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Provision for Bad & Doubtful Financing and Contingency Reserve Management: Assessing Resilient and Stable Islamic Banks

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Abstract
Banks will not be resilient and stable if the provision for bad and doubtful financing (PBD) and contingency reserve (CR) failed to play its role as bank operational buffers whenever there is an economic condition disorder. Every firm has to face the financial uncertainties and the sudden shock of economic activity disorder, which will directly affect their operations. The management of PBD and CR is necessary to make the bank well protected. To verify the resiliency and stability of the Islamic bank, hence, this paper empirically examines the bank management of PBD and CR. An unbalanced panel data analysis was conducted on 67 Islamic banks from various countries for the period of 2000-2014. The empirical evidence shows, although the bank PBD does fulfil the resiliency and stability behaviour conditions, the insignificant relationship of the M2 growth and CPI growth to the PBD growth need some consideration from the banks and policy makers. The finding also provides an indication that only the current year profit growth behaviour is positively correlated to the CR growth. The findings recommend the Islamic bank PBD and CR management need to be sound to make it more resilient and stable.
Keywords: Business cycle; Bank Resiliency; Bank stability.

1. Introduction
The economic stability is becoming more fragile compared to before, especially related to the financial market instability. A series of unprecedented financial meltdowns has shaken the international financial market and affected the smooth running of the global economic market. Every firm has to face this economic condition of financial uncertainties and sudden shock of economic activity disorder and almost impossible to escape from all these challenges which will directly affect their operations. The paper foresees that bank wills not resilient and stable if the provision for bad and doubtful financing (PBD) and contingency reserve (CR) failed to play its role as bank operational buffers whenever there is a disorder in the economic condition.

This paper analyses the response of the Islamic bank PBD and CR policy to the changes in macroeconomic condition. The PBD and CR growth should behave positively to the changes in the macroeconomic and microeconomic predictors in order to make it resilient and stable. The PBD and CR policy will verify the capability of the bank to control the financing volume for operational safety purposes. The PBD and CR instruments operate as a buffer for a bank in facing the market uncertainty. In the event of economic expansion, the buffers instrument should able to put pressure on bank financing activity. During contracting economic bank should reduce the PBD and CR to increase the financing activity to amplify the economy.

2. Review of Literature
With the increase in the volatility of economic activity since 1970s, that becoming highly erratic after 1990s has raised concern about the effectiveness of the banking institutions in managing their risk exposure. It is crucial to re-evaluate the effectiveness of the banking institutions in maintaining its stability, resiliency, sustainability and viability under this dynamic, complex, unstable and unpredictable economic condition.

According to the year 2009 survey by Economist Intelligence Unit survey and SAS, more than 70 percent of the world leading financial services executives believed that the losses stemmed from the credit crisis were largely due to the inherent failure in addressing the risk management issues. ‘Subprime crises’ in 2007 and Greece's financial

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crisis that shocks the United States economy and the European nations, and felt globally has resulted in the collapse of many investment banks.

Looking at the empirical analysis of the interest-based banking institution the unsteadiness of the interest-based bank operations is evidence with its pro-cyclical behaviour to the economic condition. The pro-cyclical behaviour is associated with the management practices on its provisioning for loan losses and credit rating policy (Agénor and Zilberman, 2015; Bouvatier and Lepetit, 2008; El Sood, 2012; Laeven and Majnoni, 2003; Quagliariello, 2007) and reserves (Bliss and Kaufman, 2002).

Empirically, most studies found that banks increase their leverage during asset price booms and reduce it during busts (Adrian and Hyun, 2008; Pool *et al.*, 2015). Nevertheless, raising the leverage during safe environment will result financial distress (Bushman and Williams, 2012; Kato and Tsuruga, 2016). Bouvatier and Lepetit (2008) using European banks' data while Pool *et al.* (2015) using 12 OECD countries' data found that the loan loss provision made in order to cover expected future loan losses has amplified the credit fluctuations. In analysis of post over 2007-2008 crisis, by using numerical experiments of sensitivity analysis, Agénor and Zilberman (2015) confirmed that a dynamic loan loss provisioning regime is highly effective in mitigating the risk. An earlier study by (Quagliariello, 2007) on Italian banks showed that during economic downturns banks tend to tighten the credit supply. It is shows that provisioning turns out to be substantially higher when GDP growth is lower, reflecting increased riskiness of the credit portfolio when the business cycle turns downwards, which also increases the risk of a credit crunch (Bikker and Metzemakers, 2005; Frait and Komarkava, 2013). However, Vithessonthi (2016) argued increase credit growth does not always increase the amount of non-performing loan since the changes are varies over time especially for countries experiencing deflation (i.e Japan and European countries). Laeven and Majnoni (2003) work empirically show that many banks around the world delay provisioning for bad loans until too late, when cyclical downturns have already set in.

Profit driven enthusiasm is another contributing factor to bank pro-cyclical behaviour (Albertazzi and Gambacorta, 2009; Bikker and Hu, 2002). Kim *et al.* (2014) found that momentum profits display strong procyclical variation using two-state Markov switching regression framework by Perez-Quiros and Timmermann (2000). Some have also argued that regulation reforms such as Basel I and Basel II (Berger and Udell, 1994; Gambacorta and Mistrulli, 2004; Hancock and Wilcox, 1998; Kashyap and Stein, 2004; Oros and Salisteanu, 2015; Wagster, 1999), Base III (Anthanasoglou *et al.*, 2013) and IAS 39 (Gruss and Sgherri, 2009; Oros and Salisteanu, 2015; Rochet, 2008) are likely to amplify bank pro-cyclical behaviour.

Empirical works by Bernanke and Blinder (1992) and (Kashyap and Stein, 1993;1994) estimate the credit channel hypothesis and the relevance of a credit crunch. It is proved that excessive pro-cyclical behaviour of banks results the balance sheet of banks more fragile thus tend to worsen the business cycle (Asea and Blomberg, 1998; Baglioni *et al.*, 2013; Bernanke and Lown, 1991; Bernanke and Blinder, 1992; Kashyap and Stein, 1993;1994).

On the other hand, Muslim scholars argued that the roots behind this undesirable behaviour are the exercise of unfavourable instruments and activities from the *shariah* view point. Practices of interest-based instrument are the most undesirable. Furthermore, the commercial and financial transactions, linking to the speculative activities, engaged with ambiguous and uncertain transaction and the transaction of financial risk have exacerbated the swing (Chapra, 1996;2008; Farooq and Zaheer, 2015; Khan and Mirakhor, 1988).

Aysan *et al.* (2016) found that positive GDP shocks positively affect Islamic bank deposits. The Islamic banks' lending in Turkey was more pro-cyclical where it is expected to support their customers during 'good' and 'bad' times. Moreover, Islamic banks are behaving similarly to conventional banks in monetary stance.

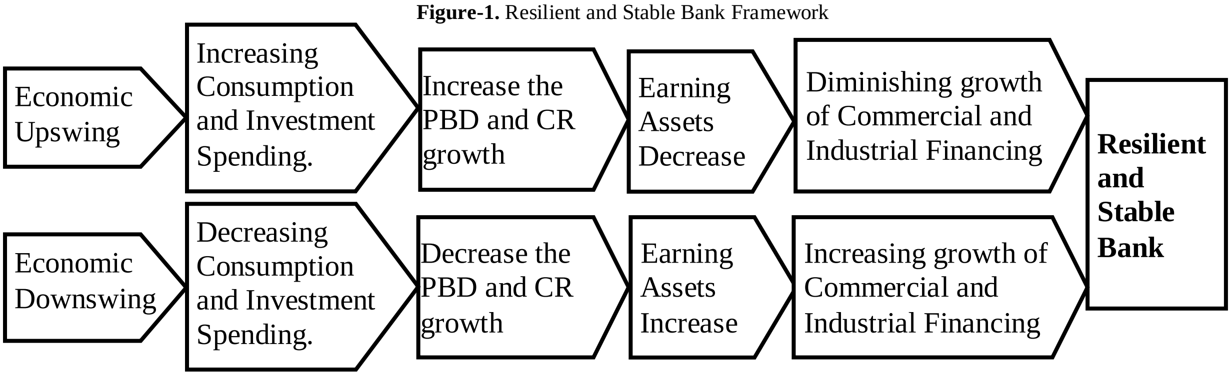
Conversely, in comparing the stability of large and small Islamic bank versus a conventional bank, (Wahid and Dar, 2016) found that small Islamic bank is more stable compared to large Islamic bank. This is supported by the significant negative result of cost to income ratio and non-performing loans on the bank stability. This research also found that the 2007 – 2009 global financial crises insignificantly did not contribute any negative impact to the stability of Islamic banks.

The important function play by the PBD and CR instruments is clearly stated in the Quran (Yusuf, 12:46-49). The PBD and CR instruments operate as a buffer for a bank in facing the market uncertainty. In the event of economic expansion, the buffers instrument should able to put pressure on bank financing activity. During contracting economic bank should reduce the PBD and CR to increase the financing activity to amplify the economy.

3. Resilient and Stable Bank Theoretical Framework

During an economic upswing, increase of the PBD and CR will reduce bank's earning assets. This will reduce the amount of financing. In the event of slower economic growth, the reversal behaviour will take place. In the event of an economic downturn, the PBD and CR will be utilised by providing it more to financing activities. With the role of the *zakat* (obligatory charity) as the automatic investment motivator, the holding of liquid assets will be at the minimum safety level. This will force the Islamic bank to look for new investment opportunities for returns at the least equals to the *zakat* rate. By adjusting its PBD and CR the bank, assure that its lending activities will not overreact to the economic swings. Conceptually, Figure 1 shows the working of PBD and CR.

Figure-1. Resilient and Stable Bank Framework



The bank should make enough buffers during an economic upturn for safety reason and spend the excess during economic downturn. Failing to do so, when the conditions reverse, loan losses started to emerge and profitability decreases cause the bank to be non-resilient and unstable.

4. Research Methodology

This paper employs the panel data analysis. The analyses of bank resiliency and stability is by examining the relationship of the PBD and CR to the changes in the macroeconomic indicators, namely the real gross domestic product (GDP), money supply M2 and the general price level (CPI). Banking institutions selected for this study are 67 banks, namely from Malaysia, UAE, Saudi Arabia, Bahrain, Egypt, Qatar, Jordan, Yemen, Sudan, Kuwait, Turk, South Africa, Pakistan, Bangladesh, Indonesia and Iran. The bank's data are from the annual reports. The macroeconomic data are gathered from various countries central bank annual and monthly reports which covered the period from 2000 to 2014. This paper also employed time series data from various banks and across countries in order to obtain a clear and comprehensive understanding on the Islamic bank resiliency and stability.

4.1. Model Specification and Estimation Method

$$[PBD/EA]_{ijt} = \alpha_0 + \beta_1 GDP_{jt} + \beta_2 M2_{jt} + \beta_3 CPI_{jt} + \beta_4[TF/EA]_{ijt} + \beta_5[P/EA]_{ijt} + \beta_6[P/EA]_{ijt-1} + \varepsilon_{ijt}$$

The paper examines the PBD management to the fluctuations of the macroeconomic environment. PBD refers to the anticipated amount of debts remaining at the year-end after the bad financing is written-off. The analytical model is:

$$i = 1, ... , n \text{ (sample bank)}; j = 1, ... , n \text{ (sample country)}; t = 1, ... , T \text{ (annual data)} \quad (1)$$

$[PBD/EA]_{ijt}$ is the provision for bad and doubtful financing growth to earning assets growth ratio of the bank i in country j at time t. GDP_{jt} is the real gross domestic product growth in country j at time t. $M2_{jt}$ is the money supply M2 growth in country j at time t. CPI_{jt} is the consumer price index growth in country j at time t. $[TF/EA]_{ijt}$ is the total financing growth to earning assets growth ratio of the bank i in country j at time t. $[P/EA]_{ijt}$ is the net profit growth to earning assets growth ratio of the bank i in country j at time t. $[P/EA]_{ijt-1}$ is the net profit growth to earning assets growth ratio of the bank i in country j at time $t-1$.

The bank operation will be resilient and stable if the real GDP growth is positively correlated to the banks' PBD growth. Secondly, the financing growth is positively correlated to the banks' PBD growth, and thirdly, the profit growth is positively correlated to the banks' PBD growth. First condition captures the misalignment of bank buffer management to macroeconomic shock. The second condition captures the misalignment of bank risk management while the last condition refers to the income smoothing policy and profit enthusiasm behaviour.

The following analysis looks at the bank's provision for CR to improve the safety and soundness of the bank. The analytical model is as follows:

$$[RES/EA]_{ijt} = \alpha_0 + \beta_1 GDP_{jt} + \beta_2 M2_{jt} + \beta_3 CPI_{jt} + \beta_4[P/EA]_{ijt} + \beta_5[P/EA]_{ijt-1} + \varepsilon_{ijt}$$

$$i = 1, ... , n \text{ (sample bank)}; j = 1, ... , n \text{ (sample country)}; t = 1, ... , T \text{ (annual data)} \quad (2)$$

$[RES/EA]_{ijt}$ is the banks' contingency reserves growth to earning assets growth ratio of the bank i in country j at time t; GDP_{jt} is the real gross domestic product growth in country j at time t. $M2_{jt}$ is the money supply M2 growth in country j at time t. CPI_{jt} is the consumer price index growth in country j at time t. $[P/EA]_{ijt}$ is the net profit growth to earning assets growth ratio of the bank i in country j at time t. $[P/EA]_{ijt-1}$ is the net profit growth to earning assets growth ratio of the bank i in country j at time $t-1$.

The CR is able to improve the safety and soundness of the bank if the CR growth is positively correlated to banks' profit growth, positively correlated to the real GDP growth and positively correlated to the CPI growth.

5. Findings and Analysis

The panel unit root test was conducted in this study and Table 1 summarises the unit root test on each variable employed in the regression (Levin *et al.*, 1993) method). The test shows that at level all of the variables are stationary.

Table-1. Levin, Lin & Chu Unit Root Test

Variables	Level	
	Stat	Prob
Total Financing Growth	-1259.97	0.0000
Reserve Growth	-351.894	0.0000
Provision for Bad Debts Growth	-245.537	0.0000
Net Profit Growth	-22.0467	0.0000
GDP growth	-19.1078	0.0000
M2 Growth	-7.3358	0.0000
CPI Growth	-15.8148	0.0000

Sources: EViews Statistical Software generated

6. Statistical Result and Analysis

Table 2 provides the explicit evidence of bank actions in anticipating for future losses by looking at its PBD policy. Table 3 provides the results for the bank CR growth to the fluctuation in economic environment. The finding shows that the RE fits better in explaining the regression analysis with the Hausman test value of the $\chi 2$ test statistic is 2.07 and ρ value of 0.91 which is greater than 0.05.

The regression result shows that all the internal determinant variables of the institutions are significant at the 1 % level and 5% level except for the previous year profit. On the other hand only the GDP growth of the macroeconomic variables that is significant at the 1 % level and positively influencing the PBD behaviour. The empirical evidence shows that with 1% growth in GDP growth the bank institutions will increase its PBD by 0.61% and vice versa.

With the increasing growth of financing and net profit, the PBD growth will tag along by growing at 0.48% and 0.07% to 1% and 5% level of significant respectively. The previous year profit did not significantly influence the decision on current year PBD. The insignificance of previous year profit growth indicates the institutions' decisions on its PBD policy is totally based on the current year performance. Therefore the pro-cyclicality behaviour based on profit enthusiasm hypothesis does not appear in the bank operations following this empirical evidence. In other words the positive correlation between PBD growth and bank earnings growth show the existing of income smoothening actions from the bank financing operations.

Although the bank PBD does fulfil the three conditions of resiliency and stability behaviour, but the insignificant behaviour of M2 growth and CPI growth to the banks' PBD growth need some consideration from the banks and policy makers. This is so because the M2 and CPI are also the indicators of macroeconomic conditions.

Table-2. Provision for Bad and Doubtful Financings Statistical Result

Model Variable	Fixed Effect Model			Random Effect Model		
	Coefficient	Std Error	t-stat	Coefficient	Std Error	t-stat
Constant	-1.3690*	0.4297	-3.1858	-5.3145	3.4347	-1.5473
GDP	0.2250*	0.0484	4.6464	0.6095*	0.2113	2.8840
M2	0.0661*	0.0151	4.3828	0.1108	0.1884	0.5882
CPI	0.0704*	0.0291	2.4215	0.1933	0.2799	0.6907
Total Financing	0.4506*	0.0279	16.1624	0.4573*	0.0695	6.5759
Net Profit	0.0528*	0.0097	5.4244	0.0748**	0.0394	1.8993
Net profit–1	0.0051	0.0092	0.5538	0.0037	0.0378	0.0984
R^2	0.5402			0.1175		
Adjusted R^2	0.4698			0.1076		
SEE	37.7663			40.2608		
F-test	7.6704*			11.8907*		
DW	1.9881			1.0923		
*Significant at 1%, **Significant at 5%						

Test cross-section random effects	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	2.0725	6	0.9129

Sources: EViews Statistical Software generated

The analysis further looks at the association between the banks' CR growths movements to the periodic occurrences of the upswing and downswing of economic activities. From Table 3, the Hausman test shows that the RE should be consistent and efficient against the use of FE in this case. The value of the Hausman χ^2 test statistic is 6.1 and insignificant with the ρ value of 0.3. Therefore, the paper concludes that the RE is the preferred specification model for the data.

The only condition met is the current year profit growth behaviour that positively correlated to the CR growth. However, the bank CR growth is undersized compared to the growth in its profit. An increase in current year profit growth by 1% increases the CR growth only by 0.69% and not large enough although it is significant at the 1% level.

Table-3. Statistical Result of Reserve Behaviour

Model Variable	Fixed Effect Model			Random Effect Model		
	Coefficient	Std Error	t-stat	Coefficient	Std Error	t-stat
Constant	2.0249*	0.3449	5.8705	2.9731	3.1370	0.9477
GDP	0.0026	0.0153	0.1707	-0.0677	0.1950	-0.3470
M2	0.0010	0.0128	0.0778	-0.0007	0.1719	-0.0043
CPI	0.0060	0.0386	0.1549	-0.0797	0.2566	-0.3104
Net Profit	0.6597*	0.0134	49.2962	0.6856*	0.0348	19.6816
Net profit–1	-0.0072	0.0107	-0.6705	-0.0219	0.0349	-0.6287
R^2	0.8527			0.4142		
Adjusted R^2	0.8312			0.4089		
SEE	35.7240			37.7040		
F-test	39.5496*			77.9130*		
DW	2.3151			1.9463		
*Significant at 1%, **Significant at 5%						
Test cross-section random effects		Chi-Sq. Statistic		Chi-Sq. d.f.		Prob.
Cross-section random		6.0952		5		0.297

Sources: EViews Statistical Software generated

Therefore, it is important for the bank to reserve more during economic expansion to reduce the earning asset growth so that the financing growth will be slower and the bank financing operations to behave counter-cyclical. During economic downturn, the banks should reduce the CR growth more so that the earning assets can be increased and financing growth will be higher.

7. Conclusions and Recommendations

Islamic scholars believed that with the *shariah* principles underlying the Islamic bank operations would make it resilient and stable. This paper provides some empirical evidence on the resiliency and stability of the Islamic bank financing operations towards the expansions and contractions in the macroeconomic environment.

In some way, the behaviour of the Islamic bank was not that enthusiastic to the expansions and contractions in macroeconomic condition. When the economy is expanding, increase in financing volume is followed by the increase in the bank CR and PBD at an increasing rate to shield for the unexpected and expected losses appropriate with the increase in risk. In the event of an economic upswing, the Islamic bank financing growth is at a diminishing rate with the increase in CR and PBD. During weak economic environment the CR and PBD is on the reducing side to increase excess funding for financing activities. By avoiding speculative financial transaction and financial risk transaction, the Islamic bank is able to protect itself from economic fluctuation.

Though the CR and PBD do able to control the financing activities, however, the finding also shows that the amount is still not large enough to manage the earning assets that have a direct influence on the financing volume. This is evidence of the insignificance relationship of financing growth of Islamic banking to the real GDP growth, M2 growth and CPI growth (Bakar *et al.*, 2014). Therefore the policy on CR and PBD need some serious consideration from the Islamic bank management and policy makers so that it will have a larger impact on the Islamic operation and also able to confirm its capability.

Referring to the finding of this study, adherence to the Islamic values in financial transaction activities is a decisive solution in achieving stable banking operations. The ban on interest-based instrument and all of its forms of usage, avoiding from speculative, ambiguous and financial risk transactions and abiding to all other forms of *shariah* instructions are the criteria needed to achieve a stable financial market.

It is necessary to do an in-depth analysis on the chapter Yusuf (12) verses 47 to 49 in the Quran. Through the statistical and a dynamic analysis the precise amount of CR and provisioning can be determined. A forceful CR and PBD system may perhaps make the correlation more convincing with higher coefficient between the financing activities and the GDP, money supply and CPI. It is important for the banking institutions to have their own internal models to manage their CR and PBD to comply with the Quran (12:46-49) instruction. A standard approach also needs to be developed by the regulator following the Quran (12:46-49) instruction. The existing reserve policy model practices by the central bank need to be reviewed to suit with the Quran (12:46-49) instruction.

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