DEPOSIT INSURANCE AND THE BANKING INDUSTRY STABILITY IN ASEAN: EVIDENCE FROM A DYNAMICPANEL INVESTIGATION

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Abstract- Banking industry is the main of financial development due to the critical function to circulate money from asurplus to adeficit. The aim of this paper is to investigate the influence of deposit insurance policy on the stability of banking industry. The stability is measured by the ratio of retail deposit to total asset. Using data panel of 127 commercial banks for 2000 to 2013 in ASEAN consists of Indonesia, Malaysia, Singapore, Philippine, Thailand and Vietnam. Through the utilizationof dynamic panel data investigation, the result statesthat the implementation of deposit insurance policy negatively influent on the ratio of retail deposit to total asset and the model support the influence of dynamic factors. It is very interesting findingdue to it implies that the deposit insurance policy does not increase the confidence level of depositors and the finally will increase the total deposit. In addition, the result also states that an increase the ratio of loan to equity, sizes and lag of deposit to asset ratio of bank will increase the ratio of the retail deposit to total asset. But for the effect of net interest margin on the ratio of retail deposit to total asset is negative.This result is very importance for the regulators to evaluate the deposit insurance policy and anticipate of any negative circumstances which will be incurred.

Keywords- Deposit Insurance, Banking Stability and GMM.

I. INTRODUCTION

Financial crisis at 1997-2008exposed the valuable learning for banking industry and banking regulatorin ASEAN countriesabout the safety of retail depositor's money and trustworthiness of financial market problems. This problem will bring to the systemic risk when the regulator cannot control properly the market and financial crisis become deeper.To overcome these less safety and less trustworthiness problems, since at the end of twentieth century banking regulator proposed the deposit insurance program and started implementation by 2000-2005where banking sector will cover their deposit for certain amount.The program was not new for banking industry in United State already use it early year 1,800s as mentioned by (Calomiris and White, 1994).

Nevertheless, academicians, practitioners and regulators have been discussing until today regarding benefit and cost of deposit insurance. Why? Due to the real factshave stated the financial crisis as specially banking crisis still occurred in part of world, you can see in financial market of United State even though they applied the deposit insurance for some years before. Historical data stated that US financial system already implemented the deposit insurance at 1933. Diamond and Dybvig (1983) identified that the implementation of deposit insurance did not affect to the stability of banking industry. They argued that the deposit insurance have brought the higher operational cost for banks then the bank manager will try to take the opportunity to increase their return with invest in higher risk investment as compensation due to they know the deposits have already insured. Other argument is the effectiveness of the implementation deposit insurance depends on the structure of financial development of particular country.

In contrast with previous results, an introduction and implementation of deposit insurance will give a benefit to banking sector, Imay (2006) generally stated that implementation of deposit insurance will ensure the stability of banking industry because total deposit will be insured. Then there is no rational reasons for depositors will rushing withdraw the money which will cause the systemic problem in banking industry. Depositors will get back his insured money easily and fast when there is financial crisis.There is no chance for negative rumors that will influent the stability of banking industry.

Several previous studies still give a room for discussion whether implementation of this deposit insurance will increase the stability of the banking industry or otherwise. It will lead to inefficiency in utilizing of fund to establish the deposit insurance policy with objective to maintain and increase deposit.But the benefits are not equivalent to compensate the cost expenses of policy. On the contrary it is possible the management of bank will take the opportunity to taking higher risk due their liability already insured.

In this study, we try to provide the significant argument that the implementation of deposit insuranceinfluences on the behavior of depositor, bank and central bank as regulator and supervisor. According to La Porta (2002) stated that the implementation of certain regulation will affect differently to agent in the financial system and it also depends to landscape of financial system itself for instance the level of financial system development, the law origin and others.

Definitely, different level of financial system, of course in sides is banking industry and we expect depositors and banks will give different way respond due to the implementation of certain rule and

regulation for instance the deposit insurance policy. In detail the objective of the paper is to analyze the effect of the implementation deposit insurance towards the stability of banking industry through the asset and liability stability with take account the dynamic factors.

The rest of discussion will structure as follows; 2. Literature reviews, we review the relevance literature according to deposit insurance and banking industry stability. We discuss deposit insurance from perspective depositors, banks and regulators.Its benefit, cost and risk of the implementation deposit. 3. Methodology, this section we provided the model and method of analysis by considering the objective and type of data. 4. Result and discussion, in this section we test the proposed model and discuss from several of data sets, and 5. Conclusions, the final discussion we resume all finding and give suggested implication.

II. ITERATURE REVIEWS

Basic argument for the implementation of deposit insurance is to sharing risk between banks and insurance provider, ensuring the safety of depositor's fund, reducing risk when financial crisis happen and finally to develop the soundness of banking industry. Diamond and Dybvig (1983) stated that benefit of deposit insurance ensure the stability of banking system from systemic risk problem. By implementing the deposit insurance there is no reasons for depositors worry about their money because their money already insured and safe.

In addition, Cull et al (2005)analyzed deposit insurance, growth and stability.Using cross country data, the result stated that deposit insurance has negative relationship with financing development and growth, except the country with strong regulation and financial institution. The result implied that implementation of deposit insurance does not increase the confidence of depositors and indirectly increase the total deposit from costumers.

In contrast, Chernykh and Cole (2011)find that banks entering the new deposit-insurance system increased both their level of retail deposits and their ratios of retail deposits to total assets relative to banks that did not enter the new deposit-insurance system. They utilize a multivariate panel-data analysis that controls for bank and time random effects in addition to a number of control variables. They also find that the longer a bank was entered into the deposit-insurance system, the greater was both its level of retail deposits and its ratio of retail deposits to assets.

Angkinand(2009)analyses the deposit insurance policy and reducing cost of financial crisis.Using 47 financial crisis from 35 countries, during 1970-2003 she found thatdeposit insurance can reduce output cost of bank crisis is lower in country with high deposit insurance coverage. In other words, the implementation of explicit deposit insurance has a positive impact to the banking industry stability and increase the coverage of insured deposit will reduce the negative effect of the financial crisis. Laeven (2002) gave a deeper analysis between cost of deposit insurance and differences of governance structure financial system using broader sample is 144 banks in various emerging countries over the period 1991 - 1998. He finds that different ownership structure has different cost where private bank ownership higher cost compare it with public bank, implied that risk taking of private bank is the higher then public bank. It is not surprise because the public bank implicitly already insured by government and Chernykh and Cole (2011) find that the implementation of deposit insurance will shift the depositor from public bank to the private banks.

In addition, Mondschen and Opiela(1999)explorethe influent of changesin deposit insurance on the market for bank deposits in Poland.They state that different law and regulation will give different insurance coverage, another internal factor of bank is less important in explaining different deposit interest rates. They also find there is negative relation between market discipline and deposit insurance coverage. In this case, it is generally supported by LaPorta (2002)that the differences of the origin law will impact the behavior of all players in the financial system. Similarly, Gonzales (2005) examines how regulatory restrictions affectbank rent value and bank risk-taking. Using a sample of 251banks in 36 countries, he found that deposit insurance gives an incentive to banks fortaking higher risk, and that different stage of level governancereduces the incentives for such risk-shifting. He shows that deposit insurance increases bank rent value. In addition,Duan et al. (1992) examine whether banks shift risk to the deposit insurer. Using a sample of 30 large publicly traded US banks, they find that banks are largely unsuccessful in increasing their actuarial liabilities to the deposit insurer.

III. DATA AND METHODOLOGY

a. Research Data

In this study we use the ASEAN countries banking database. The motivation is due to the region has almost the same background of the banking industry. In 1997-1998 they faced the financial crisis and followed by 2008-2009 global financial crises. In addition the region has the progressive economic development inside the financial development itself. Types of data are total retail deposit, total asset, total loan, total equity and net interest margin. Total sample is 127 banks from period 2000 - 2013. Source of data is the bank scope database, the deposit insurance corporation and the central bank of each country.

b. Research Methodology

To explore the effect of an introduction and an implementation of deposit insurance onthe banking

industry stability and sustainability we argue that the stability can be measured bythe total retail deposit andratio of retail deposit and total asset,the total loan.The deposit insurance policy, we look at from the date for the implementation of deposit insurance policyand we also explore the various effect of the deposit insurance on the asset structure of bank. Research model to present the effect of deposit insurance policy onthe stability of baking industry as follows:

To present the benefit of deposit insurance to the banking industry here we present it with the level of retail deposit. Opposite with benefit is cost of the deposit insurance due to the possibility moral hazard occurs when deposit insuranceimplemented.

$Y_{i,t}= \beta_o + \beta_1 DI_{i,t} + \beta_2 Lev_{i,t} + \beta_3 Size_{i,t} + \beta_4 NIM_{i,t} + \alpha_{i,t}$ …….…….. 1

Where $Y_{i,t}$is the stability banking industry presented by liability and asset stability. Liabilitystability we look at from the deposit stability as measured by the ratio of retail deposit to asset. DI is the deposit insurance policy; it is categorical or dummy variable. There are three categories; no deposit insurance policy, explicit partial deposit insurance policy and government guarantee insurance or fully guaranty policy. Size is the asset bank presented by the natural log of asset bank. Leverage is the leverage bank presented by the deposit and equity ratio. NIM is the net interest margin and$\alpha_{i,t}$ is term error.
Analysis panel data of equation (1) is not adobe the dynamic process of dependent variable. If we employ the dynamic panel data as follow:

$Y_{it} = \beta_0 + \beta_1 DI_{it-1} + \beta_2 Lev_{it} + \beta_3 Size_{it} + \beta_4 NIM_{it} + \omega_{it}$ .....(2)

$\omega_{it} = \varepsilon_i + u_{it}$ .....(3)

Equation (2), there is some potential technical problems. First, there is causality between independent variable and possibility repressors' related with the error term. The best solution to solve the problem is by using first different GMM suggested by Arellano and Bond (1991). Equation (2) transformed to first different form.

$\Delta Y_{it} = \beta_0 + \beta_1 \Delta DI_{it-1} + \beta_2 \Delta Lev_{it} + \beta_3 \Delta Size_{it} + \beta_4 \Delta NIM_{it} + \Delta\omega_{it}$ .....(4)

In general form the transform given as follows: $\Delta y_{it}= \beta_0 + \beta_1 \Delta y_{it-1} + \beta_2 \Delta lev_{it} + \beta_3 \Delta size_{it} + \beta_4 \Delta nim_{it} + \Delta\omega_{it}$, by transform the regressors by firs different the fixed country effect is removed, due to time is not invariant. From equation (13) we get:

$\Delta\omega_{it} = \Delta\varepsilon_i + \Delta u_{it}$ ……..…..(5)

Arellano and Bover (1995) suggested new estimation process to improve Arellano & Bond (1991) with the situation when there is an exogenous variable that is endogenous to the right side of equation (or in other words there is the correlation with the number of exogenous variables error term. Unlike the Arellano & Bond (1991), Arellano and Bover (1995) did not do first difference transformation, but used the transformation (separation of variables, the right side of the equation of a pure exogenous endogenous and exogenous nature) such that orthogonally conditions are met. This estimator well as the use of SMR also apply 3SLS to estimate instrument variable.

Blundell and Bond (1998) estimate the equation with combining the level equation and first different, known as System GMM. Their estimator filed with the situation where T (variable series) limited) small and stationary. Blundell & Bond suggested the instrument variable Y_{it-2} as instruments of $_{\Delta yit-1}$. They claimed the efficiency of estimator more than Arellano & Bond (1991).

IV. RESEARCH RESULTS

Table 4.1 shows the result of FD_GMM and System GMM analysis from equation 9. Every model analyzed through one-step, tow step and two step with robust standard error for deposit stability model. The result of FD_GMM two step analysis shows that the first different of DOA, ratio of loan to total equity and sizes affect the ratio of deposit to total asset at a significant level of 1%, with positive effect. The result implied that an increase of the ratio of loan to total equity, sizes increase the ratio of retail deposit to total asset.

The net profit margin and deposit insurance policy where it shows negative effect on the ratio of deposit to total asset but it is significant of 1%. The result of SYS_GMM two step analysis shows that the first different of DOA, ratio of loan to total equity and sizes affect the ratio of loan to total asset at a significant level of 1%, with positive effect. The result implied that an increase of the ratio of loan to total equity and sizes will increase the ratio of retail deposit to total asset. The net profit margin and deposit insurance policy where it shows positive effect on the ratio of deposit to total asset but it is significant of 1%. Both model are valid because overidentifyingrestractions test or Sargan test shows that null hypothesis cannot reject. Both model also have the dynamic factor showed by firs different of dependent variables are significant.

It is very interesting finding due to this result implied that deposit insurance policy increase the banking manager to taking higher risk to compensate the additional cost and increase their return rather than deposit insurance policy will increase the confidence level of depositor and finally will increase total deposit. Conversely, the ratio of deposit to total asset decrease.

Table 4.1: Results for Deposit to Asset (DOA) Model

	FD_ GMM			System GMM		
	One-step	Two-step	Robust SE	One-step	Two-step	Robust SE
Constant	.0532 (.1114)	.1338 (.0314)***	.1338 (.02900)	-.2371 (.0916)	-.1750 (.0228)***	-.1750 (.2047)
Lag DOA	.4967 (.0730)***	.4979 (.0165)***	.4979 (.1815)***	.7495 (.0429)***	.7453 (.0090)***	.7453 (.0655)***
Lev	.0012 (0.0006)**	.0013 (.0002)***	.0013 (.0011)	.0011 (.0007)*	.0011 (.0001)***	.0011 (.0009)
LnA	.0195 (.0063)***	.0134 (.0021)***	.0134 (.0148)	.0283 (.0061)***	.0237 (.0012)***	.0237 (.0132)*
NIM	-.0021 (0.0014)*	-.0012 (.0009)	-.0012 (.0025)	-.0020 (.0015)	-.0014 (.0004)***	-.0014 (.0023)
PDI	-.0265 (.0098)***	-.0245 (.0028)***	-.0245 (.0125)	-.0203* (.0104)	-.0176 (.0019)***	-.0176 (.0107)*
FDI	-.0247 (.0101)**	-.0217 (.0030)***	-.0217 (.0171)	-.0224 (0.0107)**	-.0188 (0.0023)***	-.0188 (.0136)
Sargan Test	147.667***	75.4524		135.0818***	94.5927	
AR(1)		-5.1302***	-2.5757***		-5.2011***	-4.729***
AR(2)		-.1212	-.1197		.1262	.1260
NxT	1210	1210	1210	1337	1337	1337

Standard errors in parenthesis; Statistical significance.*** p ≤ 1%, ** p ≤ 5% and * p ≤ 1%

Basic robustness test of two models; deposit stability model shows that one way result for both model from FD GMM and System GMM are rejected due to the hypothesis testing state the hypothesis null cannot be rejected through Sargan test find that the chi square is 147.667 and 135.0818 with probability higher than chi square is 0.000 for deposit stability model. Conversely, deposit stability model shows that two way result for both model from FD GMM and System GMM are accepted due to the hypothesis testing state the hypothesis null can be rejected through Sargan test find that the chi square is 75.4524 and 94.5927 for deposit stability model probability higher than chi square is 0.5286 and 0.3226 each.

For autocorrelation testing in first-differenced errors shows AR1 for deposit stability model and both FD and System GMM state rejected and AR2 are accepted, meaning there is no correlation. Therefore, based on this test it is decided that two way model is better than one way model analysis. In conclusion, System GMM two way is the best model in explaining the behavior of deposit insurance policy to the ratio of retail deposit to total asset and stability banking industry as well.

CONCLUSION

The implementation of certain rules and regulations for instance the deposit insurance policy at different level of financial system, in sides is banking industry we expect the depositors and banks will give different way respond. In detail the objective of the paper is to analyze the effect of the implementation deposit insurance policy towards the asset stability of banking industryand take account the dynamic factors.

To present the benefit of deposit insurance to the banking industry stability here we present it with the level of retail deposit. Opposite with the benefit is cost of the deposit insurance policy due to the possibility moral hazard occurs in the implementation of deposit insurance. Types of data are total retail deposit, total asset, total loan, total equity and net interest margin, and the deposit insurance policy; it is categorical or dummy variable. There are three categories; no deposit insurance policy, explicit partial deposit insurance policy and government guarantee insurance or fully guaranty.Total sample is 127 banks from period 2000 to 2013. Source of data is bank scope database and Deposit Insurance Corporation and Central Bank of ASEAN countries.

The result shows that the ratio of loan to total equity and sizes positively affect the ratio of retail deposit to total asset. The result implies that an increase of the ratio of loan to total equity and sizes will increase the ratio of the total retail deposit to total asset. But the effect of net interest margin on the ratio of deposit to total asset is negative and positive on the ratio of loan to total asset. The result implies that an increase of net interest margin will decrease the ratio of retail deposit to total asset. In addition, the deposit insurance policy negatively effects on the ratio of retail deposit to total asset. It is very interesting finding due to this result implied that deposit insurance policy does not increase the confidence level of depositors and finally will increase the total deposit.Deposit model have dynamic factors through their own moment.

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