Credit risk management in selected SAARC nations

P. Geethanjali[1] and B. Suresha[2]

1 P. Geethanjali, Student, Master of Business Administration – Finance Management, Department of Management Studies
CHRIST (Deemed to be University)

2 Dr.Suresha B, Associate Professor, Department of Management Studies, CHRIST (Deemed to be University),

Abstract:

The global crisis had brought lot of changes in the operation of the banking industry. The credit risk of different banking industries across the globe faced changes in the level of risk. The capital adequacy ratio of different countries also changed impacting the performance of the banks. There is no research done to see the credit risk practise in the SAARC nations. There is a need to study the area to better understand the situation in these nations. The paper attempts to understand the effect of NPL on the profitability of the banks in selected SAARC countries, to ascertain if there is any impact of lending rates on the NPL of the country and to determine the pre and post impact of US subprime crisis on the credit risk practises of selected SAARC countries. For this purpose, the data for 10 years was taken into consideration i.e (2008-2017). The pre-crises period 2008-2012 and the post crises period 2013-2017. The country specific macro-economic parameter, GDP was considered along with the banking data like NPL, ROA, CAR, lending interest rates etc. The trend of these variables was observed for the 10 years. To check if there was any break in the trend for the 10 years, the NPL variable was used as an explanatory variable. Four regression models were used to explain the effect of different variable on the country's performance. The regression results show that there is no impact of lending interest rate on the NPL of the banks in Bangladesh, Bhutan and India. The results also show that there is an impact of lending interest rate on the NPL of the banks in Sri Lanka, Nepal, and Pakistan.

Key words: Credit risk management, NPL, Global crises, SAARC, Profitability.

INTRODUCTION:

Credit risk is the probability that the banking industry might face a loss due to a borrower's failure to pay back the loans. The credit risk management is used to manage or reduce the losses. This requires a clarity of the bank's capital and the reserves for such losses created by the bank. The credit risk management is one of

the biggest challenges for the banking industry. The aim of credit risk management is to ensure that the bank's risk-adjusted rate of return in a manageable level by keeping up credit risk management inside the satisfactory parameters. The global financial crises and the various credit crunch that occurred has increased the importance for credit risk management for various industries, mainly the banking sector. The global financial crisis or the subprime crises has brought into light the various issues arising due to the risk management systems that are followed by the banking industry. The crisis demonstrated that the results of the avoidance of proper risk management could be very bad for the economy. The crises had raised questions regarding the effectiveness of the existing banking regulations. The need for best risk management practises in the financial service industry has been increased due to the continuous changes in the international financial system, alterations in the sources and transmission channels of systemic shocks, highly competitive and interlinked financial markets, rising complexities of the products, higher regulatory scrutiny and rapid technological improvements.

LITERATURE REVIEW

According to, (Pati, 2017), The global financial crises during the year 2008 had its impact on the whole world, Brazil, Russia, India, China and South Africa (BRICS) nations were no exception for the same. Banking sector was one of the important influencing sectors in these countries. The banking sector was also affected badly in many countries including BRICS. The credit risk arising from the NPL was the main concern of this sector. The author has used Chow's F-test to examine the effect and it shows that NPL does not show any change in the profitability of banking sector in the BRICS nations, whereas the author has found that there is a change in the capital adequacy ratio (CAR) of Russia, India and China during the post-crisis years.

(G.), In this paper the author has designed or given a structure to effectively identify the Probability of Default that the customers applying for loan may result in. The estimation of the default can guide the banks to avoid

losses. The model was constructed utilizing the information available regarding mining capacities accessible in the R. The dataset for the exploration has been taken from the UCI store. Characterization and clustering procedures in R were utilized to make the information prepared for further use. The dataset which was Pre-handled is then utilized for building the decision tree classifier. The tree demonstrate is then utilized in the forecast of the class marks of the new advance candidates and their Probability of Default. The author has utilized Several R capacities and clusters to set up the information and to manufacture the characterization display. The creator has demonstrated that the R clusters is a proficient picturing apparatus that applies information mining strategies. The measurements got from the expectations uncover the high exactness and accuracy of the constructed model.

(Satyanarayana), Credit chance administration in Indian Banks has seen an uncommon change over a significant lot of time, since the presentation of prudential standards by RBI and the deregulation of loan fee structure. The banks are confronting an issue with respect to two issues one being that the borrowers are requesting the banks to diminish the loan fee to stay aggressive in the market, second one is that the investors can discover elective venture zones like mutual funds so that to request a focused rate from the banks. the credit manager while making a new advance in his advance book needs to consider different dangers like loan cost hazard, liquidity chance, trade chance, operational hazard, and so on. These sorts of dangers should be found out and appropriately represented while calculating the expense of assets for financing the advances proposed to the banks.

(Arora & Kumar), in this paper the author has said that there have been different capability maturity models proposed for a business association. Notwithstanding, these models simply center around the appraisal of generally speaking business chance administration development and they don't give any model that pursues the advancement towards the development in credit risk commercial banks. This article plans to satisfy this gap by breaking down regarding how the commercial banks can oversee credit risk. The objective of this paper is to go past edifying similarly as deciding practices, challenges and issues in each period of CRM advancement and moreover be prescriptive to the extent endorsed frameworks and exercises to continue forward to the accompanying progressively hoisted measure of CRM limit improvement.

(Shahzad, Nor, Sanusi, & Kumar, 2017), The study analyses the cointegration and the normal relationship between credit default swap spreads, stock prices, interest rate and slope of the yield curve for the 10 industries in USA. In the article Pesaran CIPS test is used because there is a presence of cross-sectional dependence in the panel to ascertain the unit root properties. The outcome of the cointegration test reveals that there is a long-run relationship between the variables. Dynamic OLS (DOLS) are used to estimate the long-run heterogeneous panel elasticities and Dumitrescu and Hurlin Granger causality tests are used to examine the causality. As per the statistical results the CDS spreads for most of the industries are caused due to the stock prices (volatility), interest rate and slope of the yield curve decrease the CDS premia and stock prices, and interest rate Granger.

(Fadzlan Sufian, 2010), This paper analyzes the efficiency of the Thai banking segment from 1999 to 2008 by utilizing the information envelopment examination (DEA) technique. The aftereffects of the tests demonstrate that the inefficiency in the division results essentially from scale instead of the unadulterated specialized efficiencies. The outcomes delineate that little banks are generally efficient. The medium-sized banks are portrayed to be the minimum efficient banks. The multivariate regression analysis results infer that banks which have higher advances power and which are moderately better promoted show higher efficiency levels than alternate banks. The factual aftereffects of the analysis uncover that there is a negative effect of the ongoing worldwide financial emergency on the efficiency of Thai banks.

(Rizvi, Kashiramka, & Singh, 2018) The investigation looks at the hypothetical foundation of Basel III standards and examines the determinants of financing cost risk and credit risks of banks. The aftereffects of the examination demonstrate that there is a positive connection between the high capital sufficiency necessity (CAR) and the gross non-performing resources (GNPAs) and net interest margin (NIM). The author dependent on the outcomes arrives at a resolution that CAR is one of the real parts that is influenced by Basel standards. It demonstrates a negative connection to GNPAs. The variable has appeared positive connection after the money related emergency.

(Sehgal & Agrawal, 2017)the paper intends to measure and take a look at the time-changing nature of risk exposures for the Indian banking industry using consistently bank-level data from 23 October 2004 to 1 August 2014. The examination finds evidence that the risk exposures are time fluctuating in nature and change for various banks. Esteem hazard and credit chance augmentation post the worldwide global financial crises (GFC) while advance expense and swapping scale chance get decreased. the results similarly exhibit that advantage size and proprietorship structure offer relevant information for isolating banks regarding their threat. Significant banks have more noteworthy risk introduction. Open segment banks have higher credit perils while private sector banks have more loan costs and conversion scale risk presentation.

METHODOLOGY

The study was intended to understand the effect of NPL on the profitability of the banks in SAARC countries. To ascertain if there is any impact of lending rates on the NPL of the country. To determine the pre and post impact of US subprime crisis on the credit risk practises of SAARC countries. The data used for the study was collected from different sources like world bank, country's central banks, CEIC. For this purpose, the data for 10 years was taken into consideration i.e (2008-2017). The pre-crises period 2008-2012 and the post crises period 2013-2017. The country specific macro-economic parameter, GDP was considered along with the banking data like NPL, ROA, CAR, lending interest rates etc. were taken. The trend of these variables was observed for the 10 years. To check if there was any break in the trend for the 10 years, the NPL variable was used as an explanatory variable. Three regression models were used to explain the effect of different variable on the country's performance.

The models used are:

1. Return on asset $i,t = a + b1NPLi,t + fi,t$

2. Capital adequacy $i,t = a + b1NPLi,t + fi,t$

3. GDP $gri,t = a + b1NPLi,t-1 + b2$return on $asseti,t-1 + b3GNIi,t-1 + fi,t$

The first two models are to understand the impact of NPL on bank profitability, that is, ROA and on capital adequacy and the third one is to understand the impact of NPL, ROA and GNI on GDP

4. NPL i,t= a+ $b1 lending\ interest\ rate i,t + fi,t$

The fourth model explains the impact of lending interest rate on the NPL of the country.

DATA ANALYSIS & INTERPRETATION

Impact of NPL, GNI and ROA on GDP

Table 1: Representing coefficient value of effect of NPL, GNI & ROA on GDP.

Dependent: GDP	Pre-crises period (2008-2012)			Post crises period (2013-2017)		
Country/variable	NPL	GNI	ROA	NPL	GNI	ROA
Bangladesh	-0.073674	1.528677*	-0.213210	0.326804	1.523642	-3.465246
Bhutan	-1.051722*	5.251507*	-5.826696*	-0.160610	1.567938	-0.903741
India	-4.105287	-0.174810	19.67379	0.185982	-42.77984	-1.111254
Sri Lanka	-0.768551*	1.730529	2.055110	-0.141988	1.690715	-2.297693
Nepal	0.401525	0.632123	0.159155	1.447577	6.245153	-15.76169
Pakistan	-0.008244	0.612299	0.680497	-0.330760*	1.984174*	-0.443104

*- significant

The results of table (1) is obtained by regression test with GDP as dependent variable and NPL, GNI and ROA as independent variable. The regression results show that Pakistan was the only country whose GDP was affected by GNI and NPL of the country. The NPL has a negative impact on the GDP and the GNI has a positive impact.

Table 2: Representing coefficient value of impact of NPL on capital adequacy.

Dependent: capital adequacy	Pre-crises period (2008-2012)	Post crises period (2013-2017)
Country/variable	NPL	NPL
Bangladesh	0.493844*	1.223612*
Bhutan	2.172516*	2.452781*
India	5.111944*	0.011084
Sri Lanka	2.583972*	4.090990*
Nepal	1.797393*	4.833083*
Pakistan	1.027572*	1.478726*

*- significant

The results of table (2) is obtained by regression test with capital adequacy as dependent variable and NPL as independent variable. The regression results show that India was the only country whose capital adequacy was not affected by NPL of the country. There was a significant increase in the level of impact of NPL on the capital adequacy of other countries.

Table 3: Representing coefficient value of impact of NPL on ROA

Dependent: ROA	Pre-crises period (2008-2012)	Post crises period (2013-2017)
Country/variable	NPL	NPL

Bangladesh	0.080036	0.111986*
Bhutan	0.218376*	0.03219
India	0.353125*	-0.094158*
Sri Lanka	0.223930*	0.338053*
Nepal	0.487529*	0.744877*
Pakistan	-0.021965	0.114342*

*- significant

The results of table (3) is obtained by regression test with return on asset (ROA) as dependent variable and NPL as independent variable. The regression results show that Bhutan was the only country whose ROA was not affected by NPL of the country. There was a significant increase in the level of impact of NPL on ROA of Bangladesh, Sri Lanka, Nepal and Pakistan India had a negative impact of NPL on ROA.

Lending interest rate on NPL

Table 4: Representing impact of lending rate on NPL

Dependent: NPL	Co-efficient	Probability
Country/variable	Lending interest rate	Lending interest rate
Bangladesh	0.475613	0.6700
Bhutan	-0.509017	0.8307
India	-1.435539	0.0638
Sri Lanka	0.349663	0.0284

Nepal	0.651506	0.0314
Pakistan	0.794274	0.0172

The results of table (4) is obtained by regression test with Non-Performing Loans (NPL) as dependent variable and lending interest rate as independent variable. The regression results show that the lending interest rate has an impact on the NPL of Sri Lanka, Nepal and Pakistan.

FINDINGS

There is no impact of NPL & Return on asset on the GDP of the Bangladesh. Whereas GNI has an impact on the GDP. The NPL has an impact on the capital adequacy of the banks in Bangladesh and Pakistan. The NPL, return on asset and the GNI have an impact on the GDP of Bhutan. NPL has an impact on capital adequacy and return on asset of Bhutan, India and Sri Lanka. The NPL, GNI & return on asset of the country does not impact the GDP of India. That NPL has a negative impact on the GDP of Sri Lanka. The other two variables do not show an impact on the GDP. The NPL, GNI & return on asset does not impact the GDP of the Nepal and Pakistan. That the NPL has an impact on both capital adequacy and the return on asset of the banks in the Nepal. There is no impact of NPL on the return on assets of the banks in Pakistan. During post crises period, The NPL, GNI & return on asset of the country does not impact the GDP of Bangladesh and Bhutan during the post crises period. The NPL of the banks has an impact on both capital adequacy and return on asset of the banks in Bangladesh, Nepal, Pakistan and Sri Lanka. That the NPL has an impact on capital adequacy and does not impact the return on asset of the banks in the Bhutan. The NPL, GNI & return on asset of the country does not impact the GDP of the India and Nepal. The NPL has an impact on only the return on asset of the banks in India. The NPL, GNI & return on asset of the country does not impact the GDP of the Sri Lanka. The per capita income and the NPL has an impact on the GDP of Pakistan during the post crises period. The regression results of the fourth model show that there is no impact of lending interest rate on the NPL of the banks in Bangladesh, Bhutan and India whereas the lending interest rate impacts NPL of the banks in Sri Lanka, Nepal, and Pakistan.

CONCLUSION:

The study concludes that during the post crises period Pakistan was the only country whose GDP was affected by GNI and NPL of the country. The NPL had a negative impact on the GDP and the GNI had a positive impact. It also suggests that India was the only country whose capital adequacy was not affected by NPL of the country. There was a significant increase in the level of impact of NPL on the capital adequacy of other countries. Bhutan was the only country whose ROA was not affected by NPL of the country. There was a significant increase in the level of impact of NPL on ROA of Bangladesh, Sri Lanka, Nepal and Pakistan India had a negative impact of NPL on ROA. The regression results show that the lending interest rate has an impact on the NPL of Sri Lanka, Nepal and Pakistan.

The study is conducted by taking the whole banking industry of the select countries due to the time constrain, therefore there is a further scope of research in this field. Individual banking segments can be analysed to get an in-depth view of the topic.

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