10, 36] argue that together with cross border banking, income diversification benefits banks in Africa by enhancing their performance and leading to a decrease in insolvency risk. However, revenue diversification is reported to have only low-powered impact on financial soundness in Sub-Saharan Africa banks [15].

From another point of view, there are some proofs that the differences in the impact of bank diversification depends on many factors such as threshold, ownership, size, period… For example, Baele, De Jonghe and Vander Vennet [37] find a non-linear relationship between diversification and idiosyncratic risk; in particular, banks may be unbeneficial if they exceed the optimal threshold of diversification because of the higher market betas of an over-diversified portfolio into non-interest income. Later, Saghi-Zedek [22] reveals that banks with the presence of expert controlling shareholders can gain a lot of advantages from diversification including lower risk by empirically investigating data of 710 Western European commercial banks. However, the paper also suggests that diversifying activities may lead to diseconomies and worsen instability if banks do not have such controlling shareholders. Besides, Pennathur, Subrahmanyam and Vishwasrao [38] examine the case of India and find that fee-based activities result in lower risk only for public sector banks but do not have the same effect on private banks. The reason is that although private domestic banks with poor performance and high credit risk tend to diversify more into non-traditional banking, they are unable to compete with public sector banks with lower fee-based income and higher brokerage income. In addition, Hirtle and Stiroh [39] argue that a stronger focus on retail banking can reduce equity market volatility only for the large banks but not for small and medium banks. Conversely, Hidayat, Kakinaka and Miyamoto [40] suggest that in Indonesia, since the larger banks tend to involve more boldly in non-traditional income activities, which make them become more vulnerable to

the volatility of net non interest income, product diversification has an association with bank probability of failure positively for large-sized banks but negatively for small-sized ones. Chen and Lai [41] argue that in case of Taiwan, there is a significant positive short-run relationship between income diversification and bank credit risk due to the earnings fluctuation; nevertheless, in the long run, the effect is reversed when the bank achieves a certain rise in income sources in order to enhance their liquidity reserve ratio and to minify the EPS fragility.

On the other hand, many empirical results from the developed economies to emerging markets find the non-beneficial effect of diversification on bank stability and risk reduction. In detail, according to Berger, Hasan and Zhou [42] and Zhou [16], as the non-traditional activities also have their own additional risk and the improved correlation between interest and noninterest profits also impair the benefit of the diversified portfolio, no significant effect of income structure diversification on risk reduction of China's commercial banks is reported. Moreover, Acharya, Hasan and Saunders [43], Busch and Kick [2] and Maudos [44] find that diversification may raise probability of bank failure rather than significant economies. Similarly, a shift toward non-traditional income is proven to lead to a rise in bank fragility in findings of Lepetit, Nys, Rous and Tarazi [45], De Jonghe [46], DeYoung and Roland [47], Stiroh [48], Stiroh and Rumble [9] and DeYoung and Torna [49]. Also, diversification increasing derivatives trade is further reported to generate an increase in bank risk as the expansion of interlaced and obscure networks of dealers, obstructing the estimation of counterparty risk [35]. In addition, Mercieca, Schaeck and Wolfe [50] argue that diversification outside of traditional business lines does not bring extreme benefits for small European banks since those banks have less experience in managing such activities.

An explanation for those negative sides of diversification can be clarified in some main persuasive causes. First of all, revenue from interest-based activities is relatively steadier than fee-based products [9, 47, 48]; the reason is that traditional borrowing and lending customers tend to be more loyal due to the high switching costs and information costs while non-interest market is extremely competitive with low information costs. Secondly, an expansion of the non-traditional rather than traditional services might lead to a higher operating leverage as the fixed expenses, such as additional fixed labor, R&D increase and this high leverage in turn makes income fluctuation more vulnerable [47]. Thirdly, the regulatory capital requirement is quite looser for most fee-based than interest-based banking; therefore, banks having a shift to non-interest activities may have an incentive to bear a higher level of financial leverage [47] and take more risk [49]. Last but not least, such non-benefits can also be claimed to the complication and competitive rivalry of diversified banking and the lack of expertise of banks to effectively manage those instruments [45, 46]. Aggregately, it seems that the non-benefit side of diversification is found more prevalently and tends to be also predominant among the existing literature area.

Although the banks' diversification-financial fragility linkage is well-researched so far, the findings are still

inconclusive, especially in Vietnam. For example, using data from Vietnamese commercial banks in Vietnam during the 2005-2012 periods, Nguyen and Vo [4] confirm the benefits of non-traditional income to financial safety of large banks but this effect is undocumented for small banks; however, the authors fail to explain for this relationship. Employing four proxies including Z-score and the standard deviation of ROA, ROE and NIM to measure bank risk, Moudud-Ul-Huq, Zheng, Gupta and Ashraf [51] find a negative nexus between revenue diversification and bank risk due to the contribution of activities generating trading and other incomes, which is completely opposite to a research of Le [17]. However, Moudud-Ul-Huq, Zheng, Gupta and Ashraf [51] only use data of Vietnamese banks over the 5-year period from 2011 to 2015. In fact, over a longer period, the authors recognize that the banking context in Vietnam has many important factors which lead to unbeneficial effects of revenue diversification on bank stability in U.S, European and other banking sectors, such as high competitive rivalry, the lack of experience in managing such complicated activities, the weak bank-customer connectivity and hence, the volatility of non-interest income. Therefore, the authors come up with an argument that a diversified revenue portfolio may cause negative impacts on bank sustainability. Following that view, this paper is testing the first hypothesis as presented below:

Hypothesis 1: *Revenue diversification of Vietnam banks is positively associated with financial fragility.*

A. B. The interactions of national governance quality and financial fragility of banks.

Previous studies on the relationship between national governance and bank stability can be classified into two categories. The first category suggests that an efficient national governance system has a positive impact on bank stability [52] while other researches argue that regulatory restrictions do more harm than good to the banking system [53].

Ngobo and Fouda [52] are among those authors who advocate the development of an effective governance system to banks' income volatility. Specifically, Barth, Caprio Jr and Levine [54] emphasize the importance of regulations and supervisory practices on mitigating risks while improving performance and stability of the banking sector. Delis and Staikouras [55] learn that bank risks have a U-shaped relationship with supervision and a negatively linear correlation with sanctions. The authors, therefore, suggest that an effective combination between supervision and market discipline requirements can decrease the probability of banks' failure. Likewise, bank regulation and supervision are found to significantly reduce the fragility of high-risk banks [56]. This notion is further supported by Williams's research [12] which reveals that an improvement in national governance can reduce bank risk in developed countries in Asia.

Barth, Caprio and Levine [53], however, argue that countries with stricter regulations on the ability of banks to engage in the securities activities can result in a substantially higher probability of suffering a major banking crisis. Therefore,

securities underwriting, brokering, dealing and all other aspects of mutual fund businesses should be encouraged to enhance the stability of the banking system.

This study adopts the notion of the first group which suggests that an efficient national governance system has a positive impact on bank stability. Hence, the second hypothesis is formulated as follows:

Hypothesis 2: *Higher in national governance quality drive to lower in financial fragility of Vietnam banks.*

The literature on the interactions of revenue diversification and national governance is surprisingly scarce. Laeven and Levine's study [57] is one of few researches that attempts to analyze how corporate governance mechanisms and national regulations interact with one another in determining the risk-taking behavior of commercial banks. Houston, Lin, Lin and Ma [58] find that stronger creditor rights tend to promote greater risk taking by banks. Nevertheless, the effect of regulatory restrictions on bank stability through diversification remains unclear.

This study, however, believes that under good national governance, bank stability will be improved when revenue diversification increases. Therefore, the third hypothesis is proposed as follows:

Hypothesis 3: *The relationship between diversification and bank financial fragility in Vietnam is mediated by national governance quality.*

II. METHODOLOGY

A. Financial fragility measurement

This paper employs the Z-score which is used by authors to measure risk or financial fragility of banks [6, 8, 15]. It is an indicator which can estimate the number of standard deviations that a bank's profit can lead to bankruptcy. Z-score has a dominant ranking over other accounting based measures of risk such as impaired loans since it includes the return on both interest and non-interest activities of the bank. The authors calculate Z-score as:

$$Z - SCORE = \frac{ROA + Equity / Assets}{\sigma_{ROA}}$$

where ROA (return on assets) is the ratio of after tax profit to total assets of a bank. Equity captures the ratio of bank equity to total assets,   is standard deviation of the return on assets. The authors apply a four-year rolling time window period for the calculation of ROA to allow for variation in denominator of the Z-score. By this way, the Z-score are exclusively effected by difference in the level of capital and profitability [6]. It is popularly presented in the existing literature that the Z-score is highly skewed [8, 57]. Thus, the authors use the natural logarithm of Z-score in all empirical estimations. A bank with higher value of Z-score indicates lower financial fragility; which means higher stability.

B. Revenue diversification measurement

In this study, the authors calculate revenue diversification basing on bank income structure including traditional and non-traditional revenue. In line with Mercieca, Schaeck and Wolfe [50], Saghi-Zedek [22], Doan, Lin and Doong [23] income diversification is measured by Herfindahl–Hirschman Index (HHI) for each bank; which represents for diversification among main activities. The formulation of revenue diversification (REDIVER) for each bank follow as:

$$REDIVER = 1 - \left(\frac{NON}{NETOP}\right)^2 - \left(\frac{NET}{NETOP}\right)^2$$

where NETOP = NON + NET. NON stands for non-interest income; net-interest income is defined by NET; and NETOP is net-operating. The non-interest income comprises fee and commission income, trading income, fiduciary income, and other banks' non-interest income shares. A higher **REDIVER** shows a decrease in revenue concentration and higher diversification. By construction, values of both variables vary from zero to a half. A value of **REDIVER** equal to 0 means bank is complete concentration, all revenue comes from a single source, while a bank which diversified completely has **REDIVER** equal to a half shows a balance between interest income and non-interest income.

C. Data selection

The data used in this study comes from four different sources. First, the bank-specific data is collected from Bankscope database produced by Bureau Van Dijk. The initial sample consists of 42 commercial banks in Vietnam over the period 2005 – 2016 with 504 bank-observations. From this sample, in order to exactly calculate rolling window standard deviations of Z-score, the authors reduce the initial sample to banks for which the authors have detailed information on the key financial variables for at least four years of time series observations. The authors drop all those banks which have the available financial data below 4 years. Finally, the authors obtain the unbalanced-panel data of 31 commercial banks with a total of 309 year/bank observations. All variables collected from BankScope are in US dollars. Next is country-level data on national governance quality indicators such as Government Effectiveness, Political Stability and Absence of Violence/Terrorism, Regulatory Quality, and Rule of Law and Control of Corruption, are sourced from the data of the Worldwide Governance Index [20]. Then, the authors use macro-economic data (**GDPGROWTH, INFLATION**) from World Development Indicators database. Eventually, the data of public credit registry coverage indicator refers to creditor rights and information sharing measures between nations which is collected from World Bank's Doing Business [59]..

D. Basic model

Firstly, this study investigates the impact of revenue diversification and national governance quality on bank fragility. In this paper, the key dependent variable is the log Z-score, and the main independent variables are the Revenue Diversification (**REDIVER**) and National governance quality Indicators. Specifically, the regression analysis is expressed as

follows:

$$Z-score_{i,t} = \alpha + \beta_1 REDIVER_{i,t}$$

$$+ \beta_2 National\ Governance\ Quality_t + \alpha'\ Bank\ Controls_{i,t} \quad (1)$$

$$+ \rho'\ Macro\ Control_t + Year\ Dummies + \varepsilon_{i,t}$$

Where $Z\text{-}score_{i,t}$ stands for a measure of financial fragility of banks, i denoting banks and t denoting time. α is a constant; β_k is a vector of parameters. *REDIVER* is the value of revenue diversification following the basic HHI-type approach. *National Governance Quality* serves as a proxy for the quality of national governance according to the measurement of Kaufmann, Kraay and Mastruzzi [20]. The value of national governance quality indicators is displayed in terms ranging from -2.5 (lowest) to 2.5 (highest) among all countries worldwide. A higher value indicates better national governance quality (Kaufmann et al., 2010). In this study, *National Governance Quality* includes 5 dimensions: Government Effectiveness (*GOVERNMENT),* Regulatory Quality (*REGULATORY),* Rule of Law (*LAWRULE),* Political Stability (*POLITICS*) and Control of Corruption (*CORRUPTION).* *GOVERNMENT* is a dummy variable equals to one if the value of government effectiveness index is higher its median (the authors define government effectiveness using the 50% threshold) and zero otherwise. This is similar for *REGULATORY, LAWRULE, POLITICS*, and *CORRUPTION.* These indicators which are used popularly in many previous studies evaluate national governance quality [12, 18, 60]. Due to the high correlation between some components and each other, this study includes individually the indicators in the models. This approach is similar with some previous studies of Houston, Lin, Lin and Ma [58], Williams [12].

The vectors of bank control variables include *SIZE, EQUITY, ASSETGROWTH,* and *NONIN.* In the line with other studies on financial fragility or risk of banks, the authors control for bank characteristics such as the natural logarithm of bank's total assets (*SIZE*), the ratio of equity to total assets is used as proxy for the level of capital capitalization and control for the relationship between bank fragility and capitalization's level (*EQUITY*), the growth of total assets (*ASSETGROWTH*). According to Pennathur, Subrahmanyam and Vishwasrao [38] and Sissy, Amidu and Abor [6], larger bank and bank with higher *EQUITY* ratios would have less volatility than other banks; which means it is stable in operation. Meanwhile, banks which rise significantly in total assets may be exposed to more risks and fragilities. Others studies have an impact of the rate of non-interest income to operating revenue (*NONIN*) on financial fragility of banks [12]. The authors add *NONIN* in this estimation and hypothesize that banks with higher levels of non-interest income are riskier, less stable. Following Amidu and Wolfe [10] and Saghi-Zedek [22] the authors also add the ratio of gross loans to total assets (*LOANS*), these studies find a positive impact of *LOANS* on bank fragility. This means banks increase the ratio of gross loans to total assets is riskier.

Year Dummies is a set of time dummy variables.

Macro controls is a vector of macroeconomic controls including *GDPGROWTH,* *INFLATION,* *INFORMATION-*

SHARING. The authors add these variables due to the development of economic, macroeconomic stability and national frameworks that are likely to affect bank operation in a country. Moreover, including some control variables in relation to macroeconomic can get the benefit of determining whether national governance quality versus macroeconomic status is relevant to observed bank fragility [12]. Thus, to control it, the authors include in the regression few variables such as the growth rate of the real gross domestic product (*GDPGROWTH*), the annual growth rate of the Consumer Price Inflation index (*INFLATION*). Following Houston, Lin, Lin and Ma [58], the authors also add *INFORMATIONSHARING* to control for the effects of each country's information channel on bank risk. *INFORMATIONSHARING* is the level of credit information sharing by credit registry coverage indicator. The authors use public credit registry coverage indicator, which reports the number of individuals and firms listed in a public credit registry with information on repayment history, unpaid debts, to measure the level of credit information sharing. This figure is expressed as a percentage of the adult population. Greater information sharing leads to lower bank risk, higher bank stability.

Table 1 shows summary statistics for *Z-SCORE*, *REDIVER*, National governance quality indicators and other control variables. In general, the average of banks' financial frangibility is about 3.699 accompanying with the standard deviation of 0.783, the statistical data of which deviates from 0 to 5.699 scores within the sample. The mean and median of *REDIVER* are 0.185 and 0.170, respectively, indicating that revenue diversification in Vietnamese banks tends to decrease during the period 2005 – 2016.

Next, regarding to the national governance dimensions, because all five manners are calculated as dummy variables, the values will all deviate from 0.000 to 1.000, respectively. Accordingly, the mean level of *CORRUPTION* is 0.444 associated with 0.497 in SD value. Further, the average of government effectiveness in Vietnam is about 0.516. Compared to the remaining dimensions of national governance quality, government effectiveness obtains the highest average mean. Accordingly, the average levels of *POLITICS*, *REGULATORY* and *LAWRULE* are 0.451, 0.512 and 0.493 respectively.

Table I: Descriptive statistics of main variables. The variable Z-score stands for the financial fragility of banks and calculated as Z-score=(ROA+Equity/Assets)/σ_{ROA}. The variable **REDIVER** is the value of income diversification following the basic Herfindahl-type approach. The quality of national governance indicators are dummies variables

include **CORRUPTION, GOVERNMENT, POLITICS, REGULA-TORY, LAWRULE** which represent control of corruption, the effectiveness of government, political stability, the quality of regulatory and rule of law. The variable **SIZE** controls for scale of bank, which is calculated by the log of bank total assets; **EQUITY** denotes the ratio of total equity to total assets; **NONIN** is the ratio of non-interest income to operating revenue. **ASSETGROWTH** represents for the growth of total assets of bank. **LOANS** is the ratio of gross loans to total assets. **Information Sharing** is defined asthe level of credit information sharing by credit registry coverage indicator. Macroeconomic variables include **GDPGROWTH** and **INFLATION** which represent the real gross domestic product and the annual growth rate of the Consumer Price Inflation index, respectively.

Variable	Mean	SD	Median	Min	Max
Z-SCORE	3.699	0.783	3.664	0.000	5.669
REDIVER	0.185	0.129	0.170	0.000	0.500
CORRUPTION	0.444	0.497	0.000	0.000	1.000
GOVERNMENT	0.516	0.500	1.000	0.000	1.000
POLITICS	0.451	0.498	0.000	0.000	1.000
REGULATORY	0.512	0.500	1.000	0.000	1.000
LAWRULE	0.493	0.500	0.000	0.000	1.000
EQUITY (%)	11.463	8.517	8.994	2.878	61.888
SIZE	3.339	0.605	3.356	0.999	4.657
NONIN	0.144	0.171	0.118	-0.028	0.318
ASSETGROWTH	0.404	0.878	0.190	-0.952	8.270
LOANS	0.530	0.133	0.545	0.137	0.944
Information Sharing	0.240	0.153	0.264	0.008	0.418
INFLATION (%)	8.472	6.039	7.385	0.878	23.116
GDPGROWTH (%)	6.189	0.672	6.210	5.247	7.547

In addition, control variables in *banks level* and *macro levels* are highlighted. Notably, the mean level of *EQUITY* is 11.463% which fluctuates from 2.878% to 61.888%. The evidence shows that in average, most banks in Vietnam are capital capitalism. The size and *NON-INTEREST*" means are 3.339 and 0.144 respectively. Further, the average percentage of assets' growths is 40% accordingly. On the other hand, the means of *LOANS* and *INFORMATIONSHARING* are 53% and 24%. In general, majority banks in Vietnam during that period of time receive from 8% to 41% about risks information's update. Last but not least, it can be observed that the levels of *INFLATION* and *GDPGROWTH* in Vietnam from 2005 to 2016 reach approximately 8.472% and 6.189% in average.

Table II: Correlation coefficient matrix. This table provides the correlation coefficient matrix of the main independent variables. The sample includes 31 banks with 309 bank-year observations over the period 2005–2016. The variable **Z-SCORE** stands for the financial fragility of banks and calculated as Z-score=(ROA+Equity/Assets)/σ$_{ROA}$. The variable **REDIVER** is the value of income diversification following the basic Herfindahl-type approach. The quality of national governance variables include **CORRUPTION, GOVERNMENT, POLITICS, REGULATORY, LAWRULE** which represent control of corruption, the effectiveness of government, political stability, the quality of regulatory and rule of law. The variable **SIZE** controls for scale of bank, which is calculated by the log of bank total assets; **EQUITY** denotes the ratio of total equity to total assets; **NONIN** is the ratio of non-interest income to operating revenue. **ASSETGROWTH** represents for the growth of total assets of bank. **LOANS** is the ratio of gross loans to total assets. **Information Sharing** is defined asthe level of credit information sharing by credit registry coverage indicator. Macroeconomic variables include **GDPGROWTH** and **INFLATION** which represent the real gross domestic product and the annual growth rate of the Consumer Price Inflation index, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) Rediver	1													
(2) Corruption	-0.067	1												
(3) Government	-0.053	-0.035	1											
(4) Politics	0.004	-0.181***	0.564***	1										
(5) Regulatory	0.048	-0.042	0.694***	0.257***	1									
(6) LawRule	-0.101*	0.057	-0.681***	-0.675***	0.832***	1								
(7) Equity	0.157***	0.144**	-0.091	-0.062	-0.142**	0.030	1							
(8) Size	-0.146***	-0.309***	0.083	0.196***	0.079	0.033	-0.592***	1						
(9) Nonin	0.491***	0.030	-0.068	-0.109*	-0.059	0.012	0.209***	-0.118**	1					
(10) AssetGrowth	0.134**	0.293***	-0.257***	-0.181***	0.014	-0.005	0.216***	-0.242***	0.084	1				
(11) Loans	-0.111*	-0.119**	0.096*	0.119**	0.084	-0.172***	-0.026	-0.009	-0.285***	-0.189**	1			
(12) Information Sharing	-0.020	-0.778***	0.342***	0.444***	0.285***	-0.108*	-0.209***	0.435***	-0.111*	-0.366***	0.070	1		
(13) Inflation	-0.153***	-0.645***	0.099*	-0.173***	-0.282***	0.190***	0.148***	-0.122**	0.059	-0.007	-0.147***	-0.458***	1	
(14) GDPGrowth	0.062	0.559***	0.212***	0.018	0.543***	-0.408***	-0.005	0.262***	-0.035	0.304***	0.045	-0.422**	-0.183***	1

Notes: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively

Table 2 shows the pair-wise correlation between the independent variables between 2005 and 2016. The matrix demonstrates the positive significant relationship between revenue diversification and these control variables, namely: *EQUITY, NON-INTEREST* income, *ASSETGROWTH*; the significant levels of these effects reach at 1% specifically. Nonetheless, the authors observe that *LAWRULE, SIZE, LOANS* and *INFLATION* significantly have adverse correlations towards revenue diversification.

Moreover, the significant positive relationship is presented in model 2 for the correlations between *CORRUPTION* and control variables (such as *EQUITY, ASSETGROWTH*, and *GDPGROWTH*). However, it can be noticed that there are negative significant relations between these variables (namely: *POLITICS, SIZE, LOANS, INFORMATIONSHARING, INFLATION*) and *CORRUPTION*, suggesting that the higher increase in politics control, size, loans, information sharing and percentages of inflation, the lower reduction in corruption.

The table also identifies that the development in politics control, regulatory and information sharing will lead to the more stable governmental management, the results of which are presented by the significant positive correlations between these variables; nonetheless, the capability of government control tends to be declined due to the growth in asset, the result of which is illustrated by 1% significant level of its in model 3.

E. The interactions of Diversification and National Governance Quality

Based on the main implications of *Diversification and National Governance Quality Dummy*, the authors introduce an interaction between Revenue Diversification (REDIVER) and National Governance Quality Indicators. The basic empirical specification is formulated as follows:

$$Z - score_{i,t} = \beta_0 + \beta_1 \, REDIVER_{i,t}$$

$$+ National \, Governance \, Quality_t \, x(\beta_2 + \beta_3 \, REDIVER_{i,t}) \qquad (2)$$

$$+ \alpha' Bank \, Controls_{i,t} + \rho' Macro \, Control_t + Year \, Dummies + \varepsilon_{i,t}$$

Where Z-score$_{i,t}$ stands for a measure of financial fragility of banks, i denoting banks and t denoting time. All other variables are defined as before in Eq. (1). Year fixed effects are included in all regressions. In addition, the coefficient of the interaction term of $REDIVER_{i,t} \, x \, National \, Governance \, Quality_t$ will explain whether revenue diversification and the quality of national governance increase or decrease bank financial fragility. In other words, β_2 indicates the differential in revenue diversification benefits between years the different national governance quality. If one aspect of national governance quality (i.e., political stability, rule of law) has more benefits of diversification than its privately controlled counterparts, the authors would expect β_2 to be significant and positive.

Due to the endogeneity problem of the revenue diversification decisions, banks may choose to diversify mainly as a reaction to the available business opportunities [6]. The authors use Two-step System GMM methodology [61, 62] which helps resolve effectively this issues. Two-step System GMM uses residuals from the one-step estimates and is asymptotically more efficient than the one-step system GMM. Moreover, two-step system GMM uses a windmeijer correction to the standard errors which improves robustness to heteroskedasticity.

III. EMPIRICAL RESULTS

A. *Effects of revenue diversification on financial fragility*

Table 3 shows the estimated results for the causal relations between revenue diversification, national governance quality and banks' financial fragility. The authors firstly examine whether revenue diversification has an adverse impact on financial fragility. Notably, the revenue diversification (*REDIVER*)'s estimated coefficients are negative and significant in all model specifications. These negative coefficients clearly highlight that the higher banks' revenue diversification in Vietnam, the higher financial fragility will be. Accordingly, the estimated coefficients fluctuate from -2.906 (at 5% level statistically significant) to -1.062 (at 1% level statistically significant). On the other hand, specifically, an increase in average revenue diversification is aligned with a decline in the average of *Z-SCORE* (financial fragility). As a result, the finding is consistent with the first proposed hypothesis. The similar patterns are also observed in those empirical studies, namely: [26, 46, 63]. The result might be understandable as in Vietnam, the organizational development and management mechanisms might not be transparent and systematic and still need to be developed effectively and efficiently [64, 65]; therefore, the more banks try to diverse the financial portfolios, the higher risks banks can receive in Vietnam.

The table also reveals that there are positive significant causal effects between five specific dimensions of National governance quality with *Z-SCORE*; the estimated coefficients and their explanations are consistent with each other in all models. For example, the estimated coefficient of *CORRUPTION* is 0.308 in model 2 (at 5% level statistically significant). The similar pattern is found in the Government effectiveness. The estimated coefficient of Government effectiveness increases from 0.207 to 0.950. The results also report that the more stable and systematic in politics and law regulation, the more banks stability (which indicates lower banks risk) will be. Moreover, it presents that the coefficient's estimation of the last remaining indicator (*LAWRULE*) of National governance contains positive significant signs; the finding is clearly presented in 0.080 value of the *LAWRULE* estimated coefficient which is significant at 1% significant level in model 6. Notably, when banks have transparent law of rules, banks will decrease the level of risks. As a consequence, it can be concluded that in general, a development in national governance quality will lead to a decrease in banks fragility, the result of which is also relevant to the second hypothesis. The result of this research is also consistent with Das, Quintyn and Chenard [66] suggesting that the higher quality in governance, the higher stability that banks can achieve. The finding additionally aligns with those of Ngobo and Fouda [67] which is presented in the banking literatures that there is a positive relations between national governance quality and banks stability. The finding can be explained because transparent law system and stable politics with clear visions & missions are one of the components for economic growth and business sustainability [68].

Regarding the control variables in *bank level*, the estimated coefficients for *EQUITY* are positive and significant signs which reach at 1% statistically significant for all model specifications. It means that the higher amount of equity that banks have, the lower risks that banks obtain. Next, *SIZE* which is calculated by the natural logarithm of bank's total assets has same trend with *EQUITY*. For instance, apart from models 3 and 4, the estimated coefficients of *SIZE* in the remaining model dimensions which are all positive and significant varying from 0.544 to 1.158. Furthermore, it can be found that there are 1% significant causal relations between *ASSETGROWTH* and *Z-SCORE* in all models; nevertheless, apart from model 2, negative relationships are presented. The authors also find that the estimated coefficient of *LOANS* is negative and significant at 1% in model 3 which represent that the more gross loans to total bank assets, the lower stability that bank can achieve in general.

Regarding the *Macro level*, it highly demonstrates that the more detailed *INFORMATIONSHARING*, the lower risk of banks will be. This result is consistent with the research finding of Houston, Lin, Lin and Ma [58] about the positive causal effects of information sharing and bank stability. Next, *INFLATION* factor generally tends to have opposite signs with information sharing in the relationship with Z-score. For instance, apart from model 2, the coefficients of inflation are all negative which reflects the reverse impact of inflation on banks' stability; all reaches at 1% significant level. Nevertheless, *GDPGROWTH*'s estimated coefficients tend to be positive in all model specifications. For instance, the coefficient of *GDPGROWTH* in model 1 is 0.4082 and significant at 1%.

B. *Mediating effects: National Governance quality*

The authors further investigate the interaction between five dimensions of national governance quality (comprising *CORRUPTION, GOVERNMENT, POLITICS, REGULATORY, LAWRULE*) and the banks stability, the estimated results are illustrated in table 4. The result also demonstrates that revenue diversification negatively impacts on banks stability; the significant levels are ranging from 10% to 1% in six models. More interestingly, the level of banks' stability in the previous also positively significantly impact on the banks stability in the current time, the result of which can show that banks sustainability level generally has a long term effect.

Table III: Financial fragility of bank, revenue diversification and national governance quality. This table reports the differential impact of revenue diversification and national governance quality on bank financial fragility, estimated by GMM estimator. The sample includes 31 banks with 309 bank-year observations over the period 2005–2016. The variable Z-score stands for the financial fragility of banks and calculated as Z-score=(ROA+Equity/Assets)/σ_{ROA}. The variable **REDIVER** is the value of income diversification following the basic Herfindahl-type approach. The quality of national governance variables include **CORRUPTION, GOVERNMENT, POLITICS, REGULATORY, LAWRULE** which represent control of corruption, the effectiveness of government, political stability, the quality of regulatory and rule of law. The variable **SIZE** controls for scale of bank, which is calculated by the log of bank total assets; **EQUITY** denotes the ratio of total equity to total assets; **NONIN** is the ratio of non-interest income to operating revenue. **ASSETGROWTH** represents for the growth of total assets of bank. **LOANS** is the ratio of gross loans to total assets. **Information Sharing** is defined as the level of credit information sharing by credit registry coverage indicator. Macroeconomic variables include **GDPGROWTH** and **INFLATION** which represent the real gross domestic product and the annual growth rate of the Consumer Price Inflation index, respectively. Colume (1) shows results of the basic model of the impact of revenue diversification on bank financial fragility, included control variables. Colume (2) to (7) report the regression results that include revenue diversification and the indicators of national governance quality and control variables.

INDEPENDENT VARIABLES	DEPENDENT VARIABLE: Z-SCORE						
	[1]	[2]	[3]	[4]	[5]	[1]	[2]
Z-SCORE LAG (1)	0.9223***	0.959***	0.539***	0.591***	0.851***	0.934***	0.908***
	(9.71)	(10.30)	*(19.30)*	(12.82)	*(13.64)*	*(11.91)*	*(12.47)*
REDIVER	**-1.6325****	**-1.530*****	**-1.891***	**-1.752****	**-1.317****	**-1.062***	**-2.779***
	(-2.41)	**(-3.13)**	**(-1.85)**	**(-2.33)**	**(-2.44)**	**(-1.88)**	**(-2.01)**
CORRUPTION		0.308**					2.466**
		(2.07)					(2.61)
GOVERNMENT			0.207***				0.950**
			(4.51)				(-2.63)
POLITICS				0.097**			0.773**
				(2.34)			(2.25)
REGULATORY					0.100*		-0.138
					(1.81)		(-0.45)
LAWRULE						0.080***	-0.446
						(3.48)	(-1.63)
EQUITY	0.1838***	0.163***	0.116***	0.140***	0.163***	0.180***	0.238***
	(6.87)	(5.26)	(2.98)	(4.15)	(5.43)	(7.83)	(4.92)
SIZE	0.8345***	0.925***	0.233	-0.075	0.544**	1.158***	0.865*
	(3.56)	(3.40)	(1.05)	(-0.32)	(2.61)	(7.20)	(1.99)
NONIN	4.481	6.521	5.355	7.807	1.168	0.164	-5.287
	(0.51)	(0.95)	(0.55)	(0.92)	(0.19)	(0.02)	(-0.49)
ASSETGROWTH	-0.5198***	0.617***	-0.886***	-0.437***	-0.515***	-0.552***	-0.688***
	(-3.9)	(-3.37)	(-7.90)	(-3.2)	(-3.59)	(-4.14)	(-3.07)
LOANS	-0.8107	0.838	-0.786*	0.486	-0.711	-0.770	-0.465
	(-1.69)	(-1.58)	(-1.86)	(1.00)	-1.69	(-1.41)	(-0.60)
INFORMATION SHARING	-0.1261	-0.424	0.900	0.918*	-0.235	-0.539	-0.67
	(-0.21)	(-0.65)	(1.44)	(1.85)	(-0.32)	(-1.13)	(-0.75)
INFLATION	-0.0307***	0.044***	-0.016***	-0.018***	-0.033***	-0.029***	-0.219***
	(-5.15)	(-4.27)	(-2.87)	(-3.86)	(-5.06)	(-5.66)	(-3.17)
GDPGROWTH	0.4082***	0.282***	0.677***	0.425***	0.320***	0.431***	-0.985*
	(11.93)	(3.34)	(7.43)	(5.95)	(6.98)	(11.27)	(-1.85)
Year fixed effects	YES	YES	YES	YES	YES	YES	YES
Observations	309	309	309	309	309	309	309
AR(2)	0.267	0.284	0.704	0.585	0.211	0.162	0.272
Hansen	0.443	0.379	0.336	0.412	0.397	0.452	0.287

Notes: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. The figures in parentheses indicate t-values.

Model 1 of Table 4 accounts for the interaction between revenue diversification and corrupted environment. Notably, the coefficient of REDIVER*CORRUPTION in Column 1 is positive and significant at 1%. The result can highlight generally that for banks which obtain good control in corruption are likely to be more stable in terms of revenue diversification's increase. This finding also supports the second hypothesis and third hypothesis. A similar next finding presents about the interaction term between revenue diversification and government in model 2. The idea strongly goes along well with the last hypothesis 2 and hypothesis 3. The estimated coefficient for REDIVER*GOVERNMENT is 1% significant and positive which can reveal that more diversified banks with high effectiveness level in government tend to have lower banks volatility.

Further, model 3 presents about the interaction term of revenue diversification and politics control. In specific, the table demonstrates that the interaction term REDIVER*POLITICS positively significantly impacts on banks stability (Z-score). Accordingly, the estimated coefficient of REDIVER*POLITICS is 2.333 (at 10% statistical significant level) in model 3. It can be shown that in terms of revenue diversification, those banks which have poor unsustainable political system are likely to be less stable. Consequently, the result is consistent with Hypothesis 2 and 3. On the other hand, the coefficient of interaction term (REDIVER X REGULATORY) is negative and insignificant in Model 4 indicating that governmental stability and regulatory quality might not affect and mitigate substantially to the relations of revenue diversification and banks stability. The next finding the authors can identify in this table (model 5) is that LAWRULE positively significantly impact on the causal effect of revenue diversification and bank stability. Notably, an increase in revenue diversification will lead to higher level of

banks stability, the result of which is higher in those banks which have strong and clear law systems compared to those banks which have weak legal system. The result reports that the estimated coefficient of LAWRULE in model 5 is 2.155 (at 5% statistical significant level). Strong law control (LAWRULE) which is another dimension of national governance quality will mitigate the positive effect of revenue diversification on banks stability in Vietnam between 2005 and 2016 period of time. As a result, the finding highly supports hypothesis 2 and hypothesis 3.

Table IV: Financial fragility of bank, the interaction term of revenue diversification and national governance quality. This table reports the results of Equation (2). The sample includes 31 banks with 309 bank-year observations over the period 2005–2016. The dependent variable Z-score stands for the financial fragility of banks and calculated as Z-score=(ROA+Equity/Assets)/σ_{ROA}. The variable **REDIVER** is the value of income diversification following the basic Herfindahl-type approach. The quality of national governance variables include **CORRUPTION, GOVERNMENT, POLITICS, REGULATORY, LAWRULE** which represent control of corruption, the effectiveness of government, political stability, the quality of regulatory and rule of law. The variable **SIZE** controls for scale of bank, which is calculated by the log of bank total assets; **EQUITY** denotes the ratio of total equity to total assets; **NONIN** is the ratio of non-interest income to operating revenue. **ASSETGROWTH** represents for the growth of total assets of bank. **LOANS** is the ratio of gross loans to total assets. **Information Sharing** is defined asthe level of credit information sharing by credit registry coverage indicator. Macroeconomic variables include **GDPGROWTH** and **INFLATION** which represent the real gross domestic product and the annual growth rate of the Consumer Price Inflation index, respectively.

Independent Variable	Dependent variable: Z-score				
	[1]	[2]	[3]	[4]	[5]
Z-SCORE LAG (1)	0.880***	0.277***	0.650***	0.461***	0.427***
	(11.30)	(6.08)	(12.57)	(10.77)	(10.59)
REDIVER	-3.174***	-2.433**	-2.620**	-3.945***	-2.699*
	(-4.33)	(-2.40)	(-2.30)	(-2.86)	(-1.97)
REDIVER X CORRUPTION	2.845***				
	(3.18)				
REDIVER X GOVERNMENT		2.242***			
		(2.84)			
REDIVER X POLITICS			2.333*		
			(1.71)		
REDIVER X REGULATORY				-1.127	
				(-0.76)	
REDIVER X LAWRULE					2.155**
					(2.38)
CORRUPTION	0.758***				
	(3.31)				
GOVERNMENT		0.437***			
		(2.90)			
POLITICS			-0.307		
			(-1.24)		
REGULATORY				0.340	
				(1.19)	
LAWRULE					0.502***
					(3.31)
EQUITY	0.176***	0.060***	0.129***	0.094***	0.074***
	(5.28)	(2.84)	(3.63)	(4.41)	(3.37)
SIZE	0.680***	0.131	0.446*	0.065	-0.519*
	(3.29)	(0.80)	(1.97)	(-0.25)	(-2.04)
NONIN	4.677	15.717	9.971	3.758	-8.298
	(0.66)	(1.56)	(0.95)	(0.44)	(-0.83)
ASSETGROWTH	-0.576***	-0.416***	-0.831***	0.066	0.126
	(-3.92)	(-4.25)	(6.65)	(0.50)	(1.09)
LOANS	-0.737*	1.569***	1.080	-0.372	0.202
	(-1.90)	(3.35)	(1.52)	(-0.51)	(0.32)
INFORMATION SHARING	-0.067	0.803**	0.102	1.347***	2.170***
	(-0.11)	(2.22)	(0.17)	(2.83)	(3.63)
INFLATION	-0.047***	-0.008	-0.019***	0.020***	-0.003
	(-4.68)	(-1.70)	(-3.13)	(-3.77)	(0.51)
GDPGROWTH	0.279***	0.417***	0.541***	0.162**	0.191***
	(3.13)	(7.12)	(8.08)	(2.33)	(3.40)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	309	309	309	309	309
AR(2)	0.411	0.116	0.624	0.181	0.235
Hansen	0.356	0.403	0.357	0.714	0.642

Notes: ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. The figures in parentheses indicate t-values.

Many studies has highlighted about the role of good national governance in reducing banks risk which can be aligned with the supporting sources for the last two hypothesizes. The findings are aligned with the study of Williams [12], Klomp and de Haan [69]. Specifically, Levine [70] clearly emphasizes about the vital role of legal system and transparent legal environment in the development of economics: the more clear and unambiguous legal environment, the more sustainability and improvement in business cycle. Another empirical result from a research of Rajhi and Hassairi [71] also indicates about the positive linkage of worldwide governance indicators positively on banks stability in developing countries. The result

indirectly shows the importance of good governance quality which is one of the sources to support the proposed hypothesis about the mediating effect of national governance on the relations between revenue diversification and banks stability.

IV. CONCLUSION

In this paper, the authors examine the impact of diversification strategies and national governance quality on bank financial fragility of Vietnamese domestic commercial banks. Furthermore, the authors also investigate the role of national governance quality in bank financial fragility – revenue diversification nexus. The authors employ Z-score to measure the financial fragility of banks as well as the Herfindahl Hirschman Index (HHI) to measure bank revenue diversification. Besides, the authors use the national governance quality indicators which are developed by Kaufmann et al., 2010. By using GMM estimator, first, the estimation results suggest that revenue diversification do positive influence the financial fragility of banks. This means that banks with higher concentration of revenue tends to gain higher stability. Second, a few dimensions which are rule of law, the stability of politic, mentioned as a proxy for the quality of national governance has a negative direct impact on bank financial fragility of banks. Finally, the interaction of national governance quality and diversification is significant with some indicators showing evidence that heterogeneity in the perceptions of strong law control which is another dimension of national governance quality will mitigate the positive effect of revenue diversification on banks stability in Vietnam between 2005 and 2016 period of time.

The results have several implications. The authors suggest that commercial banks in Vietnam should be aware of the potential risks and instability of activities which develop more non-traditional intermediation service products. The results are consistent with some previous related studies [7]. In the other hand, improvement in the quality of national governance leads to the stability of Vietnam banking systems. This is a crucial contribution to not only the success of banking systems but also the effiency of financial market in Vietnam.

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