

# **Stabilizing Banking Systems within Dollarized Economies: Lessons for Euro-Zone Countries.**

A thesis submitted to St Clements University

**DOCTOR OF PHILOSOPHY  
IN  
BANKING**

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UNDER THE GUIDANCE OF

**Dr L. CORNU**



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## DECLARATION

I hereby declare that Ph.D. thesis on ‘**STABILIZING BANKING SYSTEMS WITHIN DOLLARIZED ECONOMIES: LESSONS FOR EURO-ZONE COUNTRIES**’ is an original research conducted by me under the guidance and supervision of Dr David Le Cornu, Faculty Supervisor, St Clements University. This thesis is submitted to St Clements University, Bangalore, for the award of the degree of DOCTOR OF PHILOSOPHY IN BANKING.

I also declare that, this thesis or any part(s) of it have not been submitted to any other University for the award of Degree/Diploma/Associate ship/Fellowship.

.....

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Date.....

## **CERTIFICATION BY GUIDE**

This is to certify that, the thesis entitled ‘**STABILIZING BANKING SYSTEMS WITHIN DOLLARIZED ECONOMIES: LESSONS FOR EURO-ZONE COUNTRIES**’ submitted by **Cosmas Kanhai** to **St Clements University**, for the award of the degree of Doctor of Philosophy is an original research undertaken by Cosmas Kanhai under my supervision and guidance during the period 2013-2014.

.....

Signature of Supervisor

**Dr. David Le Cornu**

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Cosmas Kanhai

## **DEDICATION**

The thesis is dedicated to the memory of my late mother Emma Kamhai and late father Naison Katomo Kamhai. The everlasting love remains an inspiration to my life up to today.

## **ABSTRACT**

Banking sector stability remains a challenge for most countries across the whole world particularly in the Euro-zone countries. A number of high profile bank failures in the Euro-zone countries such as Greece, Spain, Portugal, Ireland and recently Cyprus underscored the difficulties countries can have when they are responsible for their banks stability when they no longer control the issuing of their currency. On the other hand, dollarized non EU countries have been running stable banking systems without their domestic currencies for many years without appearing to suffer similar problems to those affecting the Euro zone countries.

The purpose of this study is to explore how non-EU countries using foreign currency (i.e. dollarized nations) stabilise their banking services and if there is anything the EU countries can learn from their experiences. The research sought to determine the impact of dollarization on central banks' role of maintaining stability of the banking sector as well as to identify factors influencing banking sector stability in dollarized economies and to evaluate critical measures dollarized countries are taking to ensure the stability of their banking systems in the absence of their own currencies.

The research design for this study was a descriptive and explanatory/interpretive multiple case studies that were analysed largely through both qualitative and quantitative methods. The qualitative aspect of the study was undertaken through desk reviews of four (4) dollarized non-EU countries namely Ecuador, El Salvador, Cambodia and Zimbabwe. This was followed by panel data analysis on determinants of banking sector stability utilizing data from the

Zimbabwean banking sector for the period 2009 to 2013. Statistical analyses were done using the E-views software.

Semi-structured interviews were carried with a sample of five (5) senior management staff from the Reserve Bank of Zimbabwe. Purposive or convenience sampling was used to select interviewees to ensure that respondents chosen have the knowledge and capacity to answer the questions.

Findings from this study have been found to be consistent with the findings of several related studies on maintaining stable banking systems in a dollarized environment. It was noted that the level of capitalisation/capital adequacy, level of integration, bank supervision and regulation standards, macroeconomic conditions and liquidity significantly and positively determine banking stability in a dollarized environment.

The study concluded that notwithstanding the constraints caused by dollarization, the dollarized countries (i.e. non EU countries) were able to maintain stable banking systems by adopting a number of measures including increasing the level of minimum capital requirements and capital adequacy ratios, setting contingency liquidity fund, restricting banks' exposures to foreign markets for banks and enhancing supervisory regimes among others.

The study recommended EU countries to implement a combination of the above measures being undertaken by dollarized countries if they are to maintain stable banking systems.

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## **CHAPTER ONE**

### **INTRODUCTION**

#### **1. OVERVIEW**

Banking sector stability has become a source of major concern in the whole world particularly in the Euro-zone countries. The main reasons for this concern are the proliferation of banking crises from 2007 to date, especially the successive crises in the Euro-zone countries such as Greece, Spain, Portugal, Ireland and recently Cyprus. The Euro banking crises highlighted the difficulties countries can have when they are responsible for their banks stability when they no longer control the issuing of their currency.

What is neglected in the above crisis is the fact a number of dollarized countries have been running stable banking systems without their domestic currencies for many years without appearing to suffer similar problems to those affecting the Euro zone countries. While dollarization cannot be purely regarded as a panacea for ensuring banking sector stability, literature has shown that despite the costs of dollarization, nations who have dollarized have experienced some measure of stability.

According to Eichengreen (2001) dollarization brings about lower rates of inflation and an increase in stability of the country. Further the credibility of regulatory institutions is enhanced and that the currency risk disappears along with the currency itself. Davidson (2002) argues that if the central bank of a dollarized nation still exercises supervisory and regulatory powers the likelihood of a domestic financial crisis is small

On the other hand, Gulde et al (2004) argued that dealing with bank runs in dollarized economies is both more difficult and subject to greater risks than in other cases. Their argument is premised on the fact that the absence of a lender of last resort has a potential to make dollarized systems more prone to runs, and runs more difficult to stop when they occur. Accordingly the ability of

any dollarized nation's central bank to maintain the stability of the financial system and contain systemic risk that may arise in financial markets is severely constrained if absolutely eliminated by dollarization.

Despite the above perceived costs, a number of countries have adopted one form or another of dollarization. Among these countries are Ecuador, Cambodia, El Salvador, Panama to mention just few.

Zimbabwe adopted a multiple-currency system in 2009 where the use of the local currency i.e. the Zimbabwean dollar, was replaced by basket of currencies namely the US dollar, the rand, the pula and the pound sterling. This was after the country has gone through a period of serious economic meltdown characterized by hyperinflation, loss of confidence in the local currency, shortage of cash and a flourishing parallel (black) foreign exchange market. During this period prices of goods and services were changing almost on an hourly basis. The reasons for the adoption of the multi-currency system in Zimbabwe are consistent with those noted by Chitambira (2011) who highlighted that dollarization is predominantly a response to a loss of confidence in the local currency owing to severe bouts of macroeconomic instability especially hyperinflation, currency crises as well as high and volatile interest rates. He further pointed out that nations experiencing policy incredibility and uncertainty may also adopt dollarization.

According to Mhute (2012) the introduction of the multi-currency regime brought price stability and a marked reduction in the rate of inflation. Nota and Sakupwanya pointed out that the Zimbabwean inflation reduced overnight from a 9 digit to a single digit. Further, according to Chitambira (2011) dollarization leads to a reduction in exchange rate volatility, a reduction in the possibility of currency crises and capital flight. Currency risk is eliminated as there is no possibility of devaluation.

Given the perceived measure of stability brought about by dollarization in countries, one wonders why stability issues are not inherent in Eurozone countries who like dollarized nations are not using their own currency. As indicated earlier the Eurozone has experienced a number of

banking crises while on the other hand a number of countries that have either partially or fully dollarized experience a measure of stability despite not using their own currencies.

This study will therefore seek to investigate how dollarized nations maintain the stability of their banking system in the absence of their domestic currencies and ascertain lessons that can be learnt from these experiences by Eurozone countries.

## **2. SIGNIFICANCE AND RATIONALE OF THE STUDY**

The motivation of this study has its starting point in the banking crises that bedeviled the Eurozone countries banking sector since 2007 where a number of banking institutions either collapsed or were closed by regulatory authorities. The series of bank failures that occurred during this period had the greatest repercussions for the economies of the affected countries as well as on banking sector confidence.

This has led to more questions than answers concerning the stability of the banking sector and the effectiveness of bank regulation and supervision in countries that do not use their domestic currencies.

The stability of the banking sector is the foundation of steadiness of the entire financial system as banks play a central role in the money creation process; in the payment system, in the financing of investment and in economic growth. Furthermore, to preserve monetary and financial stability central banks and supervisory authorities have a special interest in assessing banking system stability. Bank stability is normally reflected by features, such as bank runs or illiquidity and subsequent risks relating to illiquidity in the banking sector, which affect their customers and is reflected in their confidence levels.

The study of the impact of dollarization on banking system stability has remained under – researched, largely due to scant theoretical literature on the subject and lack of adequate empirical support on how other countries have performed under this monetary regime. In this regard this study will be important in that it will provide lessons to Eurozone countries on monitoring and maintaining the stability of banking systems in the absence of domestic currencies. The findings and conclusion of the study will be invaluable to regulatory authorities

in dollarized countries as it will reveal the key issues to be taken into account when designing adequate regulation or when there is need to reform the bank regulatory frameworks.

### **3. BACKGROUND OF THE CASE STUDIES**

#### **3.1 El Salvador**

El Salvador adopted the U.S. dollar as legal tender in 2001 when the government implemented the Monetary Integration Law which established a fixed exchange rate of 8.75 colones per U.S. dollar and made the dollar legal tender in the financial system. Unlike most countries that dollarized due to macroeconomic problems, El Salvador's decision to dollarize its economy was driven by very different economic and political conditions and objectives. Prior to dollarization the country's macroeconomic environment was, according Jácome and Lönnberg (2009), characterized by:

- There were no major bank failures;
- Annual inflation which was on average below 4 percent during 1996– 2000;
- Fiscal and external disequilibrium was moderate (on average about 1.5 percent of GDP during 1993–2000) and financial dollarization was low; and
- Real interest rates were high and economic growth was on average about 3 percent during the second half of the 1990s.

According to Juan Carlos Hidalgo as cited by Karnovitz, Moldovan and Menelaws (2010) and Towers and Borzutzky (2004) the objectives of dollarization was to attempt to lower interest rates, increase foreign investment, improve financial conditions, and decrease transaction costs in international trade, thereby further accelerating economic growth and stability.

It was also argued that dollarization would also benefit Salvadorans living in the United States by making their remittance transfer costs cheaper. El Salvador's economy is strongly tied to the United States which added to the benefits of dollarization. According to the Federal Reserve Bank of Atlanta two thirds of total exports are sent to U.S. markets, and the United States is the origin of a large portion of remittances (Karnovitz, Moldovan and Menelaws (2010))

IMF Article IV (2010) reported that dollarization in El Salvador had reduced exchange rate risk and provided a strong nominal anchor that had secured low inflation. The IMF (2010) also found that the Salvadoran economy's dynamic response to shocks had not been affected by dollarization, although the country had suffered more severe shocks (two earthquakes in January and February of 2001 coupled with low prices for coffee and a drought) in the post-dollarization period than in the pre-dollarization period.

In the almost ten years since El Salvador adopted the U.S. dollar, interest rates have been lower than under the previous regime as exchange rate risk has disappeared, inflation has remained low, and the real exchange rate has remained broadly in line with fundamentals (IMF 2010)

On banking stability, there has been a moderate improvement in the country's key financial soundness indicators.

Table 1.1 below shows the trend in the financial soundness indicators of El Salvador's banking system since 2005.

**Table 1.1 Financial Soundness Indicators – El Salvador**

	2005	2006	2007	2008	2009	Feb. 2010
<b>Capital adequacy</b>						
Regulatory capital to risk-weighted assets*	13.5	13.8	13.8	15.1	16.5	16.8
Regulatory Tier I capital to risk-weighted assets*	10.4	10.6	10.9	12.1	13.6	13.7
Capital to total assets	7.4	7.7	7.8	8.5	9.3	9.2
Leverage ratio 2/	7.1	7.4	7.4	8.1	8.9	8.9
<b>Asset composition</b>						
<b><i>Sectoral distribution of loans to total loans*</i></b>						
Households	43.0	44.0	47.0	50.0	52.0	53.0
Agricultural sector	3.9	3.7	3.7	4.0	3.8	3.6
Mining sector	0.0	0.0	0.3	0.3	0.3	0.3
Electricity, water, services, oil and gas sector	1.3	1.1	1.4	1.7	1.5	1.5
Construction sector	7.7	6.2	5.7	5.5	5.4	5.6
Transportation and communications sector	1.4	1.9	1.9	2.0	2.5	2.6
Non-residents	6.0	5.2	5.5	4.4	3.7	3.9
<b><i>Geographical distribution of loans to total loans</i></b>						
Domestic	94.9	95.1	95.8	95.6	96.7	96.7
Foreign	5.1	4.9	4.2	4.4	3.3	3.3
Central America 3/	4.7	4.4	3.9	3.5	3.0	2.9
United States	0.3	0.5	0.3	0.3	0.3	0.3
<b>Asset quality</b>						
NPL to gross total loans* 4/	2.0	1.9	2.1	2.8	3.7	3.9
Specific provisions to gross total loans	2.5	2.3	2.5	3.2	4.2	4.4
NPLs net of provisions to capital*	-3.4	-2.1	-2.9	-1.8	-2.7	-2.6
Loans at risk to total loans 5/	4.5	4.2	5.2	6.7	10.0	...
<b>Earnings and profitability</b>						
ROAA* (annualized)	1.4	1.8	1.5	1.2	0.4	0.8
ROAE* (annualized)	12.9	16.6	13.4	10.7	3.4	5.9
Net interest income to gross income*	77.2	81.3	79.8	76.3	76.8	78.2
Noninterest expenses to gross income*	50.3	48.6	47.0	48.7	51.3	48.7
Personnel expenses to noninterest expenses	52.1	54.4	53.4	52.0	50.6	51.2
Spread between reference loan and deposit rates (bps)	301.0	275.0	328.0	420.0	477.0	501.0
<b>Liquidity</b>						
Liquid assets ratio 6/	33.5	32.3	34.0	35.8	41.3	41.8
Customer deposits to total (non-interbank) loans	97.2	94.2	100.1	95.6	105.1	105.0

Source> IMF Article IV Report 2014

The FSI show that El Salvador's financial system is adequately capitalized. The solvency ratios indicate that the country's banking is resilient to a moderate recession. The proxy for banking stability used in this research i.e. the NPL ratio indicates that the country has been generally having a stable banking system as the ratio has been trending below 5% since 2005. This study will ascertain the measures or policies that the El Salvador authorities have been undertaking to ensure its banking sector remains stable as proxied by the NPL ratio.



The structure of El Salvador's banking sector was, as at 30 June 2013 comprised of a total of 43 entities, of which 22 are deposit-taking institutions, including banks (13), cooperatives (7), and credit unions (2), all supervised and inspected by the Superintendency of the Financial System of El Salvador (SSF).

### 3.2 Cambodia

The Kingdom of Cambodia is a constitutional monarchy located in Southeast Asia, more particularly the Indochina peninsula. Kuyly (2002)

Cambodia is a high dollarized economy and nearly all transactions in either business or daily living are in US dollars. The dollar still serves all the three functions of money: it is widely used as a medium of exchange, store of wealth and unit of account. The IMF estimates the share of dollars in currency in circulation to be about 90 percent Menon (2008). The term dollarization is used to specifically to describe the currency regime in Cambodia where the US dollar is dominant currency in circulation notwithstanding the availability of the local currency, the riel (Hang Chuon Naron, 2008).

According to Menon (2008) dollarisation that took place in Cambodia was a direct legacy of the destruction of economic and financial institutions after the 1970s, economic mismanagement in the 1980s, and the large inflows of US dollars that occurred during the UNTAC period in the early 1990s. Consequent to these events US dollars flowed into the nation, creating a new shock against the national currency, and the US dollar started to be used as medium of exchange and unit of account, and eventually also as a store value, alongside the local currency. Thus it can be noted that unlike other countries where bouts of macroeconomic instability and hyperinflation induced or increased dollarization, the last and determining source of dollarization in Cambodia was a result of an administrative and political event (Menon, 2008)

The country is largely characterized by cash transactions, with a large amount of cash dollars circulating outside the banking system. The amount of foreign currency in circulation is not known and is not captured in monetary statistics. However, the use of dollar facilitated the integration process of Cambodian trade in the international economy. Currency stability promoted macroeconomic stability and a predictable business environment. It reduced the

transaction costs (avoiding currency conversions). It allowed the boom in the garment industry in Cambodia.

Cambodia's banking sector has gradually developed both in scope and scale, which is reflected in the increase in assets, credits, deposits as shown in Table 1.2 below.

**Table 1.2 Growth in Assets, Credits and Deposits in the Banking Sector**

<b>Banks</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
<b>Asset Growth</b>	40.4%	76.6%	24.0%	20.0%	27.8%	24.4%	37.3%
<b>Credit Growth</b>	47.9%	82.7%	52.7%	5.2%	29.1%	33.5%	35.1%
<b>Deposit Growth</b>	44.8%	76.8%	1.7%	31.7%	29.9%	20.4%	29.7%
<b>Asset to GDP</b>	26.1%	38.9%	40.3%	48.3%	56.3%	62.7%	76.6%
<b>Credit to GDP</b>	12.2%	18.3%	27.8%	23.6%	27.7%	34.1%	41.0%
<b>Deposit to GDP</b>	17.9%	26.8%	28.3%	31.2%	36.9%	41.0%	47.3%

*Source: Cambodia Annual Report*

The banking system in Cambodia consists of commercial banks, specialized banks, and microfinance institutions. The National Bank of Cambodia is the supervisory authority. The structure of the Cambodian banking sector as at 31 December 2012 is shown in the table below.

**Table 1.3 Structure of Cambodia Banking Sector**

<b>Type of Banking Institution</b>	<b>Number</b>
Commercial banks	32
Specialised Banks	7
Representative offices of Foreign Banks	4
Microfinance Institutions	35

*Source: National Bank of Cambodia Annual Report 2012*

Table 1.4 below shows the financial soundness indicators of the Cambodia's banking system.

**Table 1.4 Financial Soundness Indicators for Cambodia**

	2008	2009	2010	2011				2012				2013	
				Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec	Mar	Jun
Capital-based FSIs													
Regulatory capital to risk-weighted assets	27.6	32.3	31.4	31.2	29.0	27.5	26.2	29.1	28.8	27.2	25.0	25.6	25.6
Regulatory tier 1 capital to risk-weighted assets	27.7	33.0	32.1	29.5	27.7	26.3	26.3	29.3	28.9	27.3	25.3	26.1	25.7
Nonperforming loans net of provisions to capital	5.9	5.3	3.8	3.9	4.6	5.4	3.3	3.8	3.5	4.3	3.5	3.4	3.6
Return on equity 1/	12.4	4.9	6.5	9.0	9.6	10.5	9.7	11.2	11.0	10.5	10.2	12.9	11.6
Net open position in foreign exchange to capital	0.9	1.4	2.3	3.1	3.0	3.9	3.9	2.9	3.4	1.8	2.0	1.6	1.2
Asset-based FSIs													
Nonperforming loans to total gross loans	2.9	3.9	2.9	2.9	3.0	3.0	2.1	2.4	2.2	2.5	2.0	1.9	2.1
Return on assets 1/	2.7	1.0	1.3	1.9	1.8	2.0	1.8	2.3	2.1	1.9	1.7	2.3	2.1
Liquid assets to total assets	14.2	19.4	18.0	17.9	17.9	19.0	16.2	17.2	17.5	16.1	15.4	16.2	16.0
Liquid assets to short-term liabilities	30.6	26.8	25.2	25.2	25.3	27.0	23.0	24.3	24.4	22.5	21.2	22.4	22.2
Sectoral distribution of loans to total gross loans													
Residents	94.4	95.0	91.8	91.0	90.8	91.1	92.3	88.3	85.7	87.1	84.0	86.6	87.2
Deposit-takers	3.8	6.5	4.4	3.9	4.7	4.9	7.7	8.1	7.9	8.4	7.7	8.1	7.9
Central bank	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other financial corporations	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
General government	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nonfinancial corporations	70.6	71.1	72.3	72.2	71.3	71.1	69.5	65.8	63.8	64.1	62.0	63.8	63.8
Other domestic sectors	20.1	17.5	15.1	14.9	14.8	15.1	15.1	14.4	14.0	14.6	14.3	14.7	15.6
Nonresidents	5.6	5.0	8.2	9.0	9.2	8.9	7.7	11.7	14.3	12.9	16.0	13.5	12.8
Income- and expense-based FSIs													
Interest margin to gross income	48.3	60.8	62.2	67.7	65.3	63.6	64.3	63.1	65.6	66.7	66.6	69.9	68.2
Noninterest expenses to gross income	64.2	64.2	63.2	56.8	57.9	56.1	57.5	53.9	54.7	53.6	53.9	49.5	51.1

Source; IMF Country Report Number 14/33

On banking stability, an analysis of the NPL ratio which is the proxy for banking system stability in this study shows the Cambodia banking sector has generally been stable with the NPL ratio hovering below 3.9% since 2008. According to BASEL Committee on banking Supervision, an NPL ratio of 10% and above indicates that there is a banking crisis.

Thus this study will also seek to ascertain how Cambodia has been maintaining the stability of its banking system in the absence of the country's own currency.

### 3.3 Ecuador

Ecuador is a small, fairly open, "dollarized" economy, very much dependent on oil revenue. The country dollarized in 2000. The decision to officially dollarize was driven by the economic, social and political challenges that Ecuador faced. According to Karnovitz, Moldovan and Menelaws (2010) Ecuador was, prior to dollarization, experiencing very high rates of inflation, and the political forces impeded the government from implementing monetary and fiscal discipline needed to bring inflation under control. Further, during this period the Ecuadorian

economy experienced large fiscal deficits and increasing external debt. The decline of the oil prices, a border conflict with Peru, drought impacts of El Niño's, political instability as well as poorly executed monetary and fiscal policy together resulted in stagnant economic growth, high inflation, and a liquidity crunch.

The country experienced a major banking crisis in 1998 -1999. Banks were overexposed and undercapitalized and could not meet their commitments. Inflation ran rampant and the government tried to alleviate the problem by printing even more money causing the sucre to depreciate. This development further undermined banks, as most of the loans made in the country were denominated in dollars. The crisis led to the closure of 16 banks. These conditions brought about the collapse of the sucre, the local currency in Ecuador.

Against a backdrop of social unrest, spiraling inflation, buildup in arrears of the external debt and severe lack of confidence in the banking system and economic policies, Ecuador adopted the US dollar as legal tender (dollarized) 2000. According to Dr. Carlos J. Emanuel (2002), the Minister of Economy and Finance of Ecuador the dollarization process was undertaken in three stages. The first stage involved an informal dollarization process, in which the economic agents voluntarily replaced their deposits, investments and holdings in sucres (the local currency) with their equivalents in dollars. The second stage related to the official government announcement to formally adopt the dollarization scheme, which took place on January 9th 2000. The final stage related to the process of exchanging all of the remaining sucres in the economy with dollars, which ended in the month of December 2000.

A law, the Economic Transformation Law, was enacted to support the implementation of full dollarization and these included changes in the role of the central bank, the development of a liquidity fund, and the modernization and tightening of banking supervision and regulation. Consequently the banking regulations were restructured and tightened, and regulators were given more power to take preventive measures against banks that showed signs of instability. More stringent capital adequacy regulations (which are now much closer to Basel standards) and new credit risk centers were established to improve prudent supervision.

Since the adoption of the dollar as its legal currency, currency risk was eliminated Myriam Quispe-Agnoli And Elena Whisler (2006) while the real GDP growth rate has increased from 0.9% in year 2000 to 4.2% on annual average during 2001-2005. The economy further grew by 6.5% in 2008. Inflation was reduced from 91% in 2000 to 2.0% in 2004 and 4.4% in 2005 and has since remained at a single digit.

The nominal lending interest rate was rising before 2000 with 15.9% in 1998 and 16.6% in 1999 as its highest peak. It decreased significantly during 2000 -2003, recording 12.6% in 2003. Such a decrease in the lending interest rate implies a lowering of capital cost relating to investment.

The confidence generated by Ecuador's dollarization and its embarkation on an IMF programme led to the opening of credit lines from several multilateral funding agencies, easing the liquidity constraint in the banking system. The restoration of confidence in the banking sector was evidenced by the volume of deposits that remained after time deposits were unfrozen in March 2000 (Ford, 2001). The country's financial soundness indicators improved notably.

Table 1.5 below shows the financial soundness indicators of Ecuador from 2000 to 2006.

**Table 1.5 Trend in Ecuador Banking System Financial Soundness Indicators**

	2000	2001	2002	2003	2004	Projections	
						2005	2006
<b>Key economic and market indicators</b>							
Real GDP growth (in percent)	2.8	5.1	3.4	2.7	6.9	3.2	2.7
CPI inflation (period average, in percent)	-7.7	37.7	12.6	7.9	2.7	2.4	3.4
Short-term interest rate (in percent) 1/		5.5	5.1	5.0	3.8	4.0	...
EMBI spread (bps, end of period) 1/	2,866	1,233	1,801	799	690	642	...
Exchange rate NC/US\$ (end of period)				US\$ is national currency			
<b>External sector</b>							
Exchange rate regime				US\$ is national currency			
Current account balance (percent of GDP)	5.3	-3.3	-4.9	-1.7	-1.1	-1.0	-0.9
Net FDI inflows (percent of GDP)	-1.6	6.3	5.2	5.8	3.8	4.7	4.4
Export growth (US\$ value, GNFS)	12.6	-3.7	8.2	14.3	27.1	24.6	9.7
Real effective exchange rate (1995 = 100) 2/	73.1	102.2	113.8	112.3	107.2	103.7	...
Gross international reserves (GIR) in US\$ billion	1.2	1.1	1.0	1.2	1.4	2.1	2.8
GIR in percent of ST debt at remaining maturity	33.1	32.0	35.1	31.4	38.2	57.8	79.4
Net international reserves (NIR) in US\$ billion	0.0	0.9	0.7	0.8	1.2	2.0	2.8
Total gross external debt in percent of GDP	86.0	69.0	67.1	59.8	53.4	48.7	44.2
Of which: ST debt (original maturity in percent of GDP)	25.2	6.6	9.5	6.6	5.1	4.1	3.2
Private sector debt (in percent of GDP)	14.0	14.5	20.2	17.4	16.8	16.0	13.2
Total gross external debt in percent of exports of GNFS	223.6	252.9	264.1	227.2	180.0	145.8	128.1
Gross external financing requirement (in US\$ billion)	2.6	3.9	16.0	15.0	14.3	13.1	11.8
<b>Public sector 3/</b>							
Overall balance (percent of GDP)	1.0	-0.5	1.0	1.7	2.3	1.7	2.2
Primary balance (percent of GDP)	7.7	4.3	4.5	4.7	5.0	4.2	4.9
Debt-stabilizing primary balance (percent of GDP)	n/a	n/a	...	-0.7	-0.8	1.1	1.9
Gross public sector financing requirement (in percent of GDP)	16.4	9.4	5.4	4.3	5.6	5.8	4.1
Public sector gross debt (in percent of GDP)	91.4	70.2	58.2	52.6	46.5	43.2	40.0
Of which: External debt from official creditors (in percent of total)	46.4	46.8	51.7	51.8	48.0	43.3	44.9
External debt from private creditors (in percent of total)	32.4	30.9	28.7	28.4	28.9	33.5	31.7
Domestic debt linked to foreign currency (in percent of total)	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Domestic debt linked to ST interest rate or inflation (in percent of total)	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Public sector net debt (in percent of GDP) 4/	83.7	64.2	52.8	46.7	39.8	34.6	29.4
<b>Financial sector 5/</b>							
Capital in percent of risk-adjusted assets	13.1	13.5	14.4	14.9	14.5	14.8	...
NPLs in percent of total loans	34.7	13.4	8.4	7.9	6.4	5.7	...
Provisions in percent of NPLs	83.1	115.5	131.4	127.3	119.0	126.9	...
Return on average assets (in percent)	-2.2	-0.4	1.2	1.1	1.2	2.3	...
Ratio of liquid assets to deposits 6/	42.2	44.3	38.7	40.5	37.2	33.9	...
FX deposits (in percent of total deposits)	100.0	100.0	100.0	100.0	100.0	100.0	100.0
FX loans (in percent of total loans)	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: IMF Article IV Report 2006

There has been a considerable improvement in the stability of Ecuador's banking system as reflected by an improvement in the NPL ratio which improved from 34.7% in 2000 to 5.7% in 2006. The ratio has been hovering below 10% since 2002. According to the Basel Committee on Banking Supervision banking system that has an NPL ratio of above 10% is said to be in a crisis.

Given the constraints of dollarization such as the limited lender of last resort and absence of monetary policy control tools, it is critical to understand how Ecuadorian authorities were able to maintain their banking system stability so that lessons can be drawn to assist countries which are not using their own currencies.

### 3.4 Banking Crises in the Eurozone

The Eurozone crisis (often erroneously referred to as the Euro crisis) is an ongoing crisis that has been affecting the countries of the Eurozone since early 2009, when a group of 10 central and eastern European banks asked for a bailout. The countries that experienced crises include Spain, Portugal, Greece, Ireland and Cyprus.

The Eurozone crisis resulted from a combination of complex factors, including the globalisation of finance; easy credit conditions during the 2002–2008 period that encouraged high-risk lending and borrowing practices; the financial crisis of 2007–08; international trade imbalances; real estate bubbles that have since burst; the Great Recession of 2008–2012; fiscal policy choices related to government revenues and expenses; and approaches used by burdens or socialising losses. Examples of the nature of the crises are noted hereunder.

**Ireland** - The banking crisis in Ireland stemmed from the collapse of the domestic property sector and subsequent contraction in national output. Its root cause can be found in the inadequate risk management practices of the Irish banks and the failure of the financial regulator to supervise these practices effectively. (O'Sullivan and Kennedy, 2009)

**Cyprus** - The economy Cyprus was hit by several huge blows in and around 2012 including, amongst other things, the exposure of Cypriot banks to the Greek debt haircut, the downgrading of the Cypriot economy into junk status by international rating agencies and the inability of the government to refund its state expenses. (en.wikipedia.org/wiki/Eurozone\_crisis)

**Portugal** – The financial crisis that rocked Portugal began as part of the world financial crisis of 2007–08 and continues as part of the European sovereign debt crisis, which has affected primarily the southern European states and Ireland After the financial crisis of 2007–2008, it was known in 2008–2009 that two Portuguese banks (Banco Português de Negócios (BPN) and Banco Privado Português (BPP)) had been accumulating losses for years due to bad investments, embezzlement and accounting fraud. In the grounds of avoiding a potentially serious financial crisis in the Portuguese economy, the Portuguese government decided to give the failed banks bailouts, eventually at a future loss to taxpayers. (en.wikipedia.org/wiki/Eurozone\_crisis)

To address the banking crisis, the affected EU countries arranged bail-out programs. Table 1.6 below gives an overview the financial composition of all bailout programs being initiated for EU member states to address crises in their countries.

**Table 1.6 Bailouts – Eurozone Banking Crises**

<b>EU member</b>	<b>IMF</b> (billion €)	<b>World Bank</b> <a href="http://en.wikipedia.org/wiki/Eurozone_crisis">http://en.wikipedia.org/wiki/Eurozone_crisis</a> - cite_note-IMF.2BWorld_Bank.2BBoP-152 (billion €)	<b>EIB / EBRD</b> (billion €)	<b>Bilateral</b> <a href="http://en.wikipedia.org/wiki/Eurozone_crisis">http://en.wikipedia.org/wiki/Eurozone_crisis</a> - cite_note-FAQ_about_EFSF_and_ESF-152 (billion €)
<a href="#">Cyprus</a>	1.0	-	-	2.5
<a href="#">Greece</a>	48.1	-	-	-
<a href="#">Hungary</a>	9.1	1.0	-	-
<a href="#">Ireland</a>	22.5	-	-	4.8
<a href="#">Latvia</a>	1.1	0.4	0.1	-
<a href="#">Portugal</a>	26	-	-	-
<a href="#">Romania</a>	12.6	1.0	1.0	-
<a href="#">Spain</a>	-	-	-	-
<b>Total payment</b>	<b>120.3</b>	<b>2.4</b>	<b>1.1</b>	<b>7.3</b>

Source: [http://en.wikipedia.org/wiki/Eurozone\\_crisis](http://en.wikipedia.org/wiki/Eurozone_crisis)

#### 4. RESEARCH OBJECTIVES

The major purpose of this research project is to see how non-EU countries using foreign currency (i.e. dollarized nations) stabilise their banking services and if there is anything the EU countries can learn from their experiences. The objectives of the study are:

- to determine the impact of dollarization on central banks' role of maintaining stability of the banking sector;
- To determine the critical measures monetary authorities are taking to ensure the stability of their banking systems in the absence of their own currencies;
- To identify factors influencing banking sector stability in dollarized economies and to develop a theoretical framework (model) for the determinants of banking system stability;



- d) To understand how authorities in Euro-zone handle exogenous shocks to their banking systems and lessons that can be learnt from the experience of dollarized nations. The study limits the scope of the analysis of banking crises in Euro-zone countries to those areas where the effects of using foreign currency can be clearly defined.

## **5. HOW THE STUDY IS ORGANISED**

The chapters which will follow in the research study will be as follows: Chapter 2 - Literature Review; Chapter 3 – Case Studies; Chapter 4 -Research Methodology; Chapter 5 - Findings and Data Analysis; and Chapter 6 - Conclusions, Suggestions/Recommendations.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **OVERVIEW**

Literature review is divided into two stages. The first stage covers the theoretical and conceptual framework on dollarization, banking stability and measures to enhance banking stability. The second part covers empirical studies on the relationship between dollarization and banking stability which are relevant to the thesis topic, “*Stabilizing Banking Systems within Dollarized Economies.*”

#### **THEORETICAL AND CONCEPTUAL FRAMEWORK**

##### **Dollarisation**

According to **Asel (2010)** currency substitution and dollarization have become an important characteristic of economic development in most developing economies. Specifically important has been the effect of currency substitution or dollarization on the stability of the banking systems of the concerned countries.

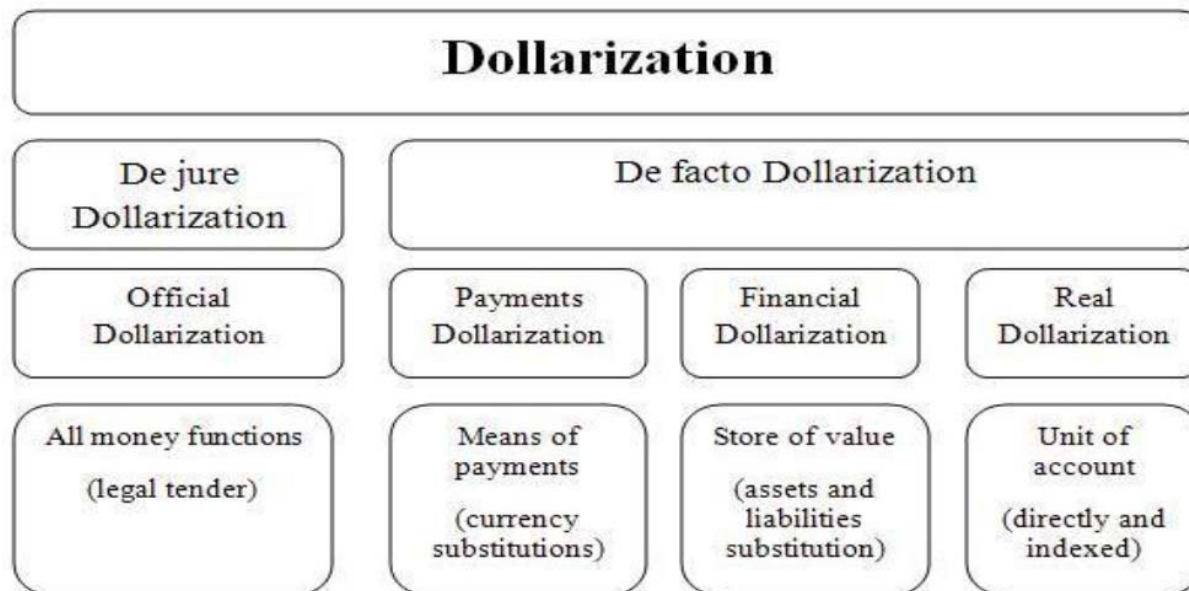
Dollarisation refers to the process in which a country adopts the currency of another country as a legal tender (Quispe-Agnoli and Whisler, 2006). This is where the domestic currency is replaced

or used in parallel with foreign money in the performance of the functions of the domestic money. Feige (2003) defines dollarization as the process of substituting a foreign currency for a domestic currency to fulfill the essential functions of money as a medium of exchange (currency substitution) and/or as a store of value (asset substitution). In other words it refers to the replacement of local currencies with the U.S. dollar in both local and international monetary transactions (Castillo2006).

Ford (2001) defines dollarization as the use of any foreign currency by another country while the Joint Economic Council, Washington D.C., (July 1999) as cited by Raffert (2003) refer to dollarisation as a monetary regime under which a government adopts foreign currency, the dollar, as the predominant or exclusive legal tender. It must be noted that dollarization does not mean adopting the US dollar only but a country that adopts other countries such as for example, the rand, the yen as its legal tender is also regarded to be a dollarized country. The adopted currency takes over all the functions of domestic currency: a unit of account, medium of exchange, and store of value.

Dollarisation takes many forms as illustrated in the diagram below.

**Figure 2.1 Forms of Dollarisation**



*Source Shaub (2009)*

Official or full dollarization is where a country officially adopts as legal tender another country's currency, in this case the U.S. dollar (Berg and Borensztein, 2000 and Quispe-Agnoli and Whisler, 2006). The adopted currency takes over all the functions of domestic currency: a unit of account, medium of exchange, and store of value.

Under partial (de facto) dollarization, a country's domestic currency remains the official legal tender, but transactions can also be carried out in foreign currency, effectively giving the country a bicurrency system. Berg and Borensztein (2000) further pointed out that unofficial dollarization 'occurs when residents hold a relatively large component of foreign currency and foreign currency deposits at domestic banks, foregoing the usage of their sovereign currency

(due to economic instability and hyper-inflation) for transaction and store of value purposes'. According to Quispe-Agnoli and Whisler (2006) partial dollarization takes the following forms:

- Currency or payments dollarization, sometimes referred to as currency substitution, is a country's use of foreign currency for transaction purposes.
- Real dollarization is the indexing, formally or de facto, of prices and wages to the dollar.
- Financial dollarization, also called asset substitution, occurs when a country's residents hold financial assets and liabilities in foreign currency. Financial dollarization can be external (using the dollar in claims between residents and non-residents) or domestic (using the dollar in claims between residents).

### **Phases of Dollarisation**

There are a number of reasons why countries may dollarize their economies. According to Hauskrecht and Hai (2004) dollarization is often motivated by loss of credibility of monetary policy due to longer periods of high and volatile inflation rates and depreciating national currencies as well as a consequence of periods of macroeconomic instability. It is noted that small, open economies that are particularly vulnerable to international shocks may find that adopting a high level of dollarization or pegging their currency to the U.S. dollar can help prevent extreme exchange-rate variations that can harm their economies.

The process by which dollarization occurs has been observed to typically consists of three stages (Calvo and Vegh 1992). The first stage begins during times of hyperinflation and currency depreciation, when people lose confidence in their local currency, and prefer to hold foreign currency as a store of value (asset substitution).

During the second stage, as the local currency continues to depreciate, many prices and wages start to be quoted in foreign currency, which then acquires an additional function as a unit of account (Shinkevich and Oomes, 2002).

The third and last stage of the dollarization process is the use of foreign currency as a medium of exchange, which is sometimes referred to as currency substitution.

Table 2 and 3 below shows the countries that have dollarized.

**Table 2.1: Fully Dollarized Economies**

Country	Political Status	Currency Used	Since
Andorra	Independent	French franc/euro, Spanish peseta/euro	1278
Cook Islands	New Zealand self-governing territory	New Zealand dollar	1995
Cyprus, Northern	de facto independent	Turkish lira	1974
Greenland	Danish self-governing region	Danish krone	Before 1800
Guam	U.S. territory	U.S. dollar	1898
Kiribati	Independent	Australian dollar, own coins	1943
Liechtenstein	Independent	Swiss franc	1921

Country	Political Status	Currency Used	Since
Marshall Islands	Independent	U.S. dollar	1944
Micronesia	Independent	U.S. dollar	1944
Monaco	Independent	French franc/euro	1865
Nauru	Independent	Australian dollar	1914
Northern Mariana Islands	U.S. commonwealth	U.S. dollar	1944
Palau	Independent	U.S. dollar	1944
Panama	Independent	U.S. dollar notes and coins, Panamanian balboa coins	1904
Puerto Rico	U.S. commonwealth	U.S. dollar	1899
Saint Helena	British colony	pound sterling	1834
Samoa, American	U.S. territory	U.S. dollar	1899
San Marino	Independent	Italian lira/euro, own coins	1897
Tuvalu	Independent	Australian dollar, own coins	1892
Vatican City	Independent	Italian lira/euro, own coins	1929
Virgin Islands, U.K.	British dependency	U.S. dollar	1973

Country	Political Status	Currency Used	Since
Virgin Islands, U.S.	U.S. territory	U.S. dollar	1934

**Sources:** *The Statesman's Year-Book*, various issues; IMF

**Table 2.2 : Countries with Bi or Multi-monetary Systems**

Country	Political Status	Currency Used	Since
Bahamas	Independent	Bahamian dollar, U.S. dollar	1966
Bhutan	Independent	Bhutan ngultrum, Indian rupee	1974
Bosnia and Herzegovina	Independent	Bosnian convertible marka, German mark, Croatian kuna, Yugoslav dinar	1998
Brunei Darussalam	Independent	Brunei dollar, Singapore dollar	1967
Cambodia	Independent	Cambodian riel, U.S. dollar	1980
Isle of Man	British dependency	pound sterling, local pound	1800s
Lesotho	Independent	Lesotho loti, South African rand	1974
Liberia	Independent	U.S. and Liberian dollars	1944
Luxembourg	Independent	Luxembourg franc/euro, Belgian franc/euro	1945
Namibia	Independent	Namibian dollar,	



		South African rand	1993
Zimbabwe	Independent	US Dollar, South African Rand, Pula, British Pound	2009

**Sources:** IMF Exchange Arrangements and Exchange Restrictions, various issues

### **Effects of Dollarisation**

The general economic benefits of pursuing dollarization include:

#### Reduction in transactions costs

Dollarization reduces the transaction costs associated with international trade and finance with the host country, that is, eliminating currency conversion would allow trade to flow more easily. According to Fischer (1982) and De Grauwe (2000) the elimination of costs of exchanging the domestic currency into the currency of the anchor currency is the most visible effect of dollarization.

#### Financial Integration

According to Frankel and Rose 1998; Rose and Engel 2000a; Dallas and Tavlas 2001, dollarization fosters and promotes a country's integration with the economy of the issuing country as well as with world economy. Dollarization improves monetary integration and financial stability as a stable currency is a precondition for financial development (Hausmann et al. 1999; Berg and Borensztein 2000), that ultimately leads to strong and steady economic growth.

#### Increased credibility of regulatory institutions

Dollarisation is expected to foster macroeconomic stability by solving the credibility problem that arises when a domestic central bank is unable to pre-commit itself to a low rate of inflation (Barro and Gordon 1983; Goldfajn and Olivares 2000 Perez (2012)). On the other hand, Chang and Velasco (2001) argue that dollarization acts as a commitment device which ushers in policy credibility, and takes steam off adverse inflation expectations and thus results in relative price stability.

#### Elimination of Exchange Rate Risk

Dollarization eliminates currency risk or the possibility of currency devaluation (Ford 2009). By adopting a larger and more powerful currency, investors will no longer fear that depreciation will diminish their assets. [Perez 2012] The elimination of exchange rate changes as a result of dollarization is expected to lead to a more stable environment for foreign investment. Benefit from the lower transaction costs may promote international trade and investment because there is no need to buy and sell foreign currencies (Naranjo 2000).

#### Low inflation rate

Dollarization limits the possibility of high inflation as by dollarizing, a country adopts the host country's monetary policy as its own. As long as the host country's monetary policy is prudently managed, the inflation environment in the dollarized economy should remain subdued (Perez, 2012). Thus with dollarization, the inflation rate may remain low, assuming that the U.S. inflation rate does the same, and low inflation may keep nominal interest rates low.

According to Alesina and Barro (2001), the adoption of another country's currency eliminates the inflation bias problem of discretionary monetary policy. In addition, by eliminating exchange rate volatility, dollarization encourages international trade and economic growth at large (Dornbusch, 2001). According to a study by Sebastian Edwards and Igal Magendzo (2001), inflation is significantly lower in dollarized nations compared to the non-dollarized ones.

#### Lower interest rates

Dollarization may lead to a convergence of domestic interest rates of the concerned country with those of the host country i.e. U.S. (Schuler 1999). It may lead to lower interest rates, higher foreign direct investment(FDI) inflows, decreased transaction costs in international trade, and higher economic growth rate (Bergand Borensztein 2000; Towersand Borzutzky 2004).

#### Creation of better management

With dollarization, the Central Bank's function is reduced to a regulatory institution. It does not have the power to rescue and bailout underperforming banks, thus reducing the moral hazard problem banks face. According to Perez (2012) this creates better management in banks and increases financial efficiency.

According to Luis Eduardo Rivera-Solis (Year not cited) dollarization leads to the opening up of the financial system increasing the mobility of capital. The increased capital mobility leads to greater competition and efficiency. In addition the financial system is brought closer to international markets resulting it becoming more integrated with the rest of the world.

#### **Costs of Dollarisation**

Although dollarization is viewed as a stabilization tool, it is associated with costs to the economy of a country that adopts it. A dollarized country relinquishes several important policy instruments as mechanism enabling it to adjust in the wake of asymmetric shocks and to react to fluctuations in the business cycle that are not in line with those in the anchor country.. For instance, monetary policy in a dollarized economy is made by the host country's Central Bank; Ford (2009)

### Loss of Seigniorage

The most direct cost of dollarisation is the loss of seigniorage revenues from issuing a domestic currency, as these revenues will shift from the domestic monetary authority to the host or anchor monetary authority who issues the currency being used.

In other words, since the country eliminates its currency and adopts foreign currency as legal tender, the central bank can no longer print units of domestic currency at a minimum cost and use it to finance public spending. According to Kessy (year not cited) full dollarization eliminates possibility for governments to finance fiscal deficit with seigniorage.

Adopting a foreign currency as the official currency has both political and economic ramifications for a nation. The loss of sovereignty that accompanies the surrender of monetary policy control, and abandoning the national currency is a likely source of discomfort across the political divide.

Although difficult to quantify, the decision to use another country's currency can diminish the sovereign authority of a government *vis a vis* internal and external politics. Currencies; like

languages, can serve to promote national unity and are often viewed as tangible symbols of a country's identity as are flags, postage stamps, and anthems.

#### Restricted Lender of Last Resort Function

Dollarisation removes the central bank's ability to print money and consequently the Central Bank cannot fully play its role of lender of last resort and is thus incapacitated to bail-out the financial sector in the event of shocks. This may exacerbate financial fragility and the possibility of crises (Ford 2009, Chang and Velasco, 2001 Perez (2012)). However, this view is disputed by Eichengreen (2001) who pointed out that in a dollarized economy the absence of lender of last resort reduces moral hazard as it will force banking institutions to acknowledge that they are no longer protected by the financial safety net and hence will be operated in a prudent manner. This will improve the safety and soundness of banks and ultimately to banking system stability.

However, Chang (2000) believes the inability of the central bank to lend money and prevent financial institutions from failing may lead to potential widespread insecurity and distrust of financial intermediation and an increased inability to control domestic inflation (Chang, 2000).

#### Loss of independent monetary policy control

A country with its own currency, typically issued by a central bank, can exercise its own monetary policy. In theory this enables it to manage its money supply, interest rates, and to respond aggressively to economy-wide shocks (Bogetic, 2000). Dollarisation results in the loss of this independent monetary policy control. In other words the absence of a national currency, a

country's Central Bank loses the ability to set interest rates, control money supply and employ other policy measures to mitigate the effects of economic recession.

In addition Fisher (1976), pointed out that dollarization incapacitates a country's policy makers to react to external shocks including terms of trade and world interest rate disturbances. Consequently, this will translate to greater instability and lower economic growth.

## **BANKING SYSTEM STABILITY**

### **Introduction to Banking System Stability**

Banks are identified as key financial institutions and are central to the smooth functioning of the financial system and their failure would cause a systemic crisis via greater susceptibility to runs and the operation of the payments system leading to financial instability.

ESB Financial Stability Review (2010) define financial stability as a condition in which the financial system – which comprises financial intermediaries, markets and market infrastructures – is capable of withstanding shocks and the unravelling of financial imbalances, thereby mitigating the likelihood of disruptions in the financial intermediation process that are severe enough to significantly impair the allocation of savings to profitable investment opportunities. Banking sector is by far the most central part of the financial system in most of the emerging economies and is, therefore, also the main source of risk for financial stability.

According to Barth, Caprio and Levine (2000), stable banking systems are an important component of well-functioning financial systems. Severe disruptions in the intermediation

process of banks can even lead to financial crises and, in some cases, undo years of economic and social progress.

Deutsche Bundesbank (2003) defines banking system stability as “steady state in which the financial system efficiently performs its key economic functions, such as allocating resources and spreading risk as well as settling payments”. In other words banking system stability is related to a sound banking system that primary constitutes of solvent financial institutions fulfilling above named functions. This is further affirmed by AMAO (2009) who regarded it as a situation whereby the performance of the financial system’s various components and especially their mutual dealings, are soundly conducted and without major disruptions.

Banking crises happen in both well developed and less developed countries. Broadly defined, a banking crisis occurs when the stability of the banking system is threatened and is characterized by a run or widespread runs on deposits. Dollarized economies have experienced in recent years a number of severe banking and currency crises in which runs on bank deposits, have played a major role.

Caprio and Klingebiel (1997) define a banking crisis as a situation where actual or incipient bank runs or failures lead to suspend the internal convertibility of their liabilities or force the government to intervene to avert this by replacing a significant share of the banks’ capital. Gupta (1996) describes a banking crisis as a situation in which a significant group of financial institutions have liabilities exceeding the market value of their assets, leading to portfolio shifts or to deposit runs and/or the collapse of financial institutions and/or government intervention.

The IMF (1998) defines a banking crisis as a situation, in which bank runs and widespread failures induce banks to suspend the convertibility of their liabilities, or which compels the government to intervene in the banking system on a large scale.

Carstens, Hardy and Pazarbasioglu (2004) A banking system in which good banking practices prevail may suffer a disturbance or even a crisis, but the consequences for the rest of the economy may be contained, and recovery may be quick.

### **Determinants of Banking System Stability/Causes of Banking Crises**

According to the Reserve Bank of India (2012) in its Financial Stability Report tight liquidity, deteriorating asset quality (Delis and Kouretas, 2011) and reducing soundness are the major contributors to the decline in stability of the banking system. This was further supported by Herrero and del Rio (2003) who noted that excessive credit growth and low levels of liquidity in the banking system have been found to increase the likelihood of banking crises. The same view was expressed by Ottens, Lambregts and Poelhekke (2005), IMF (2004), Borio and Lowe (2002) and Eichengreen and Arteta (2000) who found that rapid lending growth is an important leading indicator of banking sector problems.

Luis I. Jácome H. (2008) pointed out that from a microeconomic perspective, “bad banking practices” in an environment of weak supervision may fuel financial instability in general and banking crises in particular. In countries in which the banking sector is liberalised but bank supervision is weak and legal remedies against fraud are easy to circumvent, banking crises may



also be caused by widespread looting; bank managers not only may invest in projects that are too risky but they may also invest in projects that are sure failures but from which they can divert money for personal use. This was affirmed by Demirgüç-Kunt and Detragiache (1998) who demonstrated in their study that countries with weak law enforcement are more prone to banking crises.

On macroeconomic causes of banking crises, Demirgüç-Kunt and Detragiache (1998) find that the risk of a banking crisis is heightened by slow or negative economic growth and soaring real interest rates. In addition, Von Hagen and Ho (2004) and Eichengreen and Arteta (2000) conclude that higher fiscal deficits increase the probability of banking crises. Eichengreen and Rose (1998) pointed out that higher world interest rates and slower world growth increase the probability of crises in emerging markets. Caprio and Klingebiel (1996) find that a sharp deterioration of a country's terms of trade induces banking crises.

In the context of institutional factors, Demirgüç-Kunt and Detragiache (1998) find a significant positive relationship between having an explicit deposit insurance scheme and financial sector problems. This indicates that deposit insurance can give rise to moral hazard problems, thereby undermining financial sector stability.

Jahn and Kick (year not cited) studied the determinants of banking sector stability in German and concluded that the three components that well describe the current and expected condition of the German banking sector are: the individual banking institutions' standard probability of default, a credit spread (i.e., the average bank risk premium) and a stock market index for the banking sector ("Prime Banks Performance Index").

Perez (2012) studied the banking system in Ecuador and found out that the stability of Ecuador's banking system is highly correlated with the Gross Domestic Product, liquidity, financial efficiency, the proportion of productive assets, the percentage of past-due loans, the ratio between total assets and total liabilities, and the degree of concentration of the banking sector.

Degryse, Elahi and Penas (2012) noted that banking system fragility is determined by liquidity, capitalization, concentration, diversification, and presence of foreign banks. It is critical to understand how these variables are managed in a dollarized environment given that they are important ingredients for ensuring banking system stability.

### **Measures of Banking System Stability**

A study by **Beck, Hesse, Kick and von Westernhagen (2009)** focused on three indicators of financial/banking stability namely, the z-score as measure of distance from insolvency, the NPL-score as indicator of lending risk, and the probability of distress score (PD-score) as measure of actual insolvency risk. This study will focus on the NPL ratio as a proxy for banking system stability. According to **Vatansever1 and Hepşen (2013)** there is a growing recognition that the quantity or percentage of non-performing loans (NPLs) is related to bank failures and the financial status of a country.

### **POLICIES/MEASURES TO ENSURE BANKING SYSTEM STABILITY**

According to Carstens, Hardy and Pazarbasioglu (2004) economies are inherently prone to shocks that will be transmitted through the financial system in general and the banking system in

particular. Financial or monetary policies/measures put in place by monetary authorities can have a large influence on whether a given shock results in a crisis or a milder disturbance, and how severe any crisis might be. What is critical is how monetary authorities respond to limit the impact of these crises on banking system stability. Some of the common policies and measures put in place to prevent banking crises by monetary and regulatory authorities are discussed hereunder.

### **Regulatory and Supervisory Systems/Prudential Regulation and Supervision**

As shown in the recent financial turmoil, regulation affects the resilience of financial institutions to a crisis. Countries with strong regulatory and institutional frameworks have been less prone to financial distress. A well-designed regulatory framework can also help reduce the potential detrimental effects of competition on financial stability, in particular by improving banks' risk taking incentives. In other words, regulation can make banks less inclined to take on excessive risk.

New banking reforms and regulations were introduced to strengthen the financial structure of banks, to establish a sound and stable financial system and to increase the efficiency of supervision in the banking sector.

Regulation refers to the set of laws and rules applicable to banking, and "supervision" is defined as the monitoring by authorities of banks' activities and the enforcement of banking regulations. It subjects banks to certain minimum requirements, restrictions and guidelines.

An adequate and effective banking regulatory and supervisory framework is paramount in ensuring stability of the financial system. According to Agustin G. Carstens, Daniel C. Hardy and Ceyla Pazarbasioglu (2004) an appropriate and effective prudential regulation and supervision help promote good banking practices, and therefore reduce vulnerability to crisis and their likely severity.

Literature cites weak regulatory and supervisory systems as one of the causes of banking sector crises particularly in developing nations. Hoque (2009) and Ingves (2002) pointed out that lack of appropriate regulatory and supervisory frameworks in the context of financial liberalization contributed significantly to the bank crises for example the Mexican crisis of 1994. This view was supported by Drees and Pazarbasioglu (1995), and Pesola (2001) who examined banking crises in the Nordic countries and cited weak banking regulation and supervision among others as one of the causes of the crises.

Given the above it is not surprising that one of the policies or measures monetary authorities implement to ensure the safety and soundness of banks and ultimately banking system stability is creating and sustaining a strong bank regulatory/supervisory system.

A bank regulatory and supervisory system consists among others of the following prudential elements only on- and off-site supervision, market discipline,

Researchers on bank regulation have classified it into different categories. According to Tchana (2008) banking regulations can be grouped into three broad categories: regulatory measures affecting the bank's balance sheet (e.g. capital requirements and asset holding restrictions), regulatory measures affecting the structure of the banking system (separation of the banking and securities industries), restrictions on competition, and regulatory measures for banks' ownership and management.

Mishkin (1998) suggested seven basic categories of banking regulation namely the government safety net, restrictions on bank asset holdings and capital requirements, chartering and bank examination, disclosure requirements, consumer protection, restrictions on competition, and separation of the banking and securities industries. This study will focus on capital regulation, liquidity requirements and credit restrictions which are discussed hereunder.

### **Liquidity Regulation**

Liquidity is regarded as the life blood of the economy and in its absence financial markets cease to function efficiently. According to PWC (2010) a lack of liquidity can cause the failure of an institution even when it is solvent. Liquidity risk management is of paramount importance because a liquidity shortfall at a single institution can have system-wide repercussions. A liquidity crisis in the banking system seriously undermines the stability of the financial system and results in loss of market confidence.

Liquidity regulation involves the setting of minimum prudential liquidity requirements that banks have to comply with during their day to day operations. It involves subjecting banks to

certain requirements, restrictions and guidelines on liquidity management. Until the recent global financial crisis liquidity regulation had not received much attention compared to capital regulation.

According to the IMF (2006) the supervisory framework of a highly dollarized banking system should include two elements: (i) a risk based supervision of liquidity risks and their management; and (ii) some type of minimum liquidity requirement to ensure that banks internalize the liquidity risks of operating in a dollarized environment. According to *Cayazzo, Pascual, Gutierrez, and Heysen (2006)* many highly dollarized countries, in addition to guidelines for the management of liquidity risks and limits on mismatch limits utilise, a combination of prudential measures, mostly minimum liquidity ratios and reserve requirements to ensure that banks, and the banking system as a whole, have an adequate buffer of liquid assets to face stressful conditions.

**Cash Reserve Requirements:** The cash reserve requirement also known as the **cash reserve ratio** or **statutory reserve ratio** is the oldest form of liquidity regulation. The reserve requirement is the minimum fraction of customer deposits that a bank must maintain with the central bank. The central bank will determine from time to time such proportion or ratio. Statutory reserve ratio for banks is defined as a percentage of a bank's deposit holdings that must be preserved by the Reserve Bank as a form of security.

**Liquid Assets Ratio:** Another important instrument used in liquidity regulation is the statutory liquidity ratio (Liquid Assets ratio). The statutory liquidity ratio is the amount of liquid assets that that a bank must maintain in relation to its short term liabilities. According to the Reserve

Bank of India (1999) it is the ratio between its liquid claims and liquid liabilities. The minimum percentage is determined by the central bank. Eastern Caribbean Central Bank (2005) define liquid assets as cash, marketable securities and any other assets that can be easily and cost effectively converted to cash and usually nearing maturity or maturing within 90 days<sup>1</sup>.

The regulation aims to ensure that banks always have sufficient liquidity to meet foreseeable and conceivable payment liabilities over a specified period so as to ensure their solvency. Just like the cash reserve requirements, the statutory liquidity ratio can also be used as a monetary policy instrument to control the expansion of bank credit as well as to ensure banks invest in government securities such as treasury bills and government bonds through increasing or decreasing it respectively.

**Minimum Qualitative Liquidity Requirements:** As part of regulating the management of liquidity in banks, regulatory authorities have put in place minimum standards/requirements that banks have to put in place for the prudent identification, measurement, monitoring and management of liquidity risk. The minimum standards address the following elements of a sound liquidity risk management:

- Active and appropriate Board and Senior management oversight;
- Adequate risk management policies and procedures;
- Appropriate risk measurement methodologies, limits structure, monitoring and management information system; and
- Comprehensive internal controls and independent audits

## Credit Regulation

Lending-limit regulations restrict the total amount of loans and credits that a bank may extend to individual counterparties or groups of connected counterparties. Such limitation may be expressed as a proportion of the bank's assets or equity, and different limits may apply based on the security held and/or the credit rating of the counterparty. In general, quantitative risk limits serve to constrain the riskiness of financial institutions and reduce the potential for a sudden shock (e.g. counterparty default) to render them insolvent.

According to Mishkin (2000) **the main** problem in the banking sector, particularly in emerging market countries, is connected lending, lending to the financial institutions' owners or managers or their business associates. Financial institutions clearly have less incentive to monitor loans to their owners or managers, thus increasing the moral hazard incentives for the borrowers to take on excessive risk, thereby exposing the institution to potential loan losses. In addition, connected lending in which large loans are made to one party can result in a lack of diversification for the institution, thus increasing the risk exposure of the bank.

Thus prudential supervision to restrict connected lending are clearly necessary to reduce banks risk.



A comprehensive approach is required to resolve the non-performing loans problem in order to preemptively prevent a financial crisis from arising. NPLs squeeze banking institutions' margins, erode bank capital and weaken their capacity to underwrite new business. In addition, NPLs can potentially undermine the soundness of a country's banking systems and bring down investors' confidence in a banking system.

### **Capital Regulation**

According Morrison & White (2005) capital regulation can play an important role in preventing banking crises by improving the quality of banks. Capital requirement (also known as Regulatory capital or Capital adequacy) is the amount of capital a bank has to hold as required by its regulatory authorities. In other words this is the amount of funds that a financial services firm is required to hold as a buffer to offset unexpected losses in asset values, such as an unexpected and large increase in non-performing loans (Rojas-Suarez, 2013). This is usually expressed as a capital adequacy ratio of equity that must be held as a percentage of risk-weighted assets. These requirements are put into place to ensure that these institutions do not take on excess leverage and become insolvent.

Capital adequacy besides being a determinant of bank profitability, is also an important barometer of the safety and soundness of a banking institution. Since the major objective of regulators is ensuring the stability of the banking sector, capital adequacy has become an important element in the regulation and supervision of banks. Regulators have set minimum

capital standards for banks primarily for three reasons namely (i) for prudential purposes (Jackson, et al. 1999), (ii) to mitigate against moral hazard problems (Benston and Kaufman, 1996) and (iii) to protect depositors (Craig and Hardee, 2007). Laeven (2011) pointed out that capital adequacy levels are set on the implicit assumption that by creating buffers to absorb unexpected shocks at individual banks, the system as a whole is safer.

The same view was supported by Gudmundsson, Ngoka-Kisinguh and Odongo (2013) who pointed out that capital adequacy regulation is often viewed as a buffer against insolvency crises, limiting the costs of financial distress by reducing the probability of insolvency of banks (Barrell et al., 2009; Miles et al., 2011; Caggiano and Calice. 2011). Irrespective of the viewpoint, a general consensus is that banks with higher capital and liquidity buffers are better able to support businesses and households in bad times since buffers enhance the capacity of banks to absorb losses and uphold lending during a downturn.

According to Cayazzo, Pascual, Gutierrez, and Heysen (2006) regulatory authorities in highly dollarized banking systems also need to make sure that banks hold enough capital to cover from credit risk caused by unexpected changes in the exchange rate. High capital adequacy ratios provide a solid buffer against adverse shocks to credit quality as confirmed by a macro-stress-test exercise.

### **Prompt Corrective Actions**

According to Batra (2002), quick action by prudential supervisors to stop undesirable activities by financial institutions and, even more importantly, to close down institutions that do not have

sufficient capital is critical if banking crises are to be avoided. In that regard regulatory authorities have put in place robust Prompt Corrective Action (PCA) programs as one of the measures to ensure rapid identification of banking weaknesses and implementation of corrective actions. Neal (2010) notes that Prompt Corrective Action framework is a time bound compulsory and progressively harsh intervention technique that reduces the opportunity for regulatory forbearance.

PCAs are the most widely recognized tool for early intervention which require supervisors to intervene earlier and more vigorously when a financial institution gets into trouble. According to Mishkin (2000) prompt corrective action is crucial to preventing problems in the financial sector because it creates incentives for institutions not to take on too much risk in the first place, knowing that if they do so, they are more likely to be punished.

Hoelscher and Ingves (year not cited) highlighted that good supervision will identify problems when they are still manageable. The earlier difficulties are detected, the more options are available. However, the authorities must move quickly to address small problems before they become big problems. Rapid and efficient action can limit subsequent costs and economic disruption. An equally important part of crisis prevention is planning for crises. Supervision cannot prevent banking failures. The authorities should be prepared, with clear options for addressing emerging and worsening crisis cases.

## **Macro-prudential Regulation**

Macroprudential regulation has emerged as an important tool in banking regulation aimed at mitigating the risk of the financial system as a whole or "systemic risk" Laeven (2011). It is an approach that focuses on the systemic risks arising from the collective action of financial institutions. The purpose is to dampen the build-up of systemic risk and ensure that the banking system as a whole is resilient to shocks. In other words macroprudential regulation seeks to reduce the probability of a crisis and counteract harmful effects in the financial system when a crisis occurs.

Good micro-prudential supervision is able to identify excessive or poorly managed risks in financial institutions and intervene to curb the risks or ensure that they are adequately cushioned through provisions and capital.

According to Borio (2003), the macro- and microprudential perspectives differ in terms of their *objectives* and understanding on the nature of *risk*. Traditional microprudential regulation seeks to enhance the safety and soundness of individual financial institutions, as opposed to the macroprudential view which focuses on welfare of the financial system as a whole.

In line with this reasoning, macroprudential policy addresses the interconnectedness of individual financial institutions and markets, as well as their common exposure to economic risk factors. It also focuses on the procyclical behavior of the financial system in the effort to foster its stability.

### **Financial Safety Nets**

According to Batra (2002) financial safety nets and resolution policies play an important role in the prevention and management of financial crisis. Financial safety nets (FSN) are vital elements for maintaining banking system stability in any economy. The comprehensive framework for the

financial safety nets clearly prescribes the roles and responsibilities of each agency and the coordination mechanisms amongst them in the prevention and resolution of crisis.

The framework includes official liquidity or lender- of- last -resort support, deposit insurance, insolvency laws and procedures and arrangements for the systemic restructuring of weak or failed financial institutions. When appropriate institutional arrangements are in place in these areas, and their functioning is well understood and seen as credible by markets they will help to restore confidence and reduce the susceptibility of individual financial institutions, the financial system and the economy as a whole.

### **Lender of Last Resort Facility**

In addition to prudential liquidity requirements monetary authorities through the central bank intervene in its role as lender of last resort providing liquidity to avert the failure of a financial institution. Central banks act as lenders of last resort (LOLR) in financial crises by providing liquidity to banks which are solvent but temporarily illiquid.

However, dollarized economies may not have the luxury of using the lender of last resort facility or emergency liquidity support. Alternatively monetary authorities in dollarized economy may use among others the following in the case of a crisis:

- governments may choose to issue a blanket guarantee on all bank liabilities, including both deposit and non-deposit liabilities, to restore confidence in the financial system.
- Utilizing international reserves that were creating specifically to assist in liquidity crises.

## Monetary Policy

A central bank has a number of monetary policy tools that can affect banking system stability. These tools can be used to help prevent and mitigate banking crises. Monetary policy tools are ordinarily aimed at affecting the demand for and supply of money, primarily open market operations and reserve ratio requirements.

Monetary policy is the process by which the government, central bank, or monetary authority of a country controls (i) the supply of money, (ii) availability of money, and (iii) cost of money or rate of interest to attain a set of objectives oriented towards the growth and stability of the economy.

Monetary policy uses a variety of tools to control one or both of these, to influence outcomes like economic growth, inflation, exchange rates with other currencies and unemployment. The distinction between the various types of monetary policy lies primarily with the set of instruments and target variables that are used by the monetary authority to achieve their goals.

**Table 2.3 Monetary Policy Tools**

<b>Monetary Policy:</b>	<b>Target Market Variable:</b>	<b>Long Term Objective:</b>
Inflation Targeting	Interest rate on overnight debt	A given rate of change in the CPI
Price Level Targeting	Interest rate on overnight debt	A specific CPI number
Monetary Aggregates	The growth in money supply	A given rate of change in the CPI
Fixed Exchange Rate	The spot price of the currency	The spot price of the currency
Gold Standard	The spot price of gold	Low inflation as measured by the gold price

Monetary policy needs to be conducted with an eye to financial stability. The primary objective of monetary policy is low and stable inflation. Extended periods of low interest rates encourage excessive lending. This causes bubbles to grow and results in large macroeconomic effects once they pop. Therefore monetary policy should be conducted to pop bubbles before they become major economic threats. A strong and robust economy with low inflation provides a key stabilizing force for financial markets.

According to Bouwman (2013) statutory reserves were not viewed only as a source of liquidity for deposits but also as a monetary policy tool used by the central bank to influence the country's borrowing and interest rates by changing the amount of funds available for banks to make loans with. The use of the reserve requirement as a monetary policy tool is based on the premise that the higher the set reserve requirement is set, the less funds banks will have to loan out, leading to lower money creation and perhaps ultimately to higher purchasing power of the money previously in use.

May Toe Win (date not cited) however argue that the importance as a monetary control instrument has been declining since the early 1990s. The major reasons for the decline according to Bouwman (2013) was it became too costly no interest is paid by central banks on such statutory reserves and in this case of a rising interest rate environment increase the cost that banks incurred for satisfying reserve requirements. Further notes that most central banks rarely alter the reserve requirements because it would cause immediate liquidity problems for banks

with low excess reserves; they generally prefer to use open market operations (buying and selling government-issued bonds) to implement their monetary policy.

### **Institutional Structure of the Banking Sector**

The institutional structure of the banking sector is critical in fostering the stability of the banking sector. The way the institutional structure of the banking sector is configured is a central determinant of the stability of the financial system as a whole and crucial in making banks more resilient to shocks, easier to fix when they get into difficulties, and to reduce the severity of future financial crises. The most important components of the institutional structure of the banking sector relate to the following:

- Openness and competitiveness;
- Ownership structure;
- Level of restrictions; and
- Degree of integration.

Authorities can put in place policies and regulations that regulate the above components which in turn has an impact on the stability of the banking sector. These components are discussed hereunder.



### Regulatory Restrictions

Banking institutions are subject to a number of regulatory restrictions. More specifically, countries with a regulatory environment that inhibits the ability of banks to engage in the businesses of securities underwriting, brokering, dealing, and all aspects of the mutual fund business tend to have more fragile financial systems.

Literature indicates that more open and less restricted banking sector is associated with increased soundness of the banking system. According to Barth, Caprio and Levine (2000) fewer regulatory restrictions may increase the franchise value of banks and thereby augment incentives for bankers to behave more prudently, with positive implications for bank stability. The authors concluded that fewer regulatory restrictions on the activities of commercial banks and the mixing of banking and commerce may produce more efficient and more stable financial systems.

Barth et al (2000) also noted that countries with greater regulatory restrictions on the securities activities of commercial banks have a substantially higher probability of suffering a major banking crisis.

### Financial Integration

According to De Brouwer (2005) financial integration is the process through which financial markets in an economy become more closely integrated with those in other economies or with those in the rest of the world. It implies the elimination of barriers for foreign financial institutions from some (or all) countries to operate or offer cross-border financial services in others.

Various forms of actual financial integration include: Information sharing among financial institutions; sharing of best practices among financial institutions; sharing of cutting edge technologies (through licensing) among financial institutions; firms borrow and raise funds directly in the international capital markets; investors directly invest in the international capital markets; newly engineered financial products are domestically innovated and originated then sold and bought in the international capital markets; rapid adaption/copycat of newly engineered financial products among financial institutions in different economies; cross-border capital flows; and foreign participation in the domestic financial markets.

Successful dollarization requires full financial integration, as banks would now play a critical role in the maintenance of monetary and balance of payments equilibrium. Whenever there is excess demand for funds, banks should be able to source them from abroad. Similarly banks should be able to invest funds abroad in the event of an excess supply.

The extent to which the banking system in a country is integrated is an important determinant of banking stability. Literature indicates two schools of thoughts in respect of the impact of financial integration on banking system stability. According to Azis (2011) financial integration can cause greater volatility and vulnerability. A higher degree of financial integration can generate a severe financial contagion in neighboring, regional and/or global economies.

On the other hand Levine (2001) shows that financial integration helps strengthen domestic financial sector allowing for more efficient capital allocation and greater investment and growth

opportunities. It must be noted that a more integrated financial market can also serve as a safety net that will strengthen financial stability.

### Competitiveness

Recent studies have shown that the competitiveness of the banking sector is an important determinant of banking sector stability. Thus regulatory authorities can influence banking stability through putting in place policies that influence the competitiveness of the banking sector.

Previous studies show conflicting views on the impact of competitiveness on banking stability. According to Fernández and Garza-García (2012) greater bank competition produces financial instability by decreasing the degree of market power in the banking sector, which consequently erodes profits and reduces franchise value. The same view was supported by Keeley (1990) finds that increased banking competition and deregulation in the US during the 1990s decreased monopoly rents and contributed to bank failures. Jimenez et al. (2007) study the banking sector in Spain and find that greater banking competition is associated with a higher risk loan portfolios (increased non-performing loans).

However, recent studies have argued in favour of a positive relationship between bank competition and financial stability. Beck et al. (2006) study a group of 69 countries and find that countries experiencing less market concentration are less likely to suffer a financial crisis.

### Openness

The presence of foreign institutions can boost competition and improve the operation of the domestic market which in turn has an impact on banking stability. Foreign institutions are expected to strengthen financial stability in host countries by improving the solvency and liquidity of host country banking systems.

Banking sector solvency improves because foreign banks are better capitalized than their domestic peers. Moreover, they provide ‘reputational capital’ (Hellman and Murdock 1998) due to their long presence in the financial markets of mature economies. Finally, foreign banks have superior credit technologies, better management expertise and governance structures and are less open to government and political interference than domestic banks (Detragiache et al. 2008). Banking sector liquidity is enhanced because depositors’ trust in the stability of foreign institutions makes local bank runs less likely. Moreover foreign banks mitigate the risk of sudden stops and capital flow reversals as parent banks will provide the needed international liquidity in crisis periods to safeguard their investments in the respective host countries (Moreno and Villar 2005).

Vogel and Winkler (2010) found out that countries with a high share of banking sector assets held by foreign banks experienced a more stable pattern of cross-border bank flows during a banking crisis than countries with a low share of banking sector assets held by foreign institutions.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **INTRODUCTION**

This chapter covers the research design and methodology that was used in this study to collect and analyse the data so as to achieve the research objectives.

#### **RESEARCH DESIGN**

##### **Overview...**

A research design is the overall configuration of a piece of research (Easteby-Smith et al 1991). It includes the nature of the evidence gathered and from what source. It also includes the methods used to interpret that data i.e. used to provide answers to the basic research questions. In other words research designs are procedures for collecting, analyzing, interpreting, and reporting data in research studies. Parahoo (1997) describes a research design as “a plan that describes how, when and where data are to be collected and analysed”.

##### **Research design...**

The research design for this study is a descriptive and explanatory/interpretive case study that is analysed largely through both qualitative and quantitative methods. To define the descriptive type of research, Creswell (1994) stated that the descriptive method of research is to gather information about the present existing condition. The emphasis is on describing the nature of a situation, as it exists at the time of the study and to explore the cause/s of particular phenomena. In descriptive researches, the problem is known, but researchers are not fully comprehension of the situation. In this case, researcher needs to describe and explain the research problem (Dane, 1990). Descriptive research answers questions such as whom, how, what, and where, but does not give any explanations about the results. Descriptive research collects information about the current status (what is found) of the phenomenon with respect to the conditions of the situation (Jackson, 1994). Descriptive studies most often involve quantitative research techniques or a combination of qualitative and quantitative method.

According to Burns and Grove (2003:201), descriptive research “is designed to provide a picture of a situation as it naturally happens”. It may be used to justify current practice and make judgment and also to develop theories. For the purpose of this study, descriptive research will be used to obtain an understanding of measures implemented by dollarised countries to maintain the stability of their banking systems.

In addition to the descriptive aspect, the research will also involve some explanatory research aspects. Explanatory research assesses the causal relationships between variables. This type is also called causal research. Explanatory research can be used to show that one variable causes the values of another variable (Miles, et al., 1994). Explanatory research involves quantitative studies and hypothesis testing.

The approach to be used for this study will be a mixed method approach which, according to **Creswell (2002)**, is a procedure for collecting, analysing and mixing both qualitative and quantitative data at some stage of the research process within a single study to understand a research problem more completely.

Quantitative Research is fundamentally an inferential enterprise that seeks to uncover universal principles and is philosophically and methodologically built or *designed* around the ability to infer from a sample to a larger population. This research method uses deductive approaches, try to measure objective facts and formulate theories. According to Stake, 1995, in quantitative studies, the research question seeks out a relationship between small numbers of variables.

**A qualitative research method is** fundamentally an interpretive enterprise that is context-dependent. It is philosophically and methodologically built or *designed* around the ability to interpret (comprehend/understand) a phenomenon from an *emic* (insider), as well as an *etic* (outsider) perspective. In other words qualitative research methods use inductive approaches, try to explore, interpret and construct meanings from data, phenomena and especially human behaviours.

Burns and Grove (2003:19) describe a qualitative approach as “a systematic subjective approach used to describe life experiences and situations to give them meaning”. Parahoo (1997:59) states that qualitative research focuses on the experiences of people as well as stressing uniqueness of the individual.

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## **VALIDITY AND RELIABILITY**

Validity and reliability of a research is a key determinant of the true value of this research in the practical working life. Reliability is the degree to which an assessment tool produces stable and consistent results while validity refers to how well a test measures what it is purported to measure. In other word while reliability is concerned with the result consistency (Proctor 2005, 208; Saunders, Lewis & Thornhill 2009, 156), validity is about the „honest" nature of the research conclusion and applicability (Ghauri & Gronhaug 2010, 65).

The researcher will ensure validity and reliability of the research as outlined hereunder. The study will make use of triangulation to ensure reliability and vailidity of the research findings. Triangulation refers to the use of more than one approach to the investigation of a research question in order to enhance confidence in the ensuing findings. According to Robson (1997)

triangulation involves evidence from different sources; different methods of collecting data and different investigators. Denzin (1970) pointed out that there are four forms of triangulation as follows:

- *Data triangulation*, which entails gathering data through several sampling strategies, so that slices of data at different times and social situations, as well as on a variety of people, are gathered.
- *Investigator triangulation*, which refers to the use of more than one researcher in the field to gather and interpret data.
- *Theoretical triangulation*, which refers to the use of more than one theoretical position in interpreting data.
- *Methodological triangulation*, which refers to the use of more than one method for gathering data.

The research analysis will take into consideration not only findings from the primary data but a lot of secondary data will also be gathered and interpreted. The secondary data (annual published financial statements and central bank annual reports) are officially published by well-known sources and cannot be manipulated by the researcher or the respondents.

## **RESEARCH STAGES...**

### **Literature Review...**

The **first stage** of the study involved a detailed review of relevant literature on banking sector stability and dollarization. The focus of the literature review was to ascertain the following:

- determinants of banking system stability where a country is using foreign currency as legal tender;
- challenges or effects of dollarization on banking systems both in terms of performance and safety and soundness (stability);
- relationship between banking system stability and dollarization.

The sources for this review included data emanated from listed banks' financial reports, published and unpublished books, scholarly journals, business and financial news papers and



other magazines and corporate journals. **Relevant explanatory variables for banking sector stability in a dollarized environment** were derived from detailed review of literature/previous relevant studies.

### **Multiple Case Studies Review...**

The **second stage** involved qualitative multiple case studies of **four countries** that have been operating without their domestic currencies i.e. dollarised. A multiple case study is an empirical inquiry that investigates a phenomenon within its real-life context. In this type of study several cases are examined to understand the similarities and differences between the cases. According to Tin (2003) a *'multiple case study enables the researcher to explore differences within and between cases. The goal is to replicate findings across cases. Because comparisons will be drawn, it is imperative that the cases are chosen carefully so that the researcher can predict similar results across cases, or predict contrasting results based on a theory'*. The four countries to be studied are **Cambodia, Ecuador, El Salvador and Zimbabwe**.

The multiple case studies were undertaken through a **review of relevant literature on the four countries**, with the aim of understanding how authorities in these countries have been monitoring and managing banking sector stability in light of the challenges, constraints or costs inherent in dollarized economies. Comparatively, a review of the nature of policymaking by the Eurozone countries in the face of banking distress was conducted.

Specifically the following areas were addressed:

- a) Ascertain reasons for dollarization including the pre-dollarisation status of the country;
- b) The effect of dollarization on financial stability;
- c) Any banking crisis experienced by the country and how the authorities reacted or addressed them; and
- d) Measures monetary authorities in dollarized economies are taking to maintain the stability of their banking systems including how the explanatory variables derived from the first stage of this study are being managed/monitored to ensure stability given the constraints of a dollarized economy.

The multiple case studies enabled comparisons to be made as well as patterns to be drawn across the four countries that enabled the identification of the common causes of banking sector weaknesses and problems from which the key determinants of banking system stability were distilled and the dimensions and measures necessary to stabilize banking systems identified.

### **Data Collection...**

The **third stage** involved validation of the conceptual framework on determinants of banking stability developed in stage two above using primary data and secondary data from Zimbabwe. This was undertaken in two phases with the first phase involving obtaining primary research data using semi-structured interviews which were carried out with a sample of five (5) senior management staff from the Reserve Bank of Zimbabwe. Convenience sampling was used to select respondents from the Reserve Bank who comprised senior management from the following departments: Bank Licensing, Supervision and Surveillance, National Payments Systems, Exchange Control, and Financial Markets divisions.

A semi structured interview is a primary research method, which relies on interaction between the interviewer and interviewee through alteration between the researcher's questions and the research participant response. The qualitative method of semi-structured interviews was selected to allow comprehensive analysis to understand measures being taken to maintain banking stability from the regulatory authorities' viewpoints as this will allow participants to articulate their subjective opinion.

Purposive or convenience sampling will be used when selecting interviewees and their selection will be informed by the researcher's experience in the financial sector. Purposive sampling will ensure those to be chosen are in the best position or have the right experiences to be able to answer the research questions. This approach is consistent with Zikmund (2003)'s assertion that judgmental/purposive sampling is a non-probability sampling technique in which an experienced individual selects the sample based on how his or her judgment about some appropriate characteristics required of the sample members.

The second phase of the third stage of the study will involve **building quantitative proxies** for the explanatory variables on determinants of banking sector stability and the adoption of the

longitudinal time dimension, specifically the panel study type. Panel study is a powerful type of longitudinal research in which the researcher observes exactly the same people, group, or organisation across multiple time points (Neuman, 2007). The determinants of banking stability were tested using/to empirical data in Zimbabwe for the period 2009 when dollarization commenced to 2013. The data set was obtained from the Reserve Bank Annual and Supervision reports and published financial statements of banking institutions. Other sources of data that will be used to interpret the findings will be derived from regulatory monetary policy statements, IMF Article IV consultations reports, Reserve Bank guidelines/regulations, relevant research and seminar papers, annual reports, statistical abstract, magazines, newspapers and journals.

## **VARIABLES OF THE STUDY**

Variables can be defined as any aspect of a theory that can vary or change as part of the interaction within the theory. It is a characteristic or attribute of an individual, group, educational system, or the environment that is of interest in a research study.

Variables are important to understand because they are the basic units of the information studied and interpreted in research studies. Researchers carefully analyze and interpret the value(s) of each variable to make sense of how things relate to each other in a descriptive study. There are many events that are related to the phenomena of dollarization and banking system stability. To ensure focused attention on specific events, the study will focus on eight *variables (seven independent and one dependent)* identified in the detailed literature review. This research will therefore seek to understand if there is a relationship between the independent variables and the dependent variable i.e. banking system stability. The variables of the study are outlined hereunder.

## **DEPENDENT VARIABLE**

### **Banking System Stability...**

According to Delis and Kouretas, (2011) the common proxies for bank stability are non-performing loans (*NPL*) or the ratio of loan loss provision to total loans. This study will use the ratio of non-performing loans to total loans.

## **INDEPENDENT VARIABLES**

### **Degree of Concentration of the Banking System...**

This variable measures the market power of banks in the sector. The proxy for the degree of concentration in the banking sector is motivated by a study by Beck, Demirguc-Kunt, and Levine (1999) who used the fraction of assets held by the three largest commercial banks as a measure of the degree of concentration in the banking industry.

A study done by the National Bureau of Economic Research found that high concentration leads to high stability in the banking industry. They found that a concentration level of 72% or above was directly correlated to fewer occurrences of banking failure within that nation.

In that regard this study will use the share of total assets of the three largest banks as the measure of bank concentration.

### **Macroeconomic conditions...**

The macroeconomic conditions are an important consideration in banking system stability. The major macroeconomic determinants of banking sector stability and crises are broad and include the rate of inflation, the real interest rate, Gross Domestic Product (GDP) growth, and the fiscal balance [Demirgüc-Kunt and Detragiache (1998) and Duttagupta and Cashin (2011), Hardy and Pazarbasioglu, (1999)].

There is a broad consensus regarding the detrimental effects of adverse macroeconomic conditions on the stability of the banking sector (see, e.g., Von Hagen and Ho, 2007; Frankel and Saravelos, 2010). According to Demirgüç-Kunt and Detragiache, (1998) higher rates of inflation and real interest rates and weaker GDP growth and fiscal position raise the likelihood of banking crises.

This study will use GDP growth as a proxy for macroeconomic conditions.

### **Prudential Regulation and Supervision...**

An adequate regulatory framework is paramount in ensuring stability of the banking system. According to Carstens, Hardy and Pazarbasioglu (2004), an appropriate and effective prudential regulation and supervision help promote good banking practices, and therefore reduce vulnerability to crisis and their likely severity. Effective bank regulation and supervision therefore represents the first line of defence against banking crises.

Conventional prudential regulations, including capital and liquidity requirements and provisions for non-performing portfolios, impose a certain degree of control over lending by banks while seeking to ensure their solvency. The study will use two proxies for prudential regulation and supervision namely capital regulation and liquidity regulation.

### **Bank Capitalisation**

Since central banks have limited powers to lend to commercial banks in a dollarized economy, there is need for commercial banks to have strong capital bases. Regulatory authorities set the minimum capital adequacy requirements both in terms of absolute amount and capital adequacy ratios.

Degryse, Elahi and Penas (2012) find that a greater capitalized banking system is more stable because a higher capital base provides a cushion against insolvency. This further affirmed by Freixas et al. (2000) and Allen and Gale (2000) who argue that a better capitalized banking

system helps in reducing possible contagion effects from individual bank failures in the same country or region.

This study will use the level of bank capitalization as a proxy for capital adequacy.

### Liquidity Regulation

Bank liquidity and the attendant liquidity risk are of critical importance for financial sector stability. According to PWC (2010) a lack of liquidity can cause the failure of an institution even when it is solvent while a liquidity shortfall at a single institution can have system-wide repercussions. A liquidity crisis in the banking system can therefore seriously undermine the stability of the financial system. There is therefore need for prudent liquidity regulation.

The main measure of liquidity is the liquid asset ratio which represents the share of customer and short term funds that could be met if withdrawn unexpectedly. The higher the ratio, the more liquid is the bank and the less it is vulnerability to bank runs. This study will use the liquid asset ratio as the proxy for liquidity.

### **Degree of Integration...**

According to Kehoe (2000) a country whose financial markets are integrated with those in the anchor country e.g. United States would have a lot more to gain from dollarization than would a country whose financial markets are poorly integrated, or at least a lot less to lose.

On the other hand Deev (year not cited) find that in crisis situations the higher connectivity of banking systems enhances the transmission of risk from banking systems in distress to otherwise financially healthy countries. In that regard the degree of integration of a country's banking

system with the world economy is a crucial determinant of banking sector stability in a dollarized country.

It has been argued that dollarization facilitates financial integration and a better performance of the domestic banking system.

The study will use the fraction of foreign deposits assets held by the entire banking sector as a proxy for the degree of integration of the banking industry.

### **Level of Openness...**

Luis Eduardo Rivera-Solis (year not cited) highlighted that an important benefit of dollarization is the opening up of the financial system. The increased capital mobility resulting from dollarization brings about greater competition and efficiency.

According to Chinn and Ito (2008) the level of openness of a banking system is depicted by the capital account and extent of control over the mobility of capital. An open capital account facilitates capital inflows and credit growth spurred by foreign borrowing [Ursula Vogel and Adalbert Winkler (2010)]. The level of the capital account will be used as a proxy for the level of openness of the economy.

### **Foreign Ownership...**

Foreign ownership is used as a determinant of banking stability in a dollarized environment as higher degrees of foreign ownership are interpreted as a sign for a more competitive environment and are therefore anticipated to shorten survival time. Foreign owned banks strengthen banking stability by improving the solvency and liquidity of host country banking systems. . According to Detragiache et al. (2008) foreign banks have superior credit technologies, better management expertise and governance structures and are less open to government and political interference than domestic banks. Demirgüç-Kunt et al. (1998) notes that foreign bank presence is negatively

associated with the incidence of banking sector fragility. Literature also reveals that foreign banks smooth domestic credit in periods of financial distress.

To capture the effect of foreign ownership structure in Zimbabwe's banking system, this study uses the proportion of bank assets controlled by foreign entities as postulated by Barth, Caprio, and Levine (2001).

## **HYPOTHESES OF THE STUDY**

The main hypothesis of the study is that dollarized countries can maintain the stability of their banking systems in the absence of their currencies. The following sub-hypotheses were formulated to explain the main hypothesis of the study:

- H0: There is no relationship between capitalisation and banking system stability in a dollarized environment.
- H1: There is a relationship between capitalisation and banking system stability in a dollarized environment.
  
- H0: There is no relationship between liquidity and banking system stability in a dollarized environment.
- H1: There is a relationship between liquidity and banking system stability in a dollarized environment.
  
- H0: There is no relationship between the degree of integration of the banking system and banking system stability in a dollarized environment.
- H1: There is a relationship between the degree of integration of the banking system and banking system stability in a dollarized environment.
  
- H0: There is no relationship between foreign ownership of banks and banking system stability in a dollarized environment.



- H1: There is a relationship between foreign ownership of banks and banking system stability in a dollarized environment.
- H0: There is no relationship between macroeconomic conditions and banking system stability in a dollarized environment.
- H1: There is a relationship between macroeconomic conditions and banking system stability in a dollarized environment.

## RESEARCH MODEL/FRAMEWORK

The hypotheses were tested using the following linear regression model:

$$BankStability = \beta_0 + \beta_1 BankConc + \beta_2 Cap + \beta_3 Liqu + \beta_4 MacroEcon + \beta_5 Open + \beta_6 Foreign + \beta_7 Integ$$

Where

- *BankStability = Banking System Stability*
- *Cap = Capitalisation*
- *Liqu = Liquidity*
- *MacroEcon = Macro-economic environment*
- *Open = Level of openness*
- *Foreign = Foreign ownership*
- *Integ = Degree of intergration*

## DATA ANALYSIS

The role of analysis is to supply evidence, which justifies claims that the research changes belief or knowledge and is of sufficient value. Statistical analyses was done using E-VIEWS package.

In general the E-VIEWS package was utilized to examine cross tabulation or associations or grouping which emerges (e.g. through factor analysis) as well as correlation analyses. In addition the researcher used the following tools in data analysis: tables, line graphs, bar graphs, bar graphs, pie charts, cross tabulation, percentages and description.

## **CHAPTER 4**

### **FINDINGS AND ANALYSIS**

#### **4.1 INTRODUCTION**

In this chapter, the findings of the case study of the four dollarized non EU countries namely El Salvador, Ecuador, Cambodia and Zimbabwe are presented. Specifically, what were found to be the main measures undertaken by dollarized countries to maintain stable banking systems in the absence of their currency are pointed out.

#### **4.2 MEASURES TO MAINTAIN BANKING SYSTEM STABILITY**

##### **4.2.1 Capital Regulation**

Since capital plays an important role in preventing bank failures, the study noted that dollarised economies ensured their banking institutions are adequately capitalised by increasing significantly capital requirements both in quality and quantity to make banks more robust and resilient to shocks and losses. In line with Cayazzo et al (2005) who noted that in dollarized

banking systems, banks need to hold enough capital to act as a buffer against adverse shocks, the dollarized countries under study (El Salvador, Ecuador and Cambodia) either increased the level of minimum capital requirements or adjusted upwards their minimum capital adequacy ratios.

The regulatory authorities in El Salvador increased the minimum required capital adequacy ratio (CAR) from 11.5% to 12 percent in 2005. In addition, the minimum paid up capital requirements for banks was increased to US\$16.3 million with effect from July 2009. As result of these changes in capital requirements, a number of capital injections were undertaken leading to most banks in El Salvador maintaining significant additional capital buffers. This was confirmed by the IMF (2013) who noted that most banks in El Salvador remained highly capitalised with the overall banking system having a relatively high overall capital adequacy ratio of 17.3 percent as at 31 December 2012.

In Ecuador, the regulatory authorities in Ecuador introduced new stringent capital adequacy regulations which are now much closer to Basel standards [Myriam Quispe-Agnoli and Elena Whisler (2006)].

In the case of Cambodia, effective 2010, the central bank tripled the minimum capital requirement from US\$13 million to \$36.5 million for commercial banks and increased the minimum capital to \$7.3 million for specialised banks. According to the Cambodia National Bank Annual Report (2011) the capital base of the banking sector was strengthened through the injection of paid-up capital into banks to comply with the new minimum capital requirements.

In Zimbabwe, the central bank increased the minimum regulatory capital requirements from \$12.50 million to \$25 million and ultimately to \$100 million by December 2020. In addition Tier 1 and capital adequacy ratios were increased from 5% and 10% to 8% and 12%, respectively in 2012. The objective of the upward review was to increase banking institutions' capital buffers available to absorb unexpected shocks from the economy arising from elevated risks associated with the dollarized operating environment.

According to the RBZ (2012) the total net capital base in the banking industry increased from \$832.21 million as at 31 December 2009 to \$511.62 million as at 31 December 2012. The increase was largely attributed to growth in retained earnings and capital injections by the shareholders in a bid to comply with minimum capital requirements. The sector remained adequately capitalized with an average CAR of above the minimum requirement of 12% since 2009. While several weak banks meet the current minimum capital requirement following capital injections, a number of banks remain inadequately capitalized. These undercapitalized banks are however, of low systemic importance (RBZ 2012).

The study noted that these measures enabled the four countries' banking systems to remain adequately capitalized and be capable of withstanding any adverse shocks. The table below indicates that on average the banking system of the three dollarized economies were adequately capitalized and above the Basel minimum of 12%.

**Table 4.1: Capital Adequacy Ratios**

<b>Capitalisation</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
<u>Ratio of Capital to Risk Weighted Assets</u>					
<i>El Salvador*</i>	15.1	16.5	17.6	17.1	17.3

<i>Cambodia**</i>	27.6	32.3	31.4	27.5	28.3
<i>Ecuador***</i>	12.95	13.81	12.52	12.96	12.74
<i>Zimbabwe****</i>	n/a	27.96	27.34	16.23	13.87

Source:

\*IMF Article IV Report El Salvador 2012

\*\* National Bank of Cambodia Annual Reports 2009, 2010, 2011 and 2012

\*\*\*Superintendencia de Bancos y Seguros del Ecuador, Memoria 2012

\*\*\*\*RBZ Annual Reports 2012 and 2013

#### 4.2.2 Enhancing of Banking Supervision and Regulation

Banking supervision is a critical variable in preventing bank failures and maintaining the stability of the banking system. Cognisant of this fact as well as the risks arising from dollarization the study noted that El Salvador, Ecuador and Cambodia, as part of measures to foster banking system stability, enhanced their banking supervision and regulation processes.

The authorities in El Salvador introduced new regulations relating to risk management in financial institutions, corporate governance and management of credit risk assets. According to the IMF (2014) the central bank in El Salvador created a risk unit with specialized expertise and continued efforts to foster cross border cooperation and coordination.

In Ecuador banking regulations were restructured and tightened, in 2001 and the regulatory authorities were given more power to take preventive measures against banks that showed signs of instability [Quispe-Agnoli and Whisler (2006)].

In Cambodia, the National Bank of Cambodia enhanced prudential supervision through the strengthening of on-site and off-site inspections and supervision as well as building capacity of its staff [Jalilian et al (2009)]. It revised most of its regulations and issued circulars to strengthen

its supervisory framework and bring it in line with developments in the financial sector. In 2011, the NBC issued five new regulations namely Prakas on risk based and forward looking supervision; Prakas on credit information sharing system; Prakas on transparency in granting credit facilities of banks and financial institutions; Prakas on financial leasing business; and Prakas on licensing of financial lease companies (NBC; 2011).

According to the IMF (2013) the regulatory authorities in Zimbabwe implemented a number of measures to enhance its supervisory and regulatory framework so as to increase financial stability in the wake of dollarization. These measures include:

- amending the Banking Act to improve oversight and surveillance and strengthening the Troubled Bank Resolution framework;
- developing a framework for contingency planning and systematic crisis management which provides for a set of identified policies and processes necessary for the prevention, management and containment of banking crisis;
- enhancing coordination among the financial sector regulatory bodies through signing of a memorandum of understanding to facilitate sharing of information;
- the establishment, in *collaboration with other financial regulators*, of a Multi-disciplinary Financial Stability Committee whose mandate include among others to facilitate early identification of sources of risk (to stability) and of potential vulnerabilities that could threaten financial stability.

The study noted that the enhanced banking regulation and supervision systems played a part in helping the four countries (i.e. Zimbabwe, El Salvador, Ecuador and Cambodia) to maintain the stable banking systems. The enhanced banking regulation and supervision processes enabled

regulatory authorities to put in place prompt corrective measures to stop undesirable activities by banks before they cascade to systemic or banking crises.

#### **4.2.3 Ownership and Openness**

The study noted that the opening up economies to foreign banks played a part in ensuring the stability of banking systems in the dollarized countries under study. This is supported by Detragiache et al. (2008) who found out that foreign banks contribute to the stability of banking system as they are perceived as better prepared to withstand episodes of financial stress and, hence, are less prone to bank runs and benefit from flight-to-quality, either because they have more alternatives to diversify risks because of their international links, or because they have more access to financing in case of a systemic liquidity crunch.

After dollarization of the El Salvadorian economy, the ownership of the financial sector changed dramatically and according to IMF (2010) El Salvador has the largest presence of foreign ownership among the Central American countries. Foreign ownership expanded by either the purchase of or merger with the four largest banks by regional and international financial groups between 2005 and 2007.

The presence of foreign owned banks in El Salvador has according to the IMF (2010) made Salvadoran banks to be among the most efficient in the region and charge some of the lowest intermediation margins.

In Ecuador the banking sector was opened up with the removal of any legal discrimination on foreign investments. However, foreign investors must register their investments with the Central

Bank for statistical purposes. Foreign-owned banks in Ecuador included Citigroup Inc., C +0.38% of the U.S.; Dutch-German Procredit Bank; and Panama's Promerica.

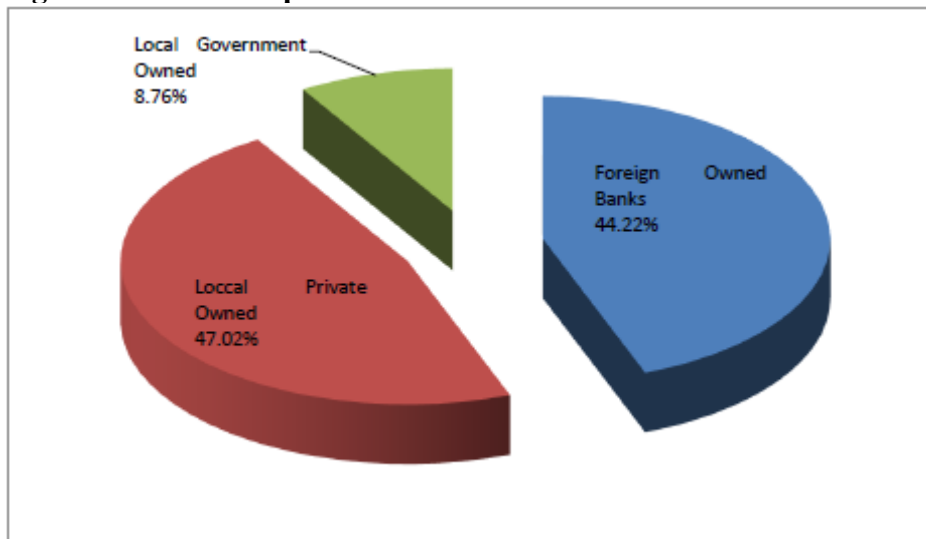
Cambodia's 1994 Law on Investment established an open and liberal foreign investment regime. All sectors of the economy are open to foreign investment, and 100 percent foreign ownership is permitted in most sectors. According to the World Bank Cambodia has the most open foreign direct investment regime in ASEAN. As at 31 December 2012, the Cambodian banking sector comprised of 10 foreign banks and nine foreign banks branches with the remaining 13 banks being locally incorporated. (NBC Annual Report 2012).

Despite the enactment of empowerment laws which restricts foreign ownership in any sector to 49%, the Zimbabwe banking sector continued to have a number of foreign owned banks through encouragement from the central bank. As at 31 December 2011, the financial sector ownership structure was spread among Government, foreigners and local individuals and corporates. Government had significant shareholding in 4 banking institutions with total assets of \$416.96 million representing 8.76% of the total banking sector assets while 8 banks with significant foreign shareholding had assets worth \$2,105.68 million representing 44.24% of total banking sector assets.

The remainder of 47.02% of total banking sector assets worth \$2,240.91 million was held by 14 locally owned banks. The table below indicates banking sector ownership structure as at 31 December 2011.



**Figure 4.1 Ownership Structure of Zimbabwean banks**



Source: RBZ Bank Supervision Annual Report 2012

Despite evidence of the positive impact of foreign banks on banking system stability of the above four dollarised countries, a number of researchers have come up with contradictory conclusions. Cetorelli and Goldberg (2009) noted that the presence of foreign banks exposes the domestic economy to foreign shocks in the same way it insulates the domestic economy from domestic shocks. The researchers pointed out that the presence of foreign banks in emerging markets contributed to the transmission of the crisis of 2007-2009 to these markets, both through a reduction in direct lending and through internal capital markets.

#### **4.2.4 Liquidity Management**

Liquidity risk management is of paramount importance in banking system stability as a liquidity shortfall at a single institution can have system-wide repercussions. In other words liquidity challenges can cause the failure of an institution even when it is solvent (PWC; 2010).

Merkel and Lovik (year not cited) pointed out that confidence in the dollarisation process is enhanced by increasing bank liquidity requirements and bank access to quick sources of funds from which to draw in the event of a banking crisis. The liquidity management strategies implemented by the dollarized countries to ensure their banking systems remain stable are discussed hereunder.

The main liquidity management tools used by El Salvador are the reserve and liquid asset requirements. These requirements affect the level of excess liquidity in the banking system. Banking institutions in El Salvador are required to maintain approximately 22 percent of their liabilities as cash reserves and 3 percent of liabilities as liquid assets either in the form of foreign assets or El Salvador government securities. The reserves are maintained at the central bank i.e. Banco Central de Reserva (BCR).

A bank can access its required cash reserves in three stages: the first (25 percent of total) at no cost, the second (25 percent) at LIBOR plus a penalty, and the third (50 percent), with the approval by the Superintendence of Financial System (SSF), by submitting a regularization plan.

According to Myriam Quispe-Agnoli And Elena Whisler (2006) the absence of a lender of last resort encouraged Salvadoran banks to hold a growing proportion of their assets in highly liquid instruments as self-insurance against systemic liquidity shocks.

The regulatory authorities in Ecuador set, upon dollarization, additional requirements for special categories of assets that must be included in the make-up of a bank's minimum liquid reserves [Weisbrot et al (2013)]. These requirements require among other banks to have 3 percent of their total funds in deposits in the Central Bank, in Central Bank bonds, or bonds of other public financial institutions; and 2 percent of their total funds subject to minimum liquidity requirements need to be invested in fixed income assets from non-financial national public institutions. The purpose of this regulation was to direct the banks' excess funds to finance productive investment via government and private sector issued securities[Banco Central del Ecuador (2012)].

Cambodia faced a severe liquidity shortage in the banking sector during the mid-2008. Consequently the National Bank of Cambodia introduced more stringent liquidity measures which required banks to establish prudent liquidity management policy, management of assets and liabilities, conduct stress-test scenarios, and formulate liquidity contingency plans. Stricter enforcement of transparency regulations (e.g. more frequent reporting of banks' liquidity position) were also imposed.

The above prudential regulations besides improving liquidity risk management in Cambodian banks also had some major impact on liquidity in the banking sector. According to the NBC

Annual Report of 2013 liquidity in the Cambodian banking system remained high with a liquidity ratio of 69.7% which was higher than the requirement of prudential regulation, 50% as at 31 December 2012.

In Zimbabwe, the central bank implemented a number of measures to enhance liquidity in the economy. These measures included increasing the minimum liquid assets ratio from 25% to 30% effective June 2012 and abolishing the statutory reserve requirements. This abolishment released a substantial sum of money into the banking system. These measures were meant to ensure that banking institutions remain liquid and resilient to liquidity shocks that are either idiosyncratic or systemic in a dollarized environment with limited lender of last resort facility.

Despite these measures, the liquidity challenges have continued to escalate against the backdrop of a widening current account deficit, low deposit base mainly short term in nature, limited interbank trading, silo liquidity management by banks, and growing informalisation in the economy among other things.(RBZ 2013)

Notwithstanding the above, the average liquid assets ratio for the Zimbabwean banking sector remained above the prudential requirement of 30% meaning the banking sector is, on average, able to meet its short obligations as they fall due.

The above measures assisted banking institutions in the four dollarised countries under study to monitor and control their liquidity which is a crucial component of their safety and soundness. The table below shows the trend in the liquid assets ratios of the four countries.

**Table 4.2 Liquidity Ratios**

<b>Liquidity</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
<u>Liquid Assets Ratio</u>					
<i>El Salvador*</i>	35.7	41.3	42	37	31.9
<i>Cambodia**</i>	30.6	26.8	25.2	27	69.7%
<i>Ecuador***</i>	33.54	35.15	32.42	28.74	30.47
<i>Zimbabwe****</i>	n/a	35.9	37.5	32.6	34.5

Source:

\*IMF Article IV Report El Salvador 2012

\*\* National Bank of Cambodia Annual Reports 2009, 2010, 2011 and 2012

\*\*\*Superintendencia de Bancos y Seguros del Ecuador, Memoria 2012

\*\*\*\*RBZ Annual Reports 2012 and 2013

The average liquidity ratios shown in the above table indicate that on average the banking systems in the three countries namely El Salvador, Cambodia and Ecuador have sufficient liquid assets to meet short term liabilities as they fall due. In the case of Zimbabwe, the distribution of liquidity remained uneven with a few weak and non-systemic banks continuing to face liquidity challenges.(IMF 2012)

#### **4.2.5 Systemic Liquidity Management**

The lender of last resort is crucial in ensuring the stability of banking institutions. One of the effects of dollarization is that it reduces the ability of the central bank to perform the lender of last resort function. However, literature indicates that in a dollarized economy, a central bank could act as LOLR to the extent that it has the available resources (i.e. excess international reserves). The study noted that central banks in the dollarized economies under study namely El Salvador, Ecuador and Cambodia created ‘liquidity funds’ which provided liquidity assistance to banks in need.

In El Salvador, the authorities created a financial stabilization liquidity fund whose objective is to promote the stability of the system through financial assistance—with public or private funds—for solvent institutions facing temporary liquidity problems.

In Ecuador a Liquidity Support Fund was established to supplement the central bank's capacity during liquidity problems (Beckerman and Solimano 2002). This fund was financed by banks themselves through contributing 3 percent of their deposits (which are subject to reserve requirements). This was increased to 5 percent in 2012, and is scheduled to rise by 1 percent annually, reaching 10 percent in 2017.

In addition to the establishment of the fund, the central bank in Ecuador in an effort to improve its oversight, issued Regulation 29 in July 2012, requiring all financial transfers (inflows and outflows) to be channelled through the Central Bank's accounts starting November 2012 [Bureau of Economic and Business Affairs (2013)]. Further, a mechanism was developed for recycling liquidity within the banking system; mainly in the form of sales of U.S. dollar-denominated bonds by the central bank combined with repurchase operations.

As a result of these measures liquidity remained at comfortable levels and other stability indicators continued to improve and according to Alvaro (2014) the Ecuador's banking system will continue to be solvent and will have enough liquidity to face any adverse situation.

Unlike El Salvador and Ecuador who created stabilising or bailout funds, in Cambodia the central bank i.e. the NBC opened an overdraft facility to accessed by banks in need of liquidity [Jalilian et al (2009)]. In addition, the NBC strengthened the system for implementing reserve

requirements to help build a liquidity line of defence. This was done initially by increasing the reserve requirements of commercial banks from 8% to 12%.

According to the IMF (2012) the government of Zimbabwe, to make up for the lack of a lender of last resort function, provided the central bank with US\$7 million to start a liquidity facility, and with further commitment to raise this to US\$30 million. This fund has not been effective as the amount was considered low and there was absence of collateral to be used to secure funding.

The above measures (i.e. establishing of liquidity funds) taken by the three countries to mitigate against restriction in the lender of last resort arising from dollarisation was instrumental in maintaining the stability of their banking systems.

#### **4.2.6 Asset quality**

As noted by Vatansever<sup>1</sup> and Hepşen (2013) asset quality as reflected by percentage of non-performing loans (NPLs) is related to bank failures and the stability of a country's banking system. In that regard credit regulation *i.e. making sure that bank assets are of reasonable quality, risk-taking is kept within bounds, and credit risk management processes in banks are robust*, is critical in ensuring banking system stability.

The study noted that dollarized economies strengthened their credit regulation and intensified monitoring of levels of NPLs to ensure their banking systems remain stable.

The regulatory authorities in El Salvador tightened its asset classification and provisioning rules in 2007. This brought the country's banking sector provisioning levels in line with international practices. This coupled with the intensive monitoring of banks' delinquent loan portfolio by the regulators enhanced credit risk management processes in banks and hence the asset quality. According to the IMF (2010) non-performing loans (NPLs) in El Salvador remained relatively low (around 3 percent of total loans) between 2005 and 2010. Stress tests of the Salvadorian banking sector conducted by the IMF indicate that most banks would be able to withstand severe deterioration in credit quality arising from large macroeconomic or sectoral shocks (IMF 2010).

In Ecuador, credit regulation was enhanced by the promulgation of the General Law of Financial Institutions which provided among others the prohibition against related-party lending and more stringent loan-loss reserves. These enhancements improved transparency and brought the banking system closer to international standards. The percentage of non-performing loans in Ecuador was around 2.8% in 2012 which reflects the health of the banking system in Ecuador.

In Cambodia the regulatory authorities introduced restriction of credit to high risk sectors especially real estate and construction and attached higher risk weights to riskier types of lending. Further beginning in 2009 a new guideline on credit classification was introduced in Ecuador, which addressed more stringent criteria for recognizing problem assets.

Further in an effort to reduce credit information asymmetry and avoid over indebtedness, a credit bureau was established in 2012 in Cambodia through collaboration between the International



Financial Corporation, the National Bank of Cambodia, Association of Banks in Cambodia (ABC) and Cambodia Microfinance Association (CMA).

As a result of these measures loan quality indicators improved thereby promoting the stability of the banking system. According to the National Bank of Cambodia annual report of 2012 Nonperforming loans (NPLs) ratio remained low at 2.45% of total loans, in which provisioning level was 54% of NPLs.

In Zimbabwe, the study noted that the Reserve Bank revised the loan provisioning requirements through expanding the credit supervisory rating scale from the 5-tier supervisory credit rating scale to a 10-tier system with associated provisioning levels that are more granular (RBZ 2011). This was meant to ensure better alignment of expected losses with provisioning requirements per rating class.

However, in spite of the above measures, the Zimbabwean banking sector faced increasing exposure to credit risk as reflected by the deterioration in the ratio of non-performing loans to total loans (NPL/TL) from December 2011 to December 2012. (RB (2012)

The study found out that the level of NPLs of El Salvador, Ecuador and Cambodia has been trending below 5% which is internationally accepted benchmark. This is however, not the same with Zimbabwean banking sector which in spite of the above measures, faced increasing exposure to credit risk as reflected by the deterioration in the ratio of non-performing loans to total loans (NPL/TL) from 1.80% in December 2009 to 13.46% in December 2012.

The increased exposure to credit risk is attributable to the challenging operating environment prevailing in the multi-currency era characterized by lack of foreign direct investment inflows, inaccessibility of offshore credit lines and poor export performance, among others. These have resulted in borrowers defaulting on their payment obligations and over-indebtedness.

The table below indicates the trend in loan quality for the three countries since 2008.

**Table 4.3: Trend in NPL ratios**

<b>Asset Quality</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
<u>Non-performing loans to total loans ratio</u>					
<i>El Salvador*</i>	2.8	3.7	3.9	3.6	2.9
<i>Cambodia**</i>	2.9	3.9	2.9	3	2.4
<i>Ecuador***</i>	2.5	2.91	2.25	2.24	2.8
<i>Zimbabwe</i>	n/a	1.80	10.95	7.55	13.46

Source:

\*IMF Article IV Report El Salvador 2012

\*\* National Bank of Cambodia Annual Reports 2009, 2010, 2011 and 2012

\*\*\*Superintendencia de Bancos y Seguros del Ecuador, Memoria 2012

\*\*\*\*RBZ Annual Reports 2012 and 2013

#### **4.2.7 Level of Integration**

The economies of dollarised countries are normally integrated to those of the anchor countries. This integration provides an avenue for the transmission of risks among the countries. Financial crisis in the anchor country may be transmitted to other economies to which they are highly integrated. This study noted that dollarized economies put in measures to manage their risks arising from their integration with other economies so that their banking systems remain stable and are not affected by what happens in the other countries. The measures include putting caps/limits on the level of assets held overseas or in foreign countries by the local banking sector.

In Ecuador the government established a Domestic Liquidity Coefficient, in 2009 which required 45 percent of all banks' liquid assets to be held domestically [Banco Central del Ecuador (2013)]. This was increased to 60 percent in August of 2012. As a result of the directive some hundreds of millions of dollars were brought back to the country during the first year. As at the end of 2012, banks had increased their percentage of liquid assets held domestically to a level greater than that which is required by the government i.e. 69.7% [Banco Central del Ecuador (2013)]. These restrictions reduced the Ecuadorian exposure to banking crises in other countries arising from asset impairments.

The study noted that in El Salvador banks were not directly exposed to toxic assets or heavily dependent on wholesale funding from abroad and thus the banking systems remained stable during the global financial crisis. This was a result of the measures put in place by regulatory authorities where some Salvadoran subsidiaries of international banks were restricted by their headquarters in the use of risk capital and faced reductions in external credit lines, despite these subsidiaries being well-capitalized.

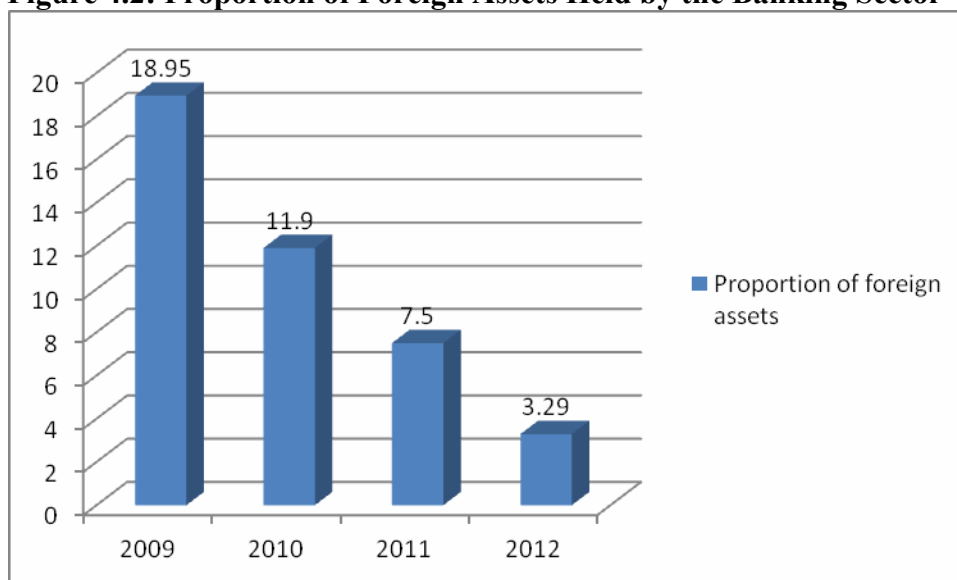
The study found out that in Zimbabwe, the Reserve Bank placed a maximum limit on the level of funds to be kept in all nostro accounts by banks operating in Zimbabwe to 25% of the banks' foreign currency account balances. Balances in excess of the 25% maximum limit were repatriated by banks to Zimbabwe in a bid to improve the liquidity situation in the country.

While the above policy measure was meant to enhance liquidity in Zimbabwe, it affected the level of integration of the Zimbabwean economy as proxied by the proportion of assets held with foreign institutions. The proportion of foreign assets held with foreign banking institutions by the

Zimbabwe banking from 18.95% in 2009 i.e. the year of dollarization to 3.29% in 2012 indicated reduced level of integration.

The figure below shows the trend in the level of integration of the Zimbabwe banking sector.

**Figure 4.2: Proportion of Foreign Assets Held by the Banking Sector**



Source: RBZ Annual Reports 2011 and 2012

#### **4.2.8 Managing Cross Border Banking Risks**

The study found out that, besides limiting the level of foreign exposures, supervisory authorities in the dollarized countries enhanced cross-border cooperation among regulatory authorities, both bilaterally and regionally.

The supervisory authority in El Salvador (SSF) signed Memoranda of Understandings (MoUs) with all home supervisors of foreign banks operating in El Salvador. These MoUs primarily cover exchange of information in the context of ongoing supervision.

Regionally, the Comité de Enlace of Central American supervisors (CECAS) has *(to which El Salvador is a member)* stepped up regional coordination by holding quarterly meetings and monthly teleconferences where supervisors present relevant information, risks and concerns about the banks operating under their jurisdictions. In Cambodia, the National Bank of Cambodia signed Memorandum of Understanding on the Information Sharing with several foreign supervisory authorities in the region in order to further enhance the effectiveness of its supervisory function. (NBC 2012)

In Zimbabwe, the study noted that regulatory authorities in the COMESA region (including Zimbabwe who is also a member) have embraced a regional approach to supervision and regulation, in order to strengthen cross-border supervision and supervisory cooperation.

The Association of African Central Banks (AACB) Governors resolved to set up a formal dialogue among banking supervisors in Africa and endorsed the establishment of the Community of African Bank Supervisors (CABS) at its 36th ordinary meeting in August 2012 in Algiers, Algeria. (RBZ 2012)

According to the RBZ Annual Report of 2012 the Reserve Bank will continue to strengthen its supervisory capacity and cooperate with other regulators on the continent on the adoption of international best practices and ensuring that all cross border banking groups are effectively supervised. In that regard, Zimbabwe signed MoUs with countries such as Zambia, Kenya,

Botswana and Tanzania for cross-border supervisory and regulatory cooperation.

These measures have helped to plug risks to the respective countries banking system arising from cross border banking or the presence of international banks.

### 4.3 PANEL DATA ANALYSIS

#### 4.3.1 Overview

An increase in the NPL ratio indicates a decrease in financial stability and vice versa. Results for all models show a negative and statistically significant relationship between the NPL ratio and the three measures of .....

**Table 4.4 Panel Data Results**

Dependent Variable: NPL  
Method: Panel EGLS (Cross-section weights)  
Date: 10/03/14 Time: 16:26  
Sample (adjusted): 2009Q2 2014Q2  
Periods included: 21  
Cross-sections included: 22  
Total panel (unbalanced) observations: 425  
Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CONSTANT	0.005769	0.066959	0.086159	0.9314
Capital Adequacy	-0.042349	0.012530	-3.379668	0.0008
Supervision & Regulation	-0.011059	0.003097	-3.571347	0.0004
Liquidity	-7.48E-05	0.000297	-0.252123	0.0411
Ownership	-0.002891	0.004104	-0.704490	0.4815
Macroeconomic Conditions	-0.089082	0.186906	-0.476615	0.0339
Integration	0.000918	0.002536	0.361972	0.0176
Competition	0.093523	0.088341	1.058664	0.2904

Lagged NPL	0.926935	0.021930	42.26756	0.0000
<b>Diagnostic Tests</b>				
R-squared	0.895402	Mean dependent var	0.154301	
Adjusted R-squared	0.893390	S.D. dependent var	0.193004	
S.E. of regression	0.068883	Sum squared resid	1.973865	
F-statistic	445.1394	Durbin-Watson stat	1.973176	
Prob(F-statistic)	0.000000			

A multiple regression analysis was done with the objective of ascertaining whether or not the regression model is meaningful as well as establish which variables contribute meaningfully to the model.

The results in Table 4.4 above indicate that the R-square of the model I is 0.895. This means that the model is a good fit as it explains 89.5% of the variance in banking system stability (i.e. the dependent variable). In other words the seven independent variables explain 89.5% of the variations in banking system stability.

Overall the results illustrates that the model is a perfect fit as reflected by the **Durbin-Watson statistic of 1.97 which is close to 2** which indicates the absence of autocorrelation.

#### 4.3.2 Capitalisation

The results indicate that the relationship between capital and the non-performing loans is negative and statistically significant [(Prob (F-Statistic-0.0008)] at 5% level. Since an increase in the NPL ratio indicates a decrease in banking stability and vice versa, the results means the level of capitalisation and capital adequacy is positively related to banking stability in a dollarized environment. This implies that adequately capitalised banks are able to refinance some of their borrowers who would ordinarily have gone into default if there were no refinancing

facilities. This also means if the level of capital adequacy improves, banks are able to set aside sufficient capital to cover risks in their balance sheets and in addition maintain capital buffers to absorb any shocks thus reducing the incidents of bank failures.

These results are consistent with Nguyen, Skully and Perera who found out that bank stability is positively associated with bank capitalization. Further the results support the findings from Cambodia, El Salvador and Ecuador where regulatory authorities increased the capital levels to ensure banks remain adequately capitalised and have capital buffers to absorb any shocks. Thus the hypothesis that capitalisation is related to banking system stability in a dollarized environment is supported.

#### **4.3.3 Integration**

On level of integration, the multiple regressions noted that there is a negative relationship between banking system stability and the extent to which the economy is integrated. However, the relationship **is statistically significant**. The negative statistically significant value of integration [(Prob (F-Statistic-0.0176)] suggests that level of integration has a substantial impact on banking stability. This implies that the more the country is integrated the less stable is its banking system as it will be exposed to shocks that happen in other countries. The results confirm the findings of Strupczewski, and Breidhardt(2013) who noted that the Cyprus banking crisis in 2013 was as a result of the heavy exposures of banks in Cyprus to Greece. The hypothesis that there is a relationship between the degree of integration of the banking system and banking system stability in a dollarized environment is supported.



#### **4.3.4 Ownership and Openness**

The findings reveal a positive but insignificant relationship [(Prob (F-Statistic-0.4815)] between ownership and non-performing loans at 5% level of significance. Since an increase in the NPL ratio indicates a decrease in banking stability and vice versa, the results means bank ownership is not positively associated with banking stability in a dollarized environment. This result is not what was expected. This could be attributed to the fact that foreign banks in Zimbabwe have not been lending actively as compared to locally owned banks. Due the perceived political risk in Zimbabwe, foreign banks have been limited by their head offices that imposed limits on the aggregate level of loans they should issue in the Zimbabwean market. This explains why the results from Zimbabwe are different from those found in Ecuador, El Salvador and Cambodia where there was a strong and positive association between foreign ownership and banking stability.

The results of the study are supported by Nguyen et al and Berger et al (2009 who also found weak evidence of a positive association between ownership and bank stability. The hypothesis that bank ownership and openness is related to banking system stability in a dollarized environment is rejected.

#### **4.3.5 Supervision and Regulation**

The quality of bank supervision and regulation is significantly [(Prob (F-Statistic-0.0004)] and positively related to banking system stability. The results using Zimbabwean data consistent with previous findings by researchers utilizing data from Ecuador, El Salvador and Cambodia where improvements in supervisory standards and techniques were noted to have contributed to stability of the three countries' respective banking systems. The regulatory restrictions in the

form of exposure limits as well as robust, evolving and continually improving supervisory standards were found to be crucial in identifying and restricting instances of excessive risk taking, including excessive exposures. Techniques being employed such as good macro-prudential supervision are able to identify excessive or poorly managed risks in financial institutions and intervene to curb risks or ensure they are adequately cushioned.

The results of this study are consistent with the findings of Caprio & Klingebiel (1997) and Lindgren et al (1999) who note that insufficient bank regulation flaws in supervision have played a role in the explanation of banking crises. The hypothesis which states that, “there is a relationship between bank supervision & regulation and banking system stability in a dollarized environment” is confirmed.

#### **4.3.6 Liquidity Regulation and Management**

The results indicate a significant [(Prob (F-Statistic-0.0411)] and negative relationship between liquidity and non-performing loans at 5% significance level. An increase in non-performing loans means an increase in the banking system instability and the opposite is true. Thus the findings reveal that there a strong and positive relationship between liquidity and banking system stability. Increase in the overall liquidity conditions in banking institutions means they will be able to pay their short obligations as they fall due as well as fund any refinancing requests from their borrowers who would ordinarily go into default in the absence of such refinancing.

On the other hand a decrease in the level of liquidity means banks may find it difficult to fund their short positions given the absence of lender of last

This implies banking systems which are highly liquid in a dollarized environment are more stable than those who have liquidity constraints. Thus the hypothesis that there is a positive relationship between liquidity and banking stability is accepted.

#### **4.3.7 Macroeconomic Conditions**

The findings indicate that real GDP is negatively related to non-performing loans. The relationship is strong at 5% significance. An increase in the NPL ratio indicates a decrease in banking stability and vice versa. Thus macroeconomic conditions have a positive and significant association [Prob (F-Statistic-0.0339)] with banking stability. This means deterioration in the macroeconomic conditions as proxied by real GDP, will lead to reduced aggregate demand in the economy resulting in company closures and lay off of workers. Because of reduced production capacity and company closures companies will fail to repay their loan obligations leading to increase in the level of non-performing loans hence undermining banking stability. The results are consistent with Claessens and Laeven 2004 and Mohr & Wagner (year not cited) who concluded that macroeconomic conditions are important in explaining how the environments in which banks operate affect their performance and viability which have an effect on banking stability. On the other hand the findings contradict those of Kalirai and Scheicher (2002) and Aver (2008) who concluded that there no significant relationship between GDP growth and non-performing loan i.e. banking stability.

#### **4.4 CHAPTER SUMMARY**

The results of both the qualitative case studies and empirical analysis were tabled and the findings of the study were discussed in detail. The data analysis and interpretation was done with the use of graphs, tables, descriptions and inferential statistics.

The next chapter concludes the findings of the study, discusses limitations and makes recommendations for practice and further research. In the next chapter conclusions are drawn based on the results discussed in this chapter.

## **CHAPTER 5**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **INTRODUCTION**

In the previous chapter, the results of the case studies and empirical study were presented and discussed. The purpose of this chapter is to provide an overview of the study, summarize the major research findings and draw conclusions as well as the recommendations. The chapter is structured into four sections as follows:

- a) Overview of the Study;
- b) Summary of Findings, Conclusions & Hypotheses; and
- c) Recommendations/Lessons for Eurozone
- d) Limitations and Direction for future research

## **OVERVIEW OF THE STUDY**

In Chapter 1, the background to the study including the research problem, rationale for the research and the theoretical underpinning are discussed in order to motivate the importance of this study. From the problem statement it was evident that most countries outside the Eurozone who have dollarized their economies were maintaining stable banking systems while EU countries in similar circumstances (using foreign currency i.e. the EURO) were vulnerable to banking crises.

Based on the problem statement, the objective of the research was to determine the critical measures monetary authorities are taking to ensure the stability of their banking systems in the absence of their own currencies; and to identify factors influencing banking sector stability in dollarized economies and to develop a theoretical framework (model) for the determinants of banking system stability. This framework is expected to provide lessons for EU countries.

Chapter 2 focused on the theoretical objectives of the study. The chapter contains an in depth literature review that focuses on impact of dollarization and factors affecting banking system stability in a dollarized environment. The review of related literature provided guidance to the researcher through enabling an appreciation of the impact of dollarization and determinants of banking stability in a dollarized environment.

The literature review highlighted that the major positive effects of dollarization include: reduction in transactions costs; financial integration; increased credibility of regulatory institutions; elimination of exchange rate risk; low inflation rate; lower interest rates; and

creation of better management. In addition the review noted the following negative effects of dollarization: loss of seigniorage; restricted lender of last resort function; and loss of independent monetary policy control.

The review of related literature together with the theoretical themes in Chapter 1 formed the basis for the formulation of the research hypotheses as well as the development of variables for empirical investigation.

Chapter 3 discussed the research design which is a mixed methods incorporating both quantitative and qualitative themes. The study focused on cases studies of four non EU countries that have dollarized namely El Salvador, Cambodia, Ecuador and Zimbabwe followed by a panel data analysis using information from the Zimbabwean banking system. This chapter concludes with a description of the methods used for statistical analysis of the data gathered

In chapter 4, data analysis methods, study results and a discussion of the findings have been presented. Findings from this study have been found to be consistent with the findings of several related studies on determinants of banking stability in a dollarized environment. In addition the impact of various measures implemented by dollarized countries to maintain stable banking systems have been explored.

Based on the literature review and analysis of findings of this research which was undertaken with four dollarized non EU countries, conclusions discussed hereunder were drawn.

## CONCLUSIONS

Based on the results of the empirical analysis, it was noted that the level of capitalisation/capital adequacy [*Prob (F-Statistic-0.0008)*], level of integration [*Prob (F-Statistic-0.0176)*], bank supervision and regulation standards [*Prob (F-Statistic-0.0004)*], macroeconomic conditions [*Prob (F-Statistic-0.0339)*] and liquidity [*Prob (F-Statistic-0.0411)*] significantly and positively determine banking stability in a dollarized environment.

The relationship between foreign ownership of banks [*Prob (F-Statistic-0.4815)*] and banking stability is negative and considered insignificant at 5% level of significance.

The study concluded that notwithstanding the constraints caused by dollarization, the dollarized countries (i.e. non EU countries) were able to maintain stable banking systems by adopting a combination of the following measures:

- a) Increasing the level of minimum capital requirements and capital adequacy ratios for banks so that they have capital buffers to absorb any shocks;
- b) Setting up, in the absence of lender of last resort function, liquidity funds financed by banks to be accessed by banks in need of liquidity to cover their positions;
- c) Limiting domestic banks' exposures to overseas markets to insulate the local banking sector from crises emanating from other countries;
- d) Setting high liquidity requirements for banks;
- e) Enhancing supervisory and regulatory regimes;
- f) Cross border cooperation to manage cross border risks;

- g) Strengthening the regulation of credit and monitoring of non-performing loans in the sector; and
- h) Opening up the banking sector to foreign players.

It is evident that the adoption of the above policy measures played a critical role in ensuring banking systems remained stable despite the constraints of dollarization. Thus the above experiences of the dollarized countries provide important lessons that can be learnt by the EU countries if they are to maintain stable banking systems.

### **Summary of Hypotheses...**

The table below illustrates the results of hypothesis testing.

**Table 5.1 Summary of Hypothesis**

No	Hypothesis	Coefficient	Prob (F-Statistic)	Results
1	There is a significant relationship between capitalization and banking stability in a dollarized economy	-0.042349	0.0008	Confirmed
2	There is a significant relationship between quality of bank supervision & regulation standards and banking stability in a dollarized economy	-0.011059	0.0004	Confirmed
3	There is a significant relationship between liquidity and banking stability in a dollarized economy	-7.48E-05	0.0411	Confirmed
4	There is a significant relationship between foreign ownership of banks and banking stability in a dollarized economy	-0.002891	0.4815	Not Supported
5	There is a significant relationship between macroeconomic conditions and banking stability in a dollarized economy	-0.089082	0.0339	Confirmed
6	There is a significant relationship between extent of integration and banking stability in a dollarized economy	0.000918	0.0176	Confirmed

## **RECOMMENDATIONS AND LESSONS FOR EUROZONE COUNTRIES**



Based on the findings of this study and the conclusions drawn above, the following recommendations are made specifically to EU countries using foreign currency:

**Table 5.2 Recommendations**

NO.	RECOMMENDATIONS
<b>Recommendation 1</b>	<p><b>Monitor and control the level of integration with other countries through imposing limits.</b> EU countries are integrated amongst themselves by virtue of the use of the Euro currency thus increasing the risk of contagion. Most of the banking crises in the Eurozone were a result of contagion effects where banks in one country were affected by problems in other countries. It is recommended that such countries should set limits on the level of assets that their banks maintain across borders so as to limit exposure that may arise in the case of financial crises in other countries.</p>
<b>Recommendation 2</b>	<p><b>Maintain sizeable amounts of reserves in the form of Liquidity or Stabilization Funds.</b></p> <p>There is need to create a reserve in the form of stabilization/liquidity funds which will be accessed by distressed banks. This fund becomes key given the limited/restricted lender of last resort functions brought about by dollarization.</p>
<b>Recommendation 3</b>	<p><b>Continuously enhance bank supervision and regulation standards</b></p> <p>Regulatory authorities should continuously review and enhance their supervisory standards to ensure they continue to be aligned to the level and complexity of risks inherent in the banking system of a dollarized economy. Among the supervisory standards that regulatory authorities should consider implementing or enhancing are macro-prudential supervision, stress testing and Prompt Corrective Actions.</p>
<b>Recommendation 4</b>	<p><b>Enhance cooperation among regulatory authorities in different countries e.g. within the Eurozone</b></p> <p>Most of the bank failures in the EU countries were mainly due to transmission of risks across borders. There is therefore need for countries within the Eurozone to enhance cooperation among themselves on supervisory and regulatory matters. This may help them to manage cross border risks and</p>

	minimize the chances of bank crisis in another country affecting other countries.
<b>Recommendation 5</b>	<b>Setting high capital requirements to ensure banks have sufficient capital buffers</b> There is need to continuously review capital requirements namely minimum core requirements, capital adequacy and leverage ratios to ensure banks are adequately capitalized at all times and have capital buffers to withstand shocks on their balance sheets.

The proliferation of banking crises from 2007, especially the successive crises in the Euro-zone countries have highlighted the difficulties countries can have when they are responsible for their banks stability when they no longer control the issuing of their currency. However, the findings of the study suggest that the stability of banking systems in such EU countries could be enhanced by implementing appropriate policies and procedures to influence or address risks caused by the determinants of banking stability examined herein.

### **Limitations and Direction for Further Research**

While the study involved a review of four dollarized countries, the empirical data used for panel data analysis was from one country only i.e. Zimbabwe which has been in a dollarized environment for less than five years. Therefore future research could also involve empirical data from a number of countries who have been dollarized for a longer period of time.

The review of related literature and the empirical findings of this study appear to indicate inconclusiveness on the relationship between foreign ownership of banks and banking stability. Therefore to establish more conclusive results, future research is needed to confirm the relationship between the two variables over data sets from a number of dollarized countries.

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# **APPENDIX A - STATISTICAL DATA ON ZIMBABWEAN BANKS USED FOR PANEL DATA ANALYSIS**

		Independent Variables					Dependent Variable
	Quarter	Net Capital Base	Management Rating	Liquid Asset Ratio	Balances with foreign banks	Ownership	NPL Ratio
ABC BANK	2009Q1	8,141,231.72	2	17.89%	4,171,777.36	1	0.00%
	2009Q2	12,196,654.38	2	7.86%	4,035,224.50	1	0.00%
	2009Q3	21,939,533.54	2	9.57%	7,367,569.39	1	0.00%
	2009Q4	14,320,353.26	2	0.00%	6,186,838.65	1	0.09%
	2010Q1	13,544,994.26	2	31.00%	5,524,672.09	1	0.00%
	2010Q2	14,429,126.54	2	31.17%	17,439,013.25	1	0.00%
	2010Q3	15,534,962.96	2	14.99%	597,414.45	1	0.07%
	2010Q4	27,264,440.48	2	38.18%	1,287,965.98	1	0.03%
	2011Q1	28,467,551.14	2	36.33%	24,712,559.59	1	4.97%
	2011Q2	31,458,462.84	2	33.16%	40,133,608.45	1	2.67%
	2011Q3	32,476,584.50	2	22.57%	1,913,175.50	1	3.95%
	2011Q4	38,580,599.50	2	18.72%	691,005.17	1	5.88%
	2012Q1	36,758,706.10	2	18.40%	5,914,922.96	1	8.15%
	2012Q2	49,305,053.80	2	14.58%	22,288,745.35	1	5.10%

		Independent Variables					Dependent Variable
	Quarter	Net Capital Base	Management Rating	Liquid Asset Ratio	Balances with foreign banks	Ownership	NPL Ratio
	2012Q3	56,562,973.57	2	14.27%	1,313,738.60	1	6.44%
	2012Q4	60,221,271.54	2	27.83%	36,212,593.87	1	7.55%
	2013Q1	74,521,092.80	2	36.55%	13,293,956.63	1	6.53%
	2013Q2	76,578,344.07	2	32.21%	52,227,552.24	1	9.07%
	2013Q3	78,979,427.93	2	31.84%	6,237,357.59	1	11.90%
	2013Q4	84,283,536.02	2	27.83%	36,212,593.87	1	7.55%
	2014Q1	84,837,230.11	2	31.41%	32,038,471.66	1	26.21%
	2014Q2	35,028,264.28	2	34.36%	40,040,072.99	1	23.99%
AGRIBANK	2009Q1	1,239,462.08	3	11.98%	-	1	15.22%
	2009Q2	11,985,884.59	3	28.51%	844,299.31	1	0.00%
	2009Q3	13,031,653.15	4	30.46%	463,598.51	1	0.00%
	2009Q4	7,607,476.65	3	25.08%	1,312,964.11	1	0.40%
	2010Q1	9,903,999.22	4	37.88%	2,238,084.88	1	2.55%
	2010Q2	8,409,951.92	4	22.54%	621,533.47	1	5.54%
	2010Q3	9,003,699.00	3	89.73%	-	1	0.40%
	2010Q4	16,194,081.97	4	47.70%	2,903,444.87	1	3.88%
	2011Q1	15,327,131.28	3	13.17%	301,039.00	1	4.33%
	2011Q2	16,176,465.43	3	45.42%	2,328,156.00	1	4.01%
	2011Q3	17,641,739.50	3	35.34%	792,837.03	1	3.76%
	2011Q4	18,444,020.70	3	29.27%	545,889.00	1	4.08%
	2012Q1	21,676,165.77	3	26.01%	423,289.78	1	7.07%
	2012Q2	18,494,625.00	3	15.29%	1,027,637.00	1	9.55%
	2012Q3	19,010,312.12	3	19.25%	1,031,704.78	1	11.56%
	2012Q4	29,657,589.87	0	37.07%	3,933,537.13	1	10.48%
	2013Q1	27,155,029.78	3	12.87%	-	1	9.65%
	2013Q2	26,297,472.17	3	20.84%	491,056.50	1	53.98%
	2013Q3	24,337,627.14	3	16.92%	811,351.00	1	52.77%
	2013Q4	21,276,984.55	3	19.64%	280,139.00	1	53.75%

		Independent Variables					Dependent Variable
	Quarter	Net Capital Base	Management Rating	Liquid Asset Ratio	Balances with foreign banks	Ownership	NPL Ratio
	2014Q1	19,224,162.09	3	16.95%	162,120.00	1	13.13%
	2014Q2	17,345,936.61	3	14.75%	292,943.42	1	16.16%
BARCLAYS	2009Q1	23,447,140.00	2	66.63%	29,251,629.00	0	0.51%
	2009Q2	37,818,392.00	2	87.54%	51,719,187.00	0	22.46%
	2009Q3	30,322,166.98	2	79.02%	56,713,028.00	0	2.81%
	2009Q4	33,649,483.00	2	19.65%	64,953,210.00	0	0.79%
	2010Q1	30,980,144.17	2	60.27%	57,122,456.00	0	0.72%
	2010Q2	30,409,994.00	2	62.98%	52,029,451.00	0	0.63%
	2010Q3	30,054,337.00	2	65.71%	84,400,133.00	0	0.42%
	2010Q4	30,610,402.00	2	65.51%	87,344,080.00	0	0.00%
	2011Q1	30,818,012.00	3	63.18%	86,306,965.00	0	0.33%
	2011Q2	31,184,852.00	3	66.57%	86,364,207.00	0	0.30%
	2011Q3	31,256,387.00	2	64.15%	118,129,812.00	0	0.27%
	2011Q4	32,599,941.00	3	66.90%	87,045,146.00	0	0.27%
	2012Q1	33,159,171.00	2	64.49%	16,358,430.00	0	0.29%
	2012Q2	33,418,047.00	3	65.01%	18,169,400.00	0	1.07%
	2012Q3	33,634,845.61	3	66.49%	59,241,694.00	0	1.33%
	2012Q4	38,272,227.80	3	55.07%	24,150,472.00	0	1.04%
	2013Q1	39,632,209.15	3	12.87%	-	0	9.65%
	2013Q2	40,083,174.31	3	20.84%	491,056.50	0	53.98%
	2013Q3	40,610,047.59	3	16.92%	811,351.00	0	52.77%
	2013Q4	42,175,220.59	3	29.08%	27,748,278.00	0	20.25%
	2014Q1	43,567,984.01	3	23.65%	43,362,428.00	0	69.23%
	2014Q2	44,579,452.90	3	10.95%	30,802,088.00	0	76.00%
CBZ	2009Q1	13,828,656.00	1	64.44%	34,029,294.17	1	0.00%
	2009Q2	23,308,830.14	1	53.05%	39,852,407.75	1	0.00%
	2009Q3	28,451,600.31	1	47.63%	32,018,689.95	1	0.00%
	2009Q4	34,647,742.05	2	71.36%	23,063,362.23	1	1.11%

		Independent Variables					Dependent Variable
	Quarter	Net Capital Base	Management Rating	Liquid Asset Ratio	Balances with foreign banks	Ownership	NPL Ratio
	2010Q1	45,580,785.69	1	31.41%	28,121,784.59	1	0.12%
	2010Q2	47,521,169.77	1	38.96%	31,094,242.46	1	0.17%
	2010Q3	57,377,312.75	1	30.60%	36,846,076.67	1	1.21%
	2010Q4	68,031,054.29	2	25.03%	28,762,584.33	1	0.42%
	2011Q1	64,589,850.01	2	25.15%	19,070,018.50	1	0.30%
	2011Q2	70,824,796.68	1	25.80%	22,493,790.55	1	1.35%
	2011Q3	74,754,503.89	2	22.67%	5,381,844.98	1	3.62%
	2011Q4	86,314,881.26	2	26.16%	18,720,500.75	1	1.08%
	2012Q1	91,150,729.00	2	27.63%	15,968,049.69	1	6.40%
	2012Q2	87,767,712.87	0	33.15%	40,503,993.79	1	5.89%
	2012Q3	92,225,865.33	0	30.75%	17,498,120.67	1	5.43%
	2012Q4	99,804,394.31	0	33.09%	32,605,515.44	1	5.12%
	2013Q1	106,530,640.49	1	38.13%	18,290,495.00	1	5.35%
	2013Q2	110,616,715.56	1	52.96%	11,766,970.78	1	1.04%
	2013Q3	109,177,741.98	1	50.27%	99,106,283.08	1	0.85%
	2013Q4	115,550,722.85	1	50.69%	16,188,032.10	1	0.91%
	2014Q1	121,530,801.77	1	50.40%	14,239,644.93	1	12.38%
	2014Q2	-	1	19.75%	41,841,674.75	1	25.19%
FBC	2009Q1	20,403,027.53	2	155.13%	6,347,299.94	1	0.00%
	2009Q2	20,868,588.98	2	117.43%	21,200,508.14	1	0.00%
	2009Q3	17,580,116.93	2	113.64%	22,556,098.52	1	0.21%
	2009Q4	25,727,083.24	2	158.78%	51,156,913.66	1	1.26%
	2010Q1	22,509,070.62	2	109.72%	51,475,648.44	1	1.26%
	2010Q2	25,160,423.78	2	114.15%	13,296,252.68	1	1.48%
	2010Q3	22,982,684.83	2	110.98%	4,457,073.23	1	1.06%
	2010Q4	20,036,876.11	2	104.98%	19,300,860.81	1	0.00%
	2011Q1	20,002,542.59	2	105.81%	16,672,925.26	1	3.50%
	2011Q2	18,745,300.25	2	105.98%	9,304,444.49	1	4.35%

		Independent Variables					Dependent Variable
	Quarter	Net Capital Base	Management Rating	Liquid Asset Ratio	Balances with foreign banks	Ownership	NPL Ratio
	2011Q3	21,825,199.75	2	106.81%	22,877,045.27	1	4.59%
	2011Q4	18,699,991.23	2	107.61%	13,816,690.77	1	3.76%
	2012Q1	19,485,989.86	2	105.07%	11,318,520.33	1	0.00%
	2012Q2	19,903,679.62	2	106.73%	8,447,934.30	1	5.92%
	2012Q3	22,894,547.40	2	106.71%	16,229,057.70	1	10.03%
	2012Q4	28,487,695.33	0	79.72%	8,229,981.83	1	9.20%
	2013Q1	33,312,624.20	2	107.73%	1,037,959.00	1	12.46%
	2013Q2	35,421,415.19	2	62.40%	15,018,918.59	1	24.57%
	2013Q3	32,588,110.81	2	55.52%	9,845,726.95	1	22.82%
	2013Q4	36,721,156.21	2	59.21%	6,296,878.71	1	8.09%
	2014Q1	34,041,613.31	2	40.56%	10,244,179.80	1	5.23%
	2014Q2	36,190,035.56	2	32.32%	5,910,283.98	1	6.60%
KINGDOM	2009Q1	11,496,494.92	2	124.83%	11,588,308.29	1	0.01%
	2009Q2	15,981,906.48	2	79.26%	8,341,488.81	1	0.41%
	2009Q3	19,238,886.08	2	71.91%	7,792,205.79	1	2.54%
	2009Q4	14,578,780.32	2	49.89%	5,397,366.85	1	2.90%
	2010Q1	15,002,871.75	2	54.19%	9,134,488.90	1	3.40%
	2010Q2	(5,176,496.29)	2	38.65%	13,064,007.33	1	4.71%
	2010Q3	(18,285,517.70)	3	14.66%	277,773.98	1	4.27%
	2010Q4	2,335,686.23	2	28.49%	11,181,611.18	1	6.24%
	2011Q1	552,819.77	3	19.58%	3,965,909.84	1	5.96%
	2011Q2	(2,250,217.20)	3	25.17%	6,185,688.37	1	7.33%
	2011Q3	(1,029,958.32)	3	14.25%	2,279,080.39	1	32.87%
	2011Q4	3,479,039.63	3	18.28%	1,556,952.39	1	27.04%
	2012Q1	18,330,083.72	3	14.87%	733,600.86	1	3.10%
	2012Q2	22,904,709.76	3	27.00%	7,191,735.84	1	35.56%
	2012Q3	10,208,942.94	3	24.91%	4,392,145.87	1	23.67%
	2012Q4	19,658,089.12	0	32.54%	3,258,154.56	1	34.89%

		Independent Variables					Dependent Variable
	Quarter	Net Capital Base	Management Rating	Liquid Asset Ratio	Balances with foreign banks	Ownership	NPL Ratio
	2013Q1	11,730,853.93	4	29.28%	9,909,506.91	1	42.15%
	2013Q2	2,711,870.89	4	0.94%	645,319.16	1	98.05%
	2013Q3	10,407,869.66	4	0.85%	626,686.17	1	98.42%
	2013Q4	17,013,497.62	4	14.60%	632,216.91	1	36.36%
	2014Q1	15,305,624.09	4	11.64%	1,188,593.91	1	98.32%
	2014Q2	22,815,553.54	4	0.87%	1,905,829.22	1	98.36%
MBCA	2009Q1	7,560,838.00	2	49.64%	20,036,596.00	0	7.69%
	2009Q2	9,403,713.00	2	100.72%	30,243,951.00	0	9.11%
	2009Q3	3,993,226.17	3	26.01%	20,599,108.00	0	7.66%
	2009Q4	11,646,626.84	3	39.02%	17,432,615.03	0	8.72%
	2010Q1	14,717,337.60	2	20.10%	33,463,499.00	0	16.72%
	2010Q2	14,736,365.15	2	78.48%	43,494,134.06	0	7.51%
	2010Q3	16,013,874.46	2	54.00%	59,172,712.28	0	5.14%
	2010Q4	17,470,220.90	2	52.41%	32,361,574.47	0	4.28%
	2011Q1	17,203,404.71	2	32.25%	12,663,110.00	0	5.14%
	2011Q2	17,706,167.00	2	59.64%	45,216,925.00	0	2.98%
	2011Q3	17,909,623.68	2	41.80%	10,497,168.00	0	2.97%
	2011Q4	20,518,217.00	2	56.40%	31,543,411.24	0	1.56%
	2012Q1	21,703,600.94	2	62.96%	29,488,412.22	0	3.08%
	2012Q2	22,783,159.00	2	67.66%	19,932,774.00	0	2.23%
	2012Q3	23,880,699.00	2	67.40%	5,845,497.93	0	1.16%
	2012Q4	28,079,782.00	2	68.92%	12,520,771.00	0	1.32%
	2013Q1	29,513,704.00	2	67.34%	28,731,149.49	0	0.91%
	2013Q2	30,922,735.50	2	15.17%	32,265,763.74	0	40.24%
	2013Q3	31,335,885.50	2	13.21%	15,629,012.00	0	33.47%
	2013Q4	32,707,659.00	2	74.54%	11,649,421.03	0	2.73%
	2014Q1	32,972,637.10	2	70.57%	18,083,867.00	0	2.89%
	2014Q2	34,480,128.10	2	64.84%	24,384,168.48	0	2.65%



		Independent Variables					Dependent Variable
	Quarter	Net Capital Base	Management Rating	Liquid Asset Ratio	Balances with foreign banks	Ownership	NPL Ratio
Metro	2009Q2	5,951,640.00	2	73.04%	391,859.00	1	0.13%
	2009Q3	18,939,539.00	2	52.67%	426,522.00	1	0.16%
	2009Q4	16,926,096.00	2	57.15%	711,933.00	1	1.73%
	2010Q1	16,186,445.00	2	33.27%	562,071.00	1	1.18%
	2010Q2	17,796,343.00	2	38.19%	4,369,029.00	1	1.92%
	2010Q3	18,394,539.00	3	23.18%	619,330.00	1	3.17%
	2010Q4	18,458,296.00	3	36.41%	3,573,607.00	1	4.99%
	2011Q1	19,011,245.00	3	29.02%	531,702.00	1	4.69%
	2011Q2	19,831,175.00	3	33.23%	1,033,110.00	1	5.64%
	2011Q3	19,982,820.00	3	30.63%	1,024,587.00	1	4.71%
	2011Q4	19,711,344.00	3	36.91%	1,818,811.00	1	3.81%
	2012Q1	22,872,156.00	3	27.05%	4,032,763.00	1	12.12%
	2012Q2	41,992,208.49	3	30.27%	9,269,907.00	1	2.21%
	2012Q3	41,918,927.37	3	27.86%	2,823,737.50	1	2.02%
	2012Q4	41,952,244.49	3	82.80%	187,143.00	1	29.07%
	2013Q1	49,490,481.49	3	20.27%	266,971.00	1	24.36%
	2013Q2	49,752,522.42	3	69.70%	140,596.00	1	0.96%
	2013Q3	49,616,720.87	4	70.82%	242,337.00	1	1.17%
	2013Q4	49,973,871.32	4	25.78%	(3,215.00)	1	43.97%
	2014Q1	45,579,515.90	4	23.76%	4,670.00	1	61.70%
	2014Q2	29,198,772.97	4	14.47%	767,202.00	1	62.19%
NMB BANK	2009Q1	6,481,848.30	3	23.93%	496,676.00	1	2.16%
	2009Q2	7,700,562.93	3	26.82%	-	1	0.00%
	2009Q3	9,291,025.37	3	42.80%	2,402,130.00	1	0.70%
	2009Q4	9,453,427.19	3	98.33%	3,713,167.26	1	1.93%
	2010Q1	9,012,145.00	3	39.95%	4,128,964.00	1	2.27%
	2010Q2	9,747,995.41	3	33.92%	5,544,146.00	1	1.99%
	2010Q3	15,914,879.32	3	20.32%	927,835.00	1	5.16%

		Independent Variables					Dependent Variable
	Quarter	Net Capital Base	Management Rating	Liquid Asset Ratio	Balances with foreign banks	Ownership	NPL Ratio
	2010Q4	17,276,008.65	3	42.59%	7,437,602.00	1	14.14%
	2011Q1	18,571,535.38	2	32.42%	4,824,129.00	1	7.68%
	2011Q2	19,372,828.66	2	24.70%	6,135,627.91	1	10.35%
	2011Q3	19,244,472.02	2	25.19%	5,660,004.00	1	3.98%
	2011Q4	19,668,944.59	2	30.89%	5,581,125.00	1	8.78%
	2012Q1	20,378,557.66	2	25.22%	2,946,202.00	1	0.00%
	2012Q2	20,055,873.97	2	34.59%	4,036,293.00	1	11.81%
	2012Q3	21,821,687.65	2	32.10%	3,277,105.00	1	11.40%
	2012Q4	27,856,036.65	3	42.10%	5,092,023.45	1	11.51%
	2013Q1	26,482,320.17	3	32.19%	8,785,334.34	1	13.45%
	2013Q2	43,269,485.86	3	31.29%	12,897,912.08	1	23.93%
	2013Q3	43,537,136.73	3	27.48%	1,232,650.00	1	25.25%
	2013Q4	39,766,173.82	3	27.97%	19,997,969.00	1	19.69%
	2014Q1	40,107,434.96	3	23.91%	7,038,102.00	1	21.04%
	2014Q2	39,157,549.06	3	29.93%	13,623,404.00	1	20.01%
STANBIC	2009Q1	24,972,990.29	2	101.01%	64,801,603.08	1	0.00%
	2009Q2	25,324,012.92	2	98.62%	97,530,756.85	1	0.00%
	2009Q3	15,005,144.64	2	97.54%	83,544,274.71	1	0.00%
	2009Q4	18,786,498.97	2	37.16%	90,071,940.54	1	0.00%
	2010Q1	21,546,076.27	1	100.81%	77,817,085.87	1	0.19%
	2010Q2	23,023,640.11	1	100.08%	115,368,866.58	1	0.17%
	2010Q3	24,590,461.41	1	89.20%	153,380,187.87	1	0.16%
	2010Q4	27,024,979.88	2	83.09%	139,062,404.01	1	4.86%
	2011Q1	31,319,227.34	2	91.81%	140,631,648.38	1	5.38%
	2011Q2	33,179,978.03	2	77.38%	117,621,963.22	1	5.09%
	2011Q3	31,571,482.50	2	76.19%	91,915,043.23	1	4.57%
	2011Q4	34,589,733.58	2	82.20%	99,028,227.46	1	4.35%
	2012Q1	34,765,693.74	2	95.29%	73,539,220.32	1	5.09%

		Independent Variables					Dependent Variable
	Quarter	Net Capital Base	Management Rating	Liquid Asset Ratio	Balances with foreign banks	Ownership	NPL Ratio
	2012Q2	38,686,256.88	2	91.74%	50,542,430.56	1	99.15%
	2012Q3	42,982,101.82	2	95.90%	24,967,100.63	1	5.44%
	2012Q4	49,828,355.56	0	98.77%	51,799,620.85	1	5.82%
	2013Q1	53,840,053.49	1	103.69%	50,034,933.89	1	6.17%
	2013Q2	57,975,237.97	1	34.24%	72,502,255.16	1	13.70%
	2013Q3	62,468,626.57	1	26.01%	82,820,671.31	1	22.35%
	2013Q4	68,057,120.27	1	49.95%	69,559,492.11	1	7.74%
	2014Q1	72,580,072.22	1	51.54%	85,916,086.55	1	8.01%
	2014Q2	79,530,760.67	1	47.83%	92,790,947.04	1	8.90%
STANCHART	2009Q1	12,667,922.66	1	115.24%	24,948,258.00	0	0.00%
	2009Q2	14,218,843.37	1	101.63%	31,204,989.00	0	0.00%
	2009Q3	24,661,660.03	1	73.56%	22,640,033.00	0	0.00%
	2009Q4	25,599,213.57	2	99.57%	135,290,918.00	0	0.00%
	2010Q1	27,284,359.72	1	124.12%	136,196,671.00	0	0.00%
	2010Q2	30,279,144.36	1	84.90%	64,345,096.00	0	0.01%
	2010Q3	30,512,274.71	1	84.85%	61,345,242.00	0	0.93%
	2010Q4	33,347,184.70	1	82.69%	62,843,442.00	0	2.26%
	2011Q1	42,261,631.95	1	86.81%	68,084,381.00	0	2.65%
	2011Q2	46,866,083.33	1	62.29%	46,131,951.00	0	1.18%
	2011Q3	51,123,050.33	1	85.92%	69,208,846.00	0	4.32%
	2011Q4	56,240,750.44	2	88.72%	69,191,000.00	0	6.46%
	2012Q1	62,334,028.65	1	74.64%	26,346,388.00	0	4.72%
	2012Q2	64,990,773.42	1	71.00%	22,280,908.00	0	5.05%
	2012Q3	53,105,329.34	1	46.27%	7,839,657.00	0	4.54%
	2012Q4	69,400,257.84	1	42.94%	2,429,303.93	0	3.56%
	2013Q1	74,753,261.48	1	36.93%	7,845,333.80	0	4.00%
	2013Q2	77,309,312.63	1	99.56%	28,378,852.34	0	6.70%
	2013Q3	76,726,183.12	1	102.69%	12,801,720.47	0	7.46%

		Independent Variables					Dependent Variable
	Quarter	Net Capital Base	Management Rating	Liquid Asset Ratio	Balances with foreign banks	Ownership	NPL Ratio
	2013Q4	79,418,234.24	1	57.25%	22,555,555.96	0	6.38%
	2014Q1	73,138,981.64	1	53.03%	20,752,792.74	0	10.73%
	2014Q2	75,991,959.58	1	58.13%	44,027,630.52	0	7.60%
STEWARD BANK	2009Q1	1,514,409.68	3	3.70%	-	1	0.00%
	2009Q2	3,254,373.51	3	24.25%	205,880.40	1	0.00%
	2009Q3	6,461,520.08	3	134.10%	1,323,917.82	1	0.00%
	2009Q4	6,666,486.02	3	134.49%	246,888.06	1	0.00%
	2010Q1	6,668,735.99	3	82.76%	1,716,058.04	1	0.00%
	2010Q2	13,292,643.59	3	94.54%	265,760.01	1	0.00%
	2010Q3	13,692,848.24	3	50.68%	1,294,810.25	1	0.00%
	2010Q4	13,931,530.22	2	118.82%	1,014,568.61	1	0.00%
	2011Q1	14,233,128.21	2	109.96%	1,382,025.95	1	9.37%
	2011Q2	13,827,643.41	2	93.40%	415,742.70	1	7.83%
	2011Q3	12,731,425.98	2	78.22%	1,232,206.75	1	9.41%
	2011Q4	13,531,463.50	2	59.17%	372,776.89	1	4.30%
	2012Q1	13,430,419.96	3	85.20%	(617,766.42)	1	3.67%
	2012Q2	13,232,320.30	3	93.67%	4,740,634.88	1	5.06%
	2012Q3	27,197,348.17	3	83.37%	3,194,931.20	1	4.04%
	2012Q4	34,681,158.90	3	89.88%	2,728,507.22	1	5.98%
	2013Q1	72,551,778.23	3	148.83%	-	1	11.24%
	2013Q2	69,302,390.63	3	50.57%	-	1	5.32%
	2013Q3	53,551,106.18	3	50.86%	-	1	6.21%
	2013Q4	63,963,332.32	3	62.82%	-	1	78.51%
	2014Q1	46,858,836.77	3	38.05%	-	1	90.25%
	2014Q2	48,924,015.99	3	52.55%	7,258,964.96	1	34.69%
ZABG	2009Q1	6,478,024.27	3	45.88%	136,039.12	1	0.11%
	2009Q2	2,328,685.65	3	64.21%	391,599.38	1	0.29%
	2009Q3	2,677,525.08	2	49.45%	1,156,780.36	1	0.16%

		Independent Variables					Dependent Variable
	Quarter	Net Capital Base	Management Rating	Liquid Asset Ratio	Balances with foreign banks	Ownership	NPL Ratio
	2009Q4	2,097,899.69	3	112.33%	446,016.19	1	4.10%
	2010Q1	(613,521.35)	3	26.43%	485,339.55	1	8.91%
	2010Q2	(6,266,780.76)	3	32.83%	1,232,348.10	1	11.52%
	2010Q3	(6,603,028.80)	3	28.87%	556,331.67	1	20.86%
	2010Q4	(6,006,782.54)	5	24.95%	159,168.34	1	18.60%
	2011Q1	(7,685,615.16)	4	20.42%	256,076.42	1	28.27%
	2011Q2	(14,149,023.40)	3	27.19%	83,946.56	1	32.47%
	2011Q3	(13,015,731.14)	3	9.24%	289,341.03	1	32.47%
	2011Q4	(15,263,626.96)	3	21.47%	39,898.28	1	34.61%
	2012Q1	(9,996,205.54)	3	22.85%	-	1	47.43%
	2012Q2	13,652,668.25	3	37.20%	-	1	25.27%
	2012Q3	17,882,041.47	3	31.15%	-	1	39.57%
	2012Q4	17,097,101.09	0	27.37%	-	1	35.38%
	2013Q1	15,582,969.15	4	21.19%	-	1	50.00%
	2013Q2	15,033,799.81	4	1.33%	-	1	78.44%
	2013Q3	13,284,421.21	4	2.09%	-	1	89.73%
	2013Q4	8,741,373.09	4	37.88%	-	1	15.99%
	2014Q1	6,630,795.95	4	33.79%	-	1	16.68%
	2014Q2	(11,895,401.07)	4	35.05%	-	1	18.70%
ZB Bank	2009Q1	8,894,298.07	3	99.21%	20,937,374.91	1	0.00%
	2009Q2	12,161,775.19	3	69.85%	12,277,595.91	1	1.00%
	2009Q3	15,197,316.13	2	50.55%	15,126,505.79	1	0.87%
	2009Q4	12,886,325.86	3	44.22%	11,710,043.77	1	3.70%
	2010Q1	20,936,115.83	2	35.54%	10,902,459.90	1	2.50%
	2010Q2	20,902,572.15	2	39.71%	13,717,330.70	1	6.02%
	2010Q3	22,123,404.48	2	19.17%	11,598,470.23	1	5.10%
	2010Q4	25,878,043.03	1	37.02%	11,186,423.11	1	3.86%
	2011Q1	26,294,792.20	2	26.35%	12,638,858.00	1	4.02%

		Independent Variables					Dependent Variable
	Quarter	Net Capital Base	Management Rating	Liquid Asset Ratio	Balances with foreign banks	Ownership	NPL Ratio
	2011Q2	29,704,614.06	2	21.99%	12,588,223.16	1	6.56%
	2011Q3	30,041,565.64	2	26.41%	11,885,797.67	1	4.56%
	2011Q4	31,145,025.57	2	16.89%	2,732,114.47	1	8.92%
	2012Q1	31,491,170.69	2	30.04%	13,094,132.90	1	13.50%
	2012Q2	28,111,166.98	3	34.98%	14,330,219.06	1	39.76%
	2012Q3	31,970,292.85	3	36.05%	14,057,429.14	1	20.96%
	2012Q4	35,304,570.13	0	31.79%	12,478,381.85	1	20.59%
	2013Q1	33,585,110.78	3	31.42%	14,152,042.10	1	20.10%
	2013Q2	36,851,858.43	3	35.77%	14,218,332.82	1	20.74%
	2013Q3	33,173,038.09	3	34.12%	12,707,079.60	1	20.77%
	2013Q4	34,307,690.36	3	0.00%	13,433,328.14	1	0.00%
	2014Q1	35,136,798.14	3	0.00%	14,033,286.60	1	0.00%
	2014Q2	33,723,647.22	3	0.00%	11,396,828.91	1	0.00%
RENAISSANCE	2009Q1	97,623.16	3	1422.16%	-	1	0.00%
	2009Q2	(180,662.87)	3	80.66%	-	1	3.06%
	2009Q3	7,703,164.51	3	97.47%	-	1	1.77%
	2009Q4	3,785,962.72	3	110.95%	1,653,037.59	1	0.73%
	2010Q1	2,023,063.15	4	99.58%	2,854,513.18	1	0.70%
	2010Q2	5,924,937.84	4	108.56%	-	1	5.67%
	2010Q3	6,067,360.45	3	89.66%	14,192.77	1	4.14%
	2010Q4	6,010,678.80	4	101.77%	2,369,489.30	1	21.72%
	2011Q1	(3,721,323.18)	5	88.35%	508,167.53	1	23.56%
	2011Q2	(25,033,515.96)	5	67.33%	609,039.49	1	56.46%
	2011Q3	(16,857,494.87)	4	91.81%	718,672.25	1	77.64%
	2011Q4	(34,905,564.14)	4	75.00%	14,462,987.37	1	83.64%
	2012Q1	15,871,443.15	4	114.68%	1,506,140.57	1	88.93%
	2012Q2	13,810,320.51	3	11.64%	482,907.30	1	0.00%
	2012Q3	11,584,470.35	3	122.41%	1,977,658.17	1	89.89%

		Independent Variables					Dependent Variable
	Quarter	Net Capital Base	Management Rating	Liquid Asset Ratio	Balances with foreign banks	Ownership	NPL Ratio
	2012Q4	7,601,886.31	4	121.63%	109,409.41	1	86.62%
	2013Q1	(7,276,305.73)	4	133.05%	78,406.22	1	88.46%
	2013Q2	(16,872,584.16)	4	47.27%	60,483.57	1	87.87%
	2013Q3	(17,923,642.50)	4	46.27%	121,764.71	1	75.10%
	2013Q4	(21,740,988.02)	4	3.61%	74,807.06	1	84.42%
	2014Q1	(23,170,497.67)	4	16.39%	67,805.03	1	86.36%
	2014Q2	-	4	0.00%	-	1	0.00%
TETRAD	2009Q1	5,150,724.62	4	0.00%	-	1	0.00%
	2009Q2	4,601,950.28	4	1092.57%	-	1	0.00%
	2009Q3	6,033,316.75	3	2943.30%	-	1	0.00%
	2009Q4	13,063,690.43	2	6096.58%	-	1	2.93%
	2010Q1	10,490,910.40	2	93.92%	-	1	0.00%
	2010Q2	12,896,090.59	2	111.74%	-	1	7.32%
	2010Q3	12,646,812.85	2	289.78%	-	1	10.95%
	2010Q4	11,854,590.08	2	274.96%	-	1	0.00%
	2011Q1	12,122,614.11	3	102.23%	-	1	2.13%
	2011Q2	12,167,466.74	3	50.24%	640,241.36	1	2.75%
	2011Q3	12,815,921.08	3	39.00%	401,978.47	1	2.21%
	2011Q4	13,613,877.72	3	23.55%	155,285.92	1	1.93%
	2012Q1	13,409,566.43	3	22.60%	474,703.18	1	29.80%
	2012Q2	13,299,252.77	3	51.28%	337,974.07	1	89.99%
	2012Q3	12,860,949.36	3	33.74%	3,492,064.01	1	4.65%
	2012Q4	26,184,178.00	3	31.60%	-	1	6.25%
	2013Q1	(475,089.74)	4	7.07%	(3,234,037.41)	1	4.00%
	2013Q2	15,668,523.59	4	13.64%	937,092.04	1	60.66%
	2013Q3	11,266,922.07	4	1.12%	-	1	74.81%
	2013Q4	6,415,733.22	4	0.00%	34,450.09	1	0.00%
	2014Q1	(5,139,800.97)	4	0.00%	34,409.72	1	0.00%

		Independent Variables					Dependent Variable
	Quarter	Net Capital Base	Management Rating	Liquid Asset Ratio	Balances with foreign banks	Ownership	NPL Ratio
	2014Q2	(7,181,347.30)	4	10.56%	8,401.93	1	0.00%
CABS	2009Q1	36,630,238.00	2	148.99%	-	0	0.00%
	2009Q2	34,862,084.00	2	66.05%	-	0	0.00%
	2009Q3	28,953,673.50	2	47.36%	-	0	0.00%
	2009Q4	48,805,524.74	1	41.17%	-	0	0.00%
	2010Q1	32,426,922.46	1	8.28%	-	0	28.91%
	2010Q2	34,766,360.80	1	12.73%	-	0	0.00%
	2010Q3	37,295,238.00	1	68.89%	-	0	3.66%
	2010Q4	42,844,476.00	1	59.33%	-	0	0.00%
	2011Q1	45,974,376.78	1	38.53%	-	0	3.52%
	2011Q2	24,600,868.04	1	26.97%	-	0	6.25%
	2011Q3	49,781,171.20	1	33.80%	-	0	3.03%
	2011Q4	34,080,334.54	1	28.71%	189.00	0	1.47%
	2012Q1	32,385,850.69	2	35.59%	389.42	0	0.00%
	2012Q2	43,392,886.37	2	30.76%	473.00	0	0.55%
	2012Q3	50,370,506.51	1	32.24%	6,137,246.58	0	4.16%
	2012Q4	66,468,010.11	1	33.34%	5,869,146.16	0	4.73%
	2013Q1	88,351,224.86	1	32.94%	6,488,631.57	0	6.27%
	2013Q2	93,178,820.40	1	41.20%	12,017,735.88	0	6.98%
	2013Q3	98,523,193.39	1	45.71%	31,006,853.74	0	6.98%
	2013Q4	99,997,474.47	1	55.52%	13,330,349.97	0	0.51%
	2014Q1	99,521,045.16	1	49.56%	26,234,984.10	0	0.45%
	2014Q2	123,812,037.83	1	40.76%	15,578,096.00	0	7.93%
FBC BS	2009Q1	3,535,931.58	2	104.40%	-	1	0.00%
	2009Q2	5,178,946.02	2	72.05%	-	1	0.00%
	2009Q3	5,259,723.00	2	41.72%	-	1	0.00%
	2009Q4	6,783,915.32	2	17.63%	-	1	0.00%
	2010Q1	11,169,536.29	2	152.84%	-	1	0.00%



		Independent Variables					Dependent Variable
	Quarter	Net Capital Base	Management Rating	Liquid Asset Ratio	Balances with foreign banks	Ownership	NPL Ratio
	2010Q2	11,517,438.64	2	150.49%	-	1	0.00%
	2010Q3	11,187,788.08	2	117.75%	-	1	0.00%
	2010Q4	11,517,132.37	2	86.88%	-	1	3.08%
	2011Q1	12,323,796.81	2	80.43%	-	1	3.70%
	2011Q2	12,823,622.04	2	79.78%	-	1	3.57%
	2011Q3	13,295,040.75	2	74.55%	-	1	8.12%
	2011Q4	13,862,590.44	2	62.65%	-	1	3.45%
	2012Q1	15,225,509.20	2	54.73%	-	1	1.23%
	2012Q2	15,810,184.72	2	63.00%	-	1	3.91%
	2012Q3	17,130,480.05	2	63.68%	-	1	3.79%
	2012Q4	18,720,915.95	2	52.33%	-	1	2.75%
	2013Q1	20,762,325.17	2	58.43%	-	1	2.77%
	2013Q2	22,127,319.23	2	62.19%	-	1	4.80%
	2013Q3	22,908,878.23	2	54.40%	-	1	4.84%
	2013Q4	25,366,161.71	2	38.78%	-	1	8.15%
	2014Q1	26,337,762.89	2	38.48%	-	1	7.98%
	2014Q2	28,268,038.49	2	0.00%	-	1	0.00%
ZB BS	2009Q1	10,029,754.94	3	103.65%	-	1	0.00%
	2009Q2	9,987,865.00	3	106.09%	-	1	0.00%
	2009Q3	10,907,726.72	3	66.37%	-	1	0.00%
	2009Q4	9,173,180.19	3	87.82%	-	1	0.00%
	2010Q1	10,757,982.08	3	62.75%	-	1	0.00%
	2010Q2	10,913,670.22	3	23.68%	-	1	9.65%
	2010Q3	10,841,945.52	3	77.06%	-	1	4.58%
	2010Q4	11,518,994.92	2	72.65%	-	1	0.00%
	2011Q1	11,893,746.41	2	76.71%	-	1	0.00%
	2011Q2	13,231,037.71	2	90.37%	-	1	0.00%
	2011Q3	14,404,698.91	3	60.75%	-	1	0.00%

		Independent Variables					Dependent Variable
	Quarter	Net Capital Base	Management Rating	Liquid Asset Ratio	Balances with foreign banks	Ownership	NPL Ratio
	2011Q4	14,672,568.20	3	55.42%	-	1	0.00%
	2012Q1	14,815,915.38	3	42.85%	-	1	1.68%
	2012Q2	15,022,517.44	3	37.56%	-	1	2.64%
	2012Q3	15,683,019.31	3	90.68%	-	1	0.13%
	2012Q4	16,073,465.82	3	87.10%	-	1	0.10%
	2013Q1	15,199,416.31	2	81.21%	-	1	0.10%
	2013Q2	15,325,194.01	2	82.65%	-	1	0.06%
	2013Q3	16,019,308.28	2	83.56%	-	1	0.56%
	2013Q4	16,011,173.77	2	0.00%	-	1	0.00%
	2014Q1	16,601,325.55	2	0.00%	-	1	0.00%
	2014Q2	17,101,307.38	2	75.94%	-	1	15.63%
POSB	2009Q1	7,474,642.21	3	65.69%	-	1	0.00%
	2009Q2	8,373,943.06	3	112.58%	-	1	0.00%
	2009Q3	6,998,912.32	3	102.23%	-	1	0.00%
	2009Q4	4,328,018.34	3	50.09%	-	1	13.62%
	2010Q1	4,900,213.00	3	61.71%	-	1	0.72%
	2010Q2	5,526,940.94	3	68.58%	-	1	0.00%
	2010Q3	6,867,864.32	3	96.38%	-	1	5.10%
	2010Q4	8,334,300.69	2	79.46%	-	1	0.00%
	2011Q1	8,347,918.37	2	73.10%	-	1	16.21%
	2011Q2	9,924,697.75	2	74.28%	-	1	17.89%
	2011Q3	10,800,038.10	2	97.58%	-	1	12.32%
	2011Q4	11,243,474.61	2	94.33%	-	1	14.05%
	2012Q1	11,868,098.24	2	90.33%	-	1	1.61%
	2012Q2	11,920,951.19	3	85.90%	-	1	0.00%
	2012Q3	13,441,276.10	3	80.30%	-	1	15.01%
	2012Q4	12,838,348.81	3	75.08%	-	1	10.66%
	2013Q1	13,275,628.49	3	79.29%	-	1	12.68%

		Independent Variables					Dependent Variable
	Quarter	Net Capital Base	Management Rating	Liquid Asset Ratio	Balances with foreign banks	Ownership	NPL Ratio
	2013Q2	13,561,517.34	3	76.21%	-	1	12.84%
	2013Q3	13,552,613.09	3	78.48%	-	1	12.21%
	2013Q4	13,627,374.48	3	36.98%	-	1	16.49%
	2014Q1	12,279,624.54	3	34.68%	-	1	16.92%
	2014Q2	10,843,606.93	3	0.00%	-	1	0.00%

*Source: RBZ Banking Supervision Annual Reports 2009 to 2013 and Banks' Annual Reports 2009 to 2013*

## APPENDIX – B: Financial Soundness Indicators for the Zimbabwean Banking Sector

	Dec-09	Mar-10	Jun-10	Sep-10	Dec-10	Mar-11	Jun-11	Sep-11	Dec-11	Mar-12	Jun-12	Sep-12	Dec-12	Mar-13	Jun-13	Sep-13	Dec-13	Mar-14
<b>Capital adequacy</b>																		
Regulatory capital to risk-weighted assets	21.6	19.0	17.0	14.3	15.3	14.5	13.7	13.2	13.4	12.9	8.1	7.9	11.1	10.5	10.8	10.3	12.3	12.4
Capital to assets	12.0	11.4	10.2	9.1	9.4	9.4	9.2	9.0	9.3	8.4	5.9	6.0	6.6	7.2	7.2	6.8	7.3	7.1
<b>Asset quality</b>																		
Past-due loans to gross loans <sup>2/</sup>	19.9	16.9	16.9	18.1	16.1	17.4	19.9	21.5	21.1	26.2	27.2	26.3	30.0	32.2	32.3	33.3	31.6	36.2
Nonperforming loans <sup>3/</sup>	1.8	1.7	1.9	2.3	3.1	3.5	4.0	6.5	5.9	9.2	12.4	11.5	13.8	14.2	14.8	15.5	15.4	16.9
Watch-listed loans <sup>4/</sup>	18.0	15.2	15.1	15.8	13.0	13.9	15.9	15.0	15.2	16.9	14.8	14.9	16.3	18.1	17.5	17.7	16.3	19.3
Provisions as percent of past-due loans	10.8	7.1	11.9	10.0	10.8	9.9	10.5	12.0	14.0	13.4	25.6	25.6	26.1	25.4	28.1	26.0	26.5	23.7
<b>Earnings and profitability</b>																		
Net profit (before tax and extraordinary items) to net income	188.1	139.5	127.7	173.3	166.0	111.1	147.8	152.5	139.7	167.6	64.4	208.5	221.0	-41.6	75.2	0.4	-47.1	101.6
Return on assets	0.5	0.5	0.8	1.0	1.9	1.0	1.5	2.0	2.7	0.4	-0.6	1.0	1.2	0.0	-0.2	0.0	0.1	0.3
Return on equity	1.9	3.0	5.5	5.4	11.0	7.9	9.5	12.5	17.6	2.1	-9.6	5.0	5.4	-0.4	-2.9	-3.3	-2.5	3.0
Expenses to income	95.5	84.6	88.3	89.4	84.1	77.5	78.0	80.3	80.2	88.0	109.4	88.7	89.7	99.3	104.2	100.0	98.8	87.6
<b>Liquidity</b>																		
Liquid assets to total assets	39.6	36.2	33.0	32.0	30.8	28.2	30.4	27.6	27.7	29.5	26.3	24.3	24.9	24.4	26.9	29.1	27.8	28.5
Liquid assets to short-term liabilities	96.3	47.2	41.4	40.9	37.5	65.0	36.0	32.6	32.6	34.7	32.0	29.7	29.9	30.2	32.9	34.9	34.8	35.1
Loans to deposits	48.1	57.7	60.7	51.6	79.1	76.8	77.2	86.2	88.0	85.2	88.4	93.8	92.9	105.6	103.9	103.3	104.4	96.9
Liquid assets to total deposits	60.0	52.8	49.6	51.8	51.8	42.7	44.6	41.2	41.7	44.4	42.5	39.6	39.6	43.3	47.4	51.9	51.2	50.7
Excess reserves to broad money	2.8	5.3	7.1	5.7	7.4	5.4	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	9.0	7.6
<b>Sensitivity to market risk</b>																		
funds	5.2	5.2	6.5	-8.9	7.9	33.1	26.6	26.6	26.6	26.6	26.6	26.6	46.9	37.5	45.0	49.5	53.8	53.4
<b>Interest rates</b>																		
Lending rate minus demand deposit rate	3.0	2.9	2.8	3.3	3.1	2.0	4.2	6.2	9.3	2.6	4.9	7.0	8.9	2.1	4.2	6.2	8.6	2.0
Commercial banks fixed deposits (12 months average)	10.3	9.9	9.4	9.1	9.0	8.3	8.6	11.5	11.2	11.4	11.5	11.5	11.2	11.4	14.3	12.4	20.1	13.3
Commercial banks lending rate (weighted average)	11.0	7.2	7.2	7.3	7.5	5.3	18.0	18.0	18.0	18.0	18.0	10.4	10.0	9.8	10.3	11.8	9.4	9.3
Savings deposit rate	1.0	1.1	1.3	1.3	1.4	1.0	2.6	2.6	2.6	2.6	2.6	3.0	3.2	3.2	3.1	3.1	3.2	4.1

Source: Reserve Bank of Zimbabwe.

<sup>1/</sup> Based on commercial banks only.

<sup>2/</sup> Past-due loans are defined as the aggregate of special mention, substandard, doubtful, and loss loans, and include RBZ frozen claims.

<sup>3/</sup> Non-performing assets are defined as the aggregate of substandard, doubtful, and loss loans.

<sup>4/</sup> Watch-listed loans are the same as special mention loans.

Source: IMF Article IV Consultation Report 2014: <http://www.imf.org/external/pubs/ft/scr/2014/cr14202.pdf>

## **Appendix – C: Interview Guide**

1. What motivated the adoption of dollarization in Zimbabwe?
2. What has been the impact of dollarization on the Zimbabwean banking sector?
3. Are the problems facing banks in respect of liquidity and capitalization attributed to dollarization?
4. What measures has the Zimbabwean regulatory authorities put in place to ensure challenges emanating from the following do not lead to banking crisis:
  - Absence of lender of last resort
  - Capitalization
  - Market Illiquidity
  - Adverse macro-economic environment
  - Cross boarder banking risks
5. In your view has the Central Bank's regulation and supervision approach been effective in maintaining banking sector stability after adoption of dollarisation?
6. What has been the role of foreign banks in transmitting risks from their host countries to Zimbabwe?
7. What has been the impact of the global financial crises of 2007-2009 on the Zimbabwean banking sector?