FAIR VALUE ACCOUNTING IN SOUTH AFRICAN BANKS:

Financial stability implications

by

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Thesis Presented for the Degree of

DOCTOR OF PHILOSOPHY

In the Department of Finance and Tax

Commerce Faculty

UNIVERSITY OF CAPE TOWN

August 2014

ACKNOWLEDGEMENTS

First, I would like to thank my supervisor, Professor Glen Holman, for his patience and nuanced corrections. Thank you to my wife, Nicola, for her late night editing and numerous apt suggestions. Friends and family, thank you for your kind words and prayers. I would also like to thank Jesus Christ for giving me *Zoë* life and for the numerous insights I got whilst in church.

I would also like to acknowledge the financial support which contributed to the project. Thus, thank you to the Banking Sector Education and Training Authority (BANKSETA) for the funding received from their doctoral research development program. Thank you to the University of Cape Town Research Office for the research mentoring I received as well as for their funding support.

ABSTRACT

This article-based thesis consists of three main papers that examine the use of fair value accounting in banks and how it can influence behaviour with systemic effects; this helps in understanding the role of fair value accounting in the global financial crisis. The examination consisted of two parts. The first part was the investigation of how fair value accounting was actually used by South African banks. The second part was the development of an analytical model that links together fair value accounting, bank capital regulation and economic outcomes. The South African case study was further divided into two parts. In the first part, a comparative design was used to investigate in detail how fair value accounting was implemented by two South African banks and what their motivations were. The second part sought to answer the question: did South African banks pay out higher dividends based on risky fair value accounting gains?

The South African evidence indicates that fair value accounting materially impacts the profit and loss and the regulatory capital of banks. This component of regulatory capital proved to be risky. Dangerous pay-outs resulted from the increase in profits and bank assets grew the most during the period of risky capital formation. It was found that the use of a stock-flow consistent model of the economy was a commonality amongst those that predicted the global financial crisis. A stock-flow consistent model was shown to be descriptive of the South African evidence. The model showed fair value accounting to be at the centre of feedback processes that can weaken the banking system during the economic upswing. The study concludes that fair value accounting is central in processes that weaken the banking system during an economic upswing and thus demonstrates why the current call for prudent accounting in banks is justified.

The study expands on current literature in a number of ways. It adds to the literature that fair value accounting is procyclical by demonstrating that this effect is not constant throughout the cycle and is more problematic during the upswing; this differs from the usual argument that fair value accounting accelerates the downturn. The South African empirical evidence showed that fair value accounting for available-for-sale assets is not the only avenue for fair value accounting to be dangerous; fair value accounting adjustments through profit and loss should also be monitored. The analytical model as well as the South African empirical evidence contradicts the common argument that the fair value measurement of financial

instruments must be pervasive in a bank and banking system to be dangerous. The South African empirical evidence shows that fair value accounting must be considered a possible avenue of earnings or capital management in banks.

THESIS AT A GLANCE

Paper one

Aim: To investigate in detail how fair value accounting is applied by banks.

Approach: Comparative case study.

Data: Quantitative and qualitative data gathered on the largest South African bank and from a bank on the border between systemic and not systemic. Four themes were used to guide the data collection process.

Conclusion: It is found that FVA as applied by these two banks is not neutral. Also included is a demonstration of a method to derive the unrealised portion of profit and equity, the identification of the gap between assets and liabilities at fair value as the driver of where in a banking group profits and losses are realised, and the finding that the restatement of comparative figures was used to circumvent the prohibition on reclassifications into and out of the "designated as at fair value" category.

Paper two

Aim: To investigate whether South African banks paid dividends from unstable fair value accounting gains prior to the global financial crisis.

Approach: Hypothesis testing in a co-integrated regression and hypothesis testing in a balanced panel data regression.

Data: Monthly income statement data from the South African banking system and annual bank financial statement data.

Conclusion: A study by Gonharov and van Triest (2011) found no empirical support that dividends increase in response to unrealised positive fair value adjustments to income. In contrast, when the setting is limited to only South African banks, this paper finds that South African banks did pay dividends from unrealised transitory gains.

Paper three

Aim: To develop a plausible model that links together fair value accounting, bank regulatory capital and economic outcomes.

Approach: Analytical model.

Data: Previous financial crisis characteristics.

Conclusion: The model shows FVA in banks to be an accelerator that amplifies the financial cycle upswing. Feedback effects noted in the model include changes in the demand for financial instruments and changes in demand in the real economy. Minsky-like, crisis is shown to be endogenous to the model, working through the fragility of balance sheets in the real sector as well as in the financial sector. Bank balance sheet fragility is caused by bad capital driving out good capital, banks reaching for yield and the inversion of the yield curve. The model shows that the practice of not meeting rising credit demand with increasing credit supply is an essential control mechanism in the financial cycle.

TABLE OF CONTENTS

CHAPTER THREE: THE SOUTH AFRICAN CONTEXT

CHAPTER FOUR (PAPER ONE): LIBERAL FAIR VALUE ACCOUNTING IN BANKS: A SOUTH AFRICAN CASE STUDY

(Paper was published in the journal *Australian accounting review)*

CHAPTER FIVE (PAPER TWO): FOR BANKS FAIR VALUE ADJUSTMENTS DO INFLUENCE DIVIDEND POLICY

CHAPTER SIX (PAPER THREE): FAIR VALUE ACCOUNTING, FRAGILE BANK BALANCE SHEETS AND CRISIS: A MODEL

(Paper was published in the journal *Accounting, organizations and society*)

CHAPTER SEVEN: SEPARATING FAIR VALUE ACCOUNTING FROM ITS USE

CHAPTER EIGHT: GENERAL DISCUSSION AND CONCLUSION

LIST OF ABBREVIATIONS

BIS	Bank for International Settlements
EMH	efficient market hypothesis
FASB	Financial Accounting Standards Board
FNDI	financial and industrial 30 index on the Johannesburg Securities Exchange
FVA	fair value accounting
GAAP	generally accepted accounting practice
GDP	gross domestic product
IAS	International Accounting Standard
IASB	International Accounting Standards Board
IBL	Investec Bank Limited
IFRS	International Financial Reporting Standards
NCCFEC	The National Commission on the Causes of the Financial and Economic Crisis in the United States
ROA	return on assets
ROE	return on equity
SARB	South African Reserve Bank
SBoSA	Standard Bank of South Africa Limited
SFAS	Statement of Financial Accounting Standards
S&L	savings and loans (crisis)
SPV	special purpose vehicle

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE: INTRODUCTION

1. Background

"Was the cigarette butt the cause of the forest fire, or was it the tinder dry condition of the forest?" – Larry Summers quoted in the report of the National Commission on the Causes of the Financial and Economic Crisis in the United States (NCCFEC) (2011:470)

The aftermath of the global financial crisis, which arguably peaked with the failure of Lehman Brothers in September 2008, is still felt. Growth remains subdued (Bank for International Settlements, 2012:ix) and exactly what caused the crisis is still unclear. Lo (2012) reviewed 21 books written about the global financial crisis and its causes and concludes that "there is still significant disagreement as to what the underlying causes of the crisis were" (Lo, 2012:173).

The global financial crisis was triggered by a sharp fall in house prices in the United States of America (Posner, 2009:vii) and grew from the subprime crisis into the credit crisis, then into a financial crisis and finally into a global economic crisis that many feared might be similar to the Great Depression of the 1930s. There were opinions that accounting,[1] especially FVA, played a key role in causing or at least worsening the crisis. This opinion was often held by a group that can be broadly called the "bankers" (Veron, 2008). One radical example of this viewpoint is the opinion held by Steve Forbes, chairman of Forbes Media, to the effect that mark-to-market accounting was the "principal reason" that the financial system melted down in 2008 (Pozen, 2009:85).

The problem that this thesis will investigate is the role of FVA in the global financial crisis; a crisis that was identified by Ryan (2008:1606) as the "signal researchable-teachable moment of my two-decade-plus career as an accounting academic" due to the social costs of that crisis and the serious questions it raises for accounting. This problem has been investigated by

[1] Numerous books have become available that attempt to explain why the crisis happened and what needs to be done to prevent it from happening again. Examples include Roubini & Mihm (2010), Sorkin (2009), Prins (2009) and Fox (2010). Common reasons listed for the crisis include loans to people who could not afford them, overleveraging, interest rates too low for too long, an over-strong belief in the ability of markets to regulate themselves and greed. Accounting is not often named a direct cause of the crisis, but is often called a contributory factor (Cassidy, 2009:308).

others who usually find there is no empirical evidence that FVA during the global financial crisis added to the severity of the crisis (Pinnuck, 2012:1). Thus, the section to follow on the role of FVA in the global financial crisis will explain why the problem has not been resolved. But, first a detailed definition of FVA will be provided.

2. Definition of FVA

In the recent past, most financial reporting was based on historical cost. Assets (or liabilities) were shown on the balance sheet of companies at the original price paid for the asset or at the original price paid for the asset amortised over time. Under mark-to-market accounting, an asset (or a liability) is carried on the balance sheet at the market value of the financial instrument. Changes in mark-to-market value, in other words unrealised holding gains or losses, are recognised in current earnings or directly in reserves. In contrast, under historical cost accounting, increases in the market value of assets are usually only recognised when realised.[2]

FVA is more complex than mark-to-market accounting. Fair value is the exchange value in an idealised market and can be determined in three ways, in order of preference:[3]

- Mark-to-market accounting (level 1): fair value is based on quoted market prices (unadjusted) in active markets for identical instruments.
- Mix of mark-to-market accounting and modelling (level 2): fair value is determined through valuation techniques based on observable inputs; for example, adjusted market values for instruments that trade on inactive markets or adjusted market values for similar instruments.
- Mark-to-model (level 3): fair value is determined through valuation techniques using significant unobservable inputs; for example, discounted cash flow valuation techniques.

The different levels of FVA have a behavioural aspect to them; as one moves from level 1 to level 3 the valuations become more subjective. An avenue of accounting choice is thus to

[2] Historical cost accounting recognised declines in the market value of assets if that decline indicated impairment.
[3] A formal order of preference only entered accounting standards under the IASB in October 2008 with an amendment to IAS 39 which adopted the American tiered system of fair value determination.

move from level 1 valuations to level 2 or level 3 valuations when you are not in agreement with the result of the valuation. Accounting standard setters have recognised this and require additional disclosure when moving between valuation levels with level 3 valuations requiring the most disclosure. The flipside to this asymmetry in disclosure is that market values are assumed to be objective; an assumption that holds for most non-financial firms but one that can be questioned for large, systemic banks that are often the market makers in financial instruments.[4]

The core of FVA is thus first a stock variable; what is the fair value of the relevant items on the balance sheet? The difference between the new fair value of an item and its previous fair value gives rise to the flow variable that impacts the profit and loss statement (or capital directly for gains on available-for-sale (AFS) items). How often are these value changes calculated? South African banks have to report to the reserve bank in accordance with IFRS (Bakoro, de Jager & Parsons, 2013:190) on a monthly basis. According to the Standard Bank Group (the largest South African banking group) (2013:196) price validation is done on at least a monthly basis and daily where possible. The implication is that the fair values used in this thesis are at most a month out of date.

The adoption of FVA for financial instruments was the culmination of the introduction of fair value into accounting (Magnan, 2009:192). IAS 39 *Financial Instruments: Recognition and Measurement* came into effect from 1 January 2001 and is the accounting standard on financial instruments under which the banks in the thesis reported. IAS 39 is summarised in the following table.

[4] Kay (2013) goes further and argues that market prices in active markets are likely to become disconnected from fundamental values due to speculation.

Classification of financial instruments	Treatment
ASSETS	
1.1 Held for trading financial instruments including derivatives	Financial instrument valued at fair value and value change taken to profit and loss
1.2 Financial instruments designated as at fair value through profit or loss	
2. Held-to-maturity financial instruments	Financial instrument valued at amortised cost
3. Loans and receivables	Financial instrument valued at amortised cost
4. Available-for-sale financial instruments	Financial instrument valued at fair value and value change taken directly to capital. Impairments charged to profit and loss.
LIABILITIES	
5.1 Held for trading financial instruments including derivatives	Financial instrument valued at fair value and value change taken to profit and loss and thus ordinary capital
5.2 Financial instruments designated as at fair value through profit or loss	
6. Other financial liabilities	Financial instrument valued at amortised cost

Table 1.1 Disclosure categories for financial instruments according to IAS 39.

In Table 1.1 assets numbered 1.1, 1.2 and 4 as well as liabilities numbered 5.1 and 5.2 are valued at fair value on the balance sheet. Fair value changes are not all treated the same though. For item 4 value gains are not booked through profit and loss and taken directly to capital as part of AFS reserve. The focus in this thesis is not on FVA for AFS assets as those reserves were not available as regulatory capital under Basel II (Bank for International Settlements, 2006:245). In addition, empirical research (Badertscher, Burks and Easton, 2012; Shaffer, 2010) found that the impairment of AFS assets during the global financial crisis was not material. Rather, the focus is on FVA for those items that impact profit and loss and thus end up in retained income via profit and loss. A simplified example will now be given to clarify some of the complexity of IAS 39 and the difference between FVA gains that impact profit and loss and those that impact capital. The example is based on Enria, Cappiello, Dierick, Grittini, Haralambous, Maddaloni, Molitor, Pires, and Poloni (2004:8)'s argument that profit and capital increased by FVA can lead to the overextension of credit and dangerous pay-outs.

Bank A's assets are made up out of a cash asset of R5, a loan asset of R60 that is accounted for at amortised cost, an investment of R5 that is accounted for as an AFS asset and an interest rate sensitive financial instrument asset of R30 that is a trading security. The R100 of assets are financed by R15 of deposit liabilities designated at fair value, R80 of deposit liabilities accounted for at amortised cost and R5 of issued share capital.

ASSETS		EQUITY & LIABILITIES	
Cash	5	Share capital	5
Financial instrument asset	30	Deposit liabilities – fair valued	15
Investment	5	Deposit liabilities – amortised cost	80
Loan	60		
	100		**100**

The simple regulatory capital ratio of our bank is equal to 5/100=5% and 5/5=100% of the R5 of capital is available in cash.

The loan asset generates 10% of cash interest per year whilst the deposit liabilities cost 1% of cash interest per year. The cash asset, investment asset and financial instrument asset generates no cash return. The market value of the investment asset increases to R8 *inter alia* due to a reduction in interest rates. The interest rate reduction also impacts the financial instrument asset which increases to a value of R35. The fair valued deposit liability is of very short maturity and thus does not change in value due to the interest rate change. The earnings flow calculation for the year is as follows.

	Rand
Interest received (60x10%)	6
Interest paid (95x1%)	(0.95)
Value increase in financial instrument asset (35-30)	5
Net profit (tax ignored)	**10.05**

The new balance sheet is as follows.

ASSETS		EQUITY & LIABILITIES	
Cash	10.05	Share capital	5
Financial instrument	35	Retained income	10.05
Investment	8	AFS reserve	3
Loan	60	Deposit liabilities – fair valued	15
		Deposit liabilities – amortised cost	80
	113.05		**113.05**

The flow related to the value increase in the investment is booked directly to the AFS reserve. The new simple regulatory capital ratio is (5+10.05)/113.05=13.3%. AFS reserve was not included as it does not form part of regulatory capital. Of the regulatory capital 10.05/(5+10.05)=66.7% is available in cash and 5/(5+10.05)=33.3% is caught up in the unrealised increase in the financial instrument asset. Bank management is worried that the return on equity of the bank will suffer due to the now excess capital. Excess capital can be reduced by originating more debt or by paying a dividend (or remuneration).

The bank targets a dividend cover of 2. The retained income calculation is as follows.

	Rand
Interest received (60x10%)	6
Interest paid (95x1%)	(0.95)
Value increase in financial instrument asset (35-30)	5
Net profit (tax ignored)	**10.05**
Dividend	(5.025)
Retained income	**5.025**

The changed balance sheet is as follows.

ASSETS		**EQUITY & LIABILITIES**	
Cash	5.025	Share capital	5
Financial instrument	35	Retained income	5.025
Investment	8	AFS reserves	3
Loan	60	Deposit liabilities – fair valued	15
		Deposit liabilities – amortised cost	80
	108.025		**108.025**

The new simple regulatory capital ratio is (5+5.025)/108.025=9.3%. By paying a dividend retained income was reduced by R5.025. The payment was made using cash resources with the size of the dividend determined as a portion of earnings. The eventual effect is that retained income was reduced from R10.05 previously to R5.025 – paid out of retained income effectively. Of the regulatory capital 5.025/(5+5.025)=50.1% is available in cash and 5/(5+5.025)=49.9% is caught up in the unrealised increase in the financial instrument asset. The capital ratio is still almost double the starting capital ratio. By originating R92.475 of new loan asset, financed by newly created debt, the original capital ratio of 5% can be

restored (this process of money creation might seems surprising but is explained by the Bank of England, 2014:14 and the Federal Reserve Bank of Chicago, 1994) .

The changed balance sheet is as follows.

ASSETS		EQUITY & LIABILITIES	
Cash	5.025	Share capital	5
Investment	8	Retained income	5.025
Financial instrument	35	AFS reserves	3
Loan	60	Deposit liabilities – fair valued	15
New originated loan	92.475	Deposit liabilities – amortised cost	80
		New deposit liabilities	92.475
	200.5		**200.5**

The new simple regulatory capital ratio is (5+5.025)/200.5=5% and the original capital ratio has been restored.

The simplified example illustrated how FVA is first a valuation exercise (stock variables). The change in these values gave rise to the flow variables that in the one case impacted profit and loss and thereafter retained income and in the other case impacted AFS reserves. The AFS reserves were excluded from regulatory capital and also did not play a role in the example's process of dividend determination. By paying a larger dividend than what would have been paid, determined only on cash earnings, the example demonstrated how the portion of regulatory capital available as cash was reduced. The example also demonstrated how additional regulatory capital can provide the impetus for additional debt financed loan origination.

3. FVA and the global financial crisis

Pinnuck (2012) reviewed the literature that examines the performance of financial reporting in the global financial crisis. He argues numerous times that more attention is needed on the role of FVA in the years preceding the crisis with the implication that most authors focused on the role of FVA during the crisis. Theoretical papers by Allen and Carletti (2008) and by Plantin, Sapra and Shin (2008), which argue that mark-to-market accounting makes a downturn worse, illustrate the focus on the time period during the crisis. Empirical papers on the link between FVA and the crisis, such as those by Badertscher, Burks and Easton (2012),

Shaffer (2010) and United States Securities and Exchange Commission (2008), gathered evidence limited to the time period during the crisis. Empirical and theoretical evidence from before the global financial crisis is sparse. A related question is why authors tend to not consider the time period before the crisis.

This is not to imply that the idea of looking at the time period before the crisis (upswing) for FVA's role is new; already in 2004 in a study by the European Central Bank on FVA and financial stability, Enria, Cappiello, Dierick, Grittini, Haralambous, Maddaloni, Molitor, Pires, and Poloni (2004:8) argued that FVA might increase the pro-cyclicality of lending with "as more accentuated increases in bank profits and capital during upturns would support the overextension of credit". They also argued that during the upturn dangerous pay-outs might occur: "The upward revaluations of assets would be reflected in bank profits and bank management could face pressure from shareholders to distribute dividends, including unrealised gains on assets remaining in the bank portfolio". Laux and Leuz (2009:827) considers both the upswing and the downturn by arguing that FVA can be procyclical both during the boom and the bust and that behavioural issues can make the implementation of FVA difficult.

FVA implementation issues can result from inexperience or earnings management. Brown and Tarca (2012:322) argue that the consequences of a lack of expertise in IFRS (of preparers, auditors and information systems) may be significant. Thus, FVA could have played a role prior to the global financial crisis due to inexperience. Banks mistakenly making additional pay-outs, based on unrealised gains, is a possible example of such inexperience.

In terms of dividend pay-outs, Andersson, Haslam, Lee and Tsitsianis (2007) concluded that the consequences of FVA are not neutral and increase cash distributed to equity holders in S&P 500 firms. In contrast, Goncharov and van Triest (2011) used a setting of Russian firms to investigate whether unrealised positive fair value adjustments were paid out as dividends by firms and concluded that Russian firms in fact reduced their dividends when profit contained unrealised FVA gains. Onali (2014) focused solely on banks and the period 2000 to 2007 and found a positive relationship between bank risk-taking and dividend pay-out ratios (in contrast to non-financial firms). Onali (2014:131) also writes that the banking literature has so far overlooked the topic of dividend policy.

Studies by Healy (1985) and Holthausen, Larcker and Sloan (1995) show that managers use accruals to manage earnings so as to influence their bonuses. For banks realised security gains (gains trading), loan loss provisions and loan write-offs are the common avenues of earnings management (Collins, Douglas and Shackelford, 1995:267; Healy and Wahlen, 1999:378). Laux and Leuz (2009) argue that gains trading was a major impetus for FVA. If gains trading was a common avenue for earnings management and was replaced by FVA then perhaps FVA became the replacement earnings management avenue.

The problem of FVA's role in the global financial crisis is thus not resolved, first due to most studies overlooking the possibility that the role is to be found in the time-period before the crisis (the crisis thus being an endogenous process and not an exogenous event). By implication very little empirical evidence is available on the use of FVA by banks prior to the crisis. Some studies argue that FVA implementation issues might have played a role before the crisis. Literature on the payment of dividends show that FVA gains in profit might lead to increased dividend payments (argued by two papers above), or not (as argued by Goncharov and van Triest (2011)). Banks making pay-outs from unrealised earnings before the crisis would have made them more fragile. Earnings management literature shows that bank managers might also have used FVA to inflate profits before the crisis and in the process make the banks more fragile.

A further commonality amongst some of the papers that focus on the time period during the financial crisis is that the papers argue for the impairment of available-for-sale assets as the only channel through which FVA could have played a role in worsening the crisis (Badertscher, Burks and Easton, 2012; Barth and Landsman, 2010; Shaffer, 2010). Value adjustments on held for trading financial instruments (including derivatives) and financial instruments designated at fair value impact profit and loss directly and was not investigated as a channel through which FVA could have played a role in the financial crisis. Evidence for the significance of FVA entries that affect profit and loss can be found in the study by the United States Securities and Exchange Commission (2008:4) which observed that "fair value measurements did significantly affect financial institutions' reported income". FVA through profit and loss should be investigated.

Some argue that FVA could not have played a role in the crisis due to its limited use (a minority of assets and liabilities of banks are fair valued) (Gebhardt, 2012; Laux and Leuz,

2010; United States Securities and Exchange Commission, 2008:4). Can the limited use of FVA by commercial banks not still be dangerous?

How banks use FVA in practice can be investigated in the South African context. It is possible to get close to the data in South African for the following reasons. First, the South African banking market is very concentrated (the largest four banks accounted for 84.1% of banking-sector assets in 2011 (Bank Supervision Department of the South African Reserve Bank, 2011:55)) and by studying the behaviour of five banks one can cover almost all of the South African banking market. The advantage is that the scope of the work required (such as the analysis of minute financial statement details and interviews with key informants) is more limited. Second, the Banking Project Group is a forum that brings together representatives of the large South African banks, their auditors and bank supervisors at the South African Institute of Chartered Accountants in Johannesburg with the objectives of participating proactively in accounting standard setting and examining legislative issues that impact on the banking industry. The advantage is that it is possible to gain exposure to most of the key role-players in one forum. Finally, the South African Reserve Bank (SARB) makes available bank-specific balance sheets on a monthly basis as well as a consolidated industry income statement. Analysis of this relatively higher frequency accounting data should be an advantage compared to other jurisdictions where this data might not be available. South African evidence should be of interest internationally because of the level of standardisation in banking (Basel Accords and IFRS).

4. Research objectives and research questions

The literature review above showed that few researchers have considered the impact of FVA during the upturn. Empirical evidence from before the crisis is also not available. Four possibilities emerged from the review: FVA can possibly be linked to the overextension of credit before the crisis; FVA can possibly be linked to dangerous pay-outs before the crisis; the implementation of FVA before the crisis could have been problematic due to inexperience and the implementation of FVA before the crisis could have been problematic due to earnings management. Therefore, the first objective of this thesis is to determine how FVA was practically applied by banks, both before and after the global financial crisis.

In the literature review it was shown that most researchers investigated the impairment of available-for-sale assets as the only channel through which FVA could have played a role in worsening the crisis and ignored FVA entries that impact profit and loss. A second objective of this thesis is to investigate the significance and impact of FVA entries that impact profit and loss from held for trading financial instruments (including derivatives) and financial instruments designated at fair value.

Related to the above objectives is the third objective to evaluate whether the observed usage of FVA before the global financial crisis is due to implementation issues (inexperience or earnings management) or due to FVA itself.

It was shown in the literature review that some argue that FVA could not have played a role in the crisis due to a minority of assets and liabilities valued at fair value. A fourth objective of this thesis is to investigate whether the limited use of FVA can impact systemic fragility.

It was also shown in the literature review that banks are likely to make pay-outs from unrealised FVA gains, contrary to the findings of Goncharov and van Triest (2011). A fifth objective of this thesis is to establish whether their findings hold in a setting of South African banks.

A sixth objective of this thesis is to investigate how FVA was used by South African banks for reasons specified next. First, the South African bank regulator and banks maintain high international profiles. With high profiles come high expectations in terms of behaviour. René van Wyk, South African Registrar of Banks, is the chairman of the Accounting Task Force sub-committee of the Basel Committee and the World Economic Forum rated the soundness of South African banks as being second in the world in 2012 (World Economic Forum, 2012). Second, in 2014 the South African income tax regime for banks was changed to a fair value tax on financial instruments. This was largely based on the argument that most bank fair valued financial instruments are liquid. Empirical data can show whether that assumption is valid.

The literature review showed that a minority of researchers (Enria, Cappiello, Dierick, Grittini, Haralambous, Maddaloni, Molitor, Pires, and Poloni, 2004; Laux and Leuz, 2009, Pinnuck, 2012) did consider the possibility that FVA played a role in the global financial

crisis prior to the crisis. However, the idea was not developed further by gathering empirical evidence and presenting a formal explanatory framework. The final objective of this thesis is to find or develop theory that can explain what was observed.

An overarching research question, that links together the objectives above, is: *Did FVA gains in profit and capital during the upturn support the overextension of credit and motivate dangerous pay-outs in South African banks?* The question is based on Enria, Cappiello, Dierick, Grittini, Haralambous, Maddaloni, Molitor, Pires, and Poloni's (2004:8) proposition as quoted in the literature review above. The question is provisional as it makes certain assumptions: The assumption that FVA gains in profit and capital (before the crisis) are material and risky; the assumption that the South African evidence will support the focus on the upturn and not on the role of FVA (that impacts profit and loss) during the downturn and the assumption that FVA for AFS assets can be ignored.

The research question above is split into three subquestions answered in three related papers. The research subquestions and how each paper will address the research objectives are as follows.

Paper one's (Liberal fair value accounting in banks: A South African case study) research question is: *What can be learned from large South African banks' practical use of FVA before and after the global financial crisis?* The purpose of the paper is to explore and thus the approach is flexible. In the process empirical evidence on the use of FVA and the motivations behind that use (from before and after the global financial crisis) will be obtained. Therefore, the paper primarily addresses the first research objective. However, FVA entries that relate to AFS assets and FVA entries that impact profit and loss will both be considered. This paper will therefore also address the second research objective. By attempting to understand why the banks used FVA like they did the paper will start to address the third research objective. By using South African banks as the case study, the paper will also address the sixth research objective.

Paper two's (For banks fair value adjustments do influence dividend policy) research question is*: Did South African banks pay increased dividends based on FVA gains?* The purpose of the paper is to describe and therefore the approach is fixed beforehand. This paper thus specifically addresses the fifth objective above. However, the paper has a minor

exploratory purpose in that monthly data from the South African bank supervisor will be considered and might shed additional light on the other research objectives.

Paper three's (Fair value accounting, fragile bank balance sheets and crisis: a model) research question is: *What theoretical perspective can best explain the South African and international observations?* The paper is focused on the final objective of the thesis.

5. Dissertation based on research papers[5]

This thesis is based on research papers. The use of research papers in a PhD thesis is allowed by the University of Cape Town (University of Cape Town, 2013:2). This has structural implications for the thesis, such as no separate method chapter and the inclusion of the published papers verbatim. However, this type of thesis at the University of Cape Town differs from the norm in the following respects.

Focus: Björn Gustavii in his book *How to prepare a scientific doctoral dissertation based on research articles* (2012:50) does not suggest the use of a thesis statement to tie together a thesis by papers; he suggests the use of research objectives. At the University of Cape Town a tighter specification is required in the form of a thesis statement.

Flow: The University of Cape Town (2013: 3) requires "that each paper is prefaced by a synopsis of how the paper contributes to the thesis aims and objectives" (University of Cape Town, 2013:3), whilst the norm for a dissertation based on research papers is to present the three research papers together with a global introduction and conclusion that demonstrates the thematic coherence of the papers. To comply with this university specific requirement each paper will be prefaced by a synopsis.

[5] Also called an "article-based thesis" or a "compilation thesis" (Gustavii, 2012).

6. Thesis statement

FVA had negative financial stability implications in South African banks prior to the global financial crisis.

The thesis statement will be addressed by answering the four research questions presented above. The first paper that forms part of the South African case study will show how and why large South African banks used FVA before and after the crisis. It can be expected that FVA during the crisis in South Africa did not play a major role in impacting the profit and capital of the banks, similar to what was found for international banks. Based on the literature review it can be expected that the South African banks used the flexibility in FVA standards to avoid losses during the crisis. This leaves the time period before the crisis. Paper two investigates whether there were dangerous pay-outs in South Africa. Paper three should show how FVA can be part of a process where financial crisis is endogenous.

What the thesis statement brings into focus, in addition to the four research questions, is the third research objective. Is FVA itself or rather the way it was used responsible for the overextension of credit and dangerous pay-outs? The overextension of credit and dangerous pay-outs are second order effects that cannot be directly attributed to FVA.

7. Delineations and limitations

It is not the objective of this thesis to find and prove the exact cause of the global financial crisis. The crisis is likely to have been caused by the confluence of multiple factors[6] of which FVA might be one. The focus of the thesis is on the interaction between accounting, banking and the economy and not on any other possible causes for the crisis and their relative importance.

It is essential to note as a limitation that this thesis will be based on research articles with each main chapter as a stand-alone paper. An important implication is that the focus of the three papers combined will, by construction, not be as tight and coherent as a monograph thesis.

[6] Please refer to the books on the subject mentioned earlier in the background section.

It is acknowledged that accounting, by itself, cannot directly make anyone do anything; human actors make their own decisions and are responsible for their actions. But, accounting can influence behaviour and thus it is within this perspective that the study will progress. This approach is similar to the "New Accounting literature" that views accounting as influencing economic reality, rather than just reporting on it (Suzuki, 2003:472). It is expected that accounting in banks will also influence economic reality as bank accounting is an integral part of national payment systems. A recent paper by Bensimhon and Biondi (2011) demonstrates another way in which FVA can influence economic reality. These writers used experimental evidence to show that the use of FVA removes a fundamental reference point in price determination and thus amplifies the formation of financial bubbles with a strong role in feedback effects (the feedback in their paper is via the information channel and not the money supply channel).

The empirical work that will be done is limited only to South African banks and to the period from 2001 to 2011. As the problem (the role of FVA in the global financial crisis) is global in scope it is evident that considering only South African evidence is a serious limitation that requires further explanation. There are reasons to believe that the impact of this limitation is not as serious as it first seems. Given the rise of IFRS and the greater homogeneity of financial regulation, it is to be expected that South African evidence should have some relevance for the international community. If banks within a financial system that is rated third (and second for soundness of banks) in the 2012 Global Competitiveness Report (World Economic Forum, 2012) use FVA in a certain way then it can be argued that banks in lower rated regimes might be more aggressive in their use of FVA. The years 2001-2011 were chosen because one main contention of this study is that FVA potentially influenced bank behaviour prior to the global financial crisis that started in 2007.

The model that will be developed is only applicable to commercial banks that form an important part of the monetary economy of a country in that commercial bank deposits is seen as "money". Likewise, the South African empirical evidence that will be considered are from commercial banks only and thus the results of the thesis are limited to commercial banks and are not applicable to other companies.

8. Overall research design

A combination of two research designs is planned as the overall approach for the thesis; these designs are the use of a case study and an analytical model, informed by the case study. The overall approach can thus be qualified as consistent with the qualitative research paradigm based on a flexible design and an inductive approach.

A case study design is useful because accounting cannot directly make anyone do anything and the most it can do is to influence behaviour. Thus, it is necessary to get close to the data to get a better understanding of bank management behaviour and motivations. This approach is feasible in the South African setting as it is possible to work with a limited number of banks and to cover most of the financial system; moreover, it is possible to gain access to and interview bank managers and bank supervisors and it is also possible to interact with the forum where bank supervisors, accounting standard setters and bank managers meet.

Jensen (1983:23) argues that "much of the best evidence on these propositions will be qualitative" related to research on organisations. This is based on the nature of institutional evidence that can often not be summarised using real numbers and on the acknowledgement that "in the early stages of development" theory should not "be vastly inconsistent" with the available evidence. However, whenever feasible "it is desirable to obtain quantitative predictions of a form amenable to the usual testing procedures". In addition, he warns against qualitative evidence that is "incomplete" or "inappropriate" and indicates uncaring and sloppy research. In response, evidence for the overall South African case study will be obtained using two different processes. In the one process a comparative case study will be performed that focuses on the details of FVA disclosure by two large South African banks (Paper one). The other process will test theory by making use of total South African banking system data, obtained from the local bank regulator (Paper two). Thus, some of the case study evidence will be obtained from a process "amenable to the usual testing procedures". To guard against "incomplete" or "inappropriate" qualitative evidence (in Paper one) use will be made of a multiple-case design where the comparative nature of the investigation forces more rigour into the process.

External validity is a major barrier in doing case studies (Yin, 2009:43; Bryman and Bell, 2007:63) including this overall South African case study. One must ask: will it be possible to

generalise the results? The answer is that the findings from a case study can never be generalised statistically (as if the case study was a sample from a population) but they can be used for analytic generalisation; this situation is similar to the result of an experiment being used to support a theory. According to Bryman and Bell (2007:64) case study researchers often argue that "they aim to generate an intensive examination of a single case, in relation to which they then engage in a theoretical analysis"; the use of the case study approach in this thesis agrees with this description.

The analytical model is useful to make sense of and summarise what was observed in the overall South African case study. The main limitation of the analytical model design is that no model is reality; it will always be a simplification of reality.[7] The question that arises is: what degree of simplification is appropriate? Milton Friedman (1953:14) helped when he wrote that "A hypothesis is important if it "explains" much by little: that is, if it abstracts the common and crucial elements from the mass of complex and detailed circumstances surrounding the phenomena to be explained and permits valid predictions on the basis of them alone". An aim of the model is thus to explain the core aspects of the research problem as simply as possible whilst retaining good explanatory power. A simple test of the workability of the model is to evaluate whether it is applicable to, and its predictions descriptive of, the reality found in the South African case study.

The use of a combination of two research designs (the use of a case study and an analytical model) and the interaction between those two designs help to overcome, partly, the shortcomings of each individual design. The case study informs and enriches the analytical model. The analytical model supports the argument that the results of the case study can be generalised.

9. Underlying assumptions

The concept of FVA as used in this thesis is limited to the use of FVA for the subsequent measurement of financial instruments by banks. Cairns (2006:10) notes that fair values are used in financial statements in four main ways and only one of those ways is for the subsequent measurement of values of assets and liabilities. Even when fair value is used for

[7] "Models tell you merely what something is partially like" is how Derman (2011:109) puts it.

the subsequent measurement of assets and liabilities, the fair valuation of financial instruments is only one of a long list of possible applications. It is thus an assumption of this thesis that the use of FVA by banks to account for financial instruments is the most important use of FVA and that the other uses of FVA can safely be ignored.

This assumption underlies most of the research into the role of FVA in the global financial crisis (Badertscher, Burks & Easton, 2012; Ball, 2008; Barth & Landsman, 2010; Laux & Leuz, 2010; Laux & Leuz, 2009; Magnan, 2009; McMahon, 2011; Pozen, 2009; Shaffer, 2010; NCCFEC, 2011; United States Securities and Exchange Commission, 2008; Veron, 2008; Wallace, 2009).

It is an assumption of this thesis that the use of FVA for AFS securities can be ignored as irrelevant to the role of FVA in the global financial crisis. As discussed under section two AFS reserves are excluded from capital by Basel II.

10. Significance of research

On a practical level the empirical evidence obtained in this thesis from before the global financial crisis financial crisis will contribute towards alleviating the shortage of such empirical evidence. The evidence should be useful for accounting standard setters as the best standards might not work in practice as intended.

The South African evidence in this thesis should also be of interest to the South African bank regulator who expects prudency from South African banks and certainly not earnings management (Bakoro, de Jager & Parsons, 2013). Another party that should be interested in the detail of how taxpayers (South African banks) use FVA is the National Treasury of South Africa, which in July 2012 announced its intention to tax banks on their FVA profits (National Treasury (South Africa), 2012). A rationale for this change in approach is the concept of notional realisation in respect of liquid financial instruments; according to this concept a testable assumption is created to the effect that most fair valued instruments in the South African banking system are fairly liquid.

On a theoretical level the thesis emphasises an alternative perspective on the role of FVA in the global financial crisis (that it influenced behaviour before the crisis in such a way that the

banks became more fragile). This perspective is not new but also not mainstream and refined with the argument the flexibility in FVA explains why no empirical evidence was found that FVA made the global financial crisis worse (during the crisis).

11. Chapter overview

The chapters to follow are briefly described in this section.

11.1 *Chapter two (literature review): The global financial crisis and the role of fair value accounting*

The purpose of this chapter is to review the role of FVA in the global financial crisis to identify areas where a contribution is possible.

11.2 *Chapter three: The South African context*

This is not one of the main chapters (or papers). It is merely an introductory chapter to the South African case study chapters and is intended to provide context for that case study. The intention is to focus this chapter on South African bank regulations and the interaction with South African accounting standards. It might be possible to argue that the South African context is not unique and therefore, South Africa should be seen as a representative case.

11.3 *Chapter four (paper one): Liberal fair value accounting in banks: A South African case study*

The use of FVA by two large South African banks will be investigated in this comparative case study. One is the largest bank in the South African banking system and the other is a smaller bank on the borderline between systemic or not. This chapter is expected to answer in detail the question of how and why these banks used FVA in the way they did before and after the global financial crisis.

11.4 *Chapter five (paper two): For banks fair value adjustments do influence dividend policy*

This chapter will start with a theoretical discussion why the payment of dividends from a bank's unrealised FVA profits is likely to have negative implications for bank stability. Reference will be made to a paper by Goncharov and Van Triest (2011) who found that Russian companies did not pay out dividends from unrealised FVA gains and it will be

explained why this paper expects to find a different answer for South African banks; that they do pay out dividends from unrealised FVA gains. Data will be obtained from the South African bank regulator and it is anticipated that this will show that FVA gains, during the upswing, formed a significant part of the profits of South African banks. If a panel data regression then shows that South African bank dividends are increased by these accounting profits then the hypothesis will be upheld.

11.5 *Chapter six (paper three): Fair value accounting, fragile bank balance sheets and crisis: a model*

The purpose of this paper is to develop a realistic model to help in understanding the interface between FVA, bank capital regulation and the economy. The paper will start by reviewing past crises to identify any potential role of FVA in them; those crises include the Great Depression, the S&L crisis, the Enron crisis and the global financial crisis. The next section of this paper will look at the standard explanation for the monetary transmission mechanism as the model will describe the interaction between banks and the economy and thus needs to be linked to the literature. Use will probably be made of a "Post-Keynesian stock-flow consistent accounting model of the economy" as this model type is more descriptive of the characteristics of global financial crises actually observed, such as feedback effects, systemic risk and the crisis emanating from the financial sector. The intention is to demonstrate the workings of the model with a running example and to draw theoretic conclusions based on the model. An empirical example will also be provided.

11.6 *Chapter seven: Separating fair value accounting from its use*

A possibility suggested in this introduction chapter is that a perfectly good accounting standard can be implemented in a way that impacts on financial stability. This chapter is about whether the South African results are due to implementation issues (inexperience or earnings management) with FVA or due to FVA itself.

12. Conclusion

This general introduction chapter showed that the common theme that binds together the three papers to follow is the global financial crisis and the role of FVA in that crisis. The reality that even perfect accounting standards can be misused argues for the performance of a detailed case study that investigates how FVA was applied in practice; such a case study can

be realised in the South African context. The chapter that follows is a literature review of FVA and the global financial crisis.

CHAPTER TWO: THE GLOBAL FINANCIAL CRISIS AND THE ROLE OF FAIR VALUE ACCOUNTING

1. Introduction

This chapter will review the role of FVA in the global financial crisis. The review will help to contextualise the larger study. The chapter will show that there is not yet consensus on the cause of the global financial crisis and even less so on the role of FVA. The section on the role of FVA in the crisis will show that empirical and theoretical evidence from before the crisis is needed and that the focus should not just be on FVA for available-for-sale assets. The next section of the chapter will investigate the efficient market hypothesis (EMH) and the idea that market prices are always aligned with fundamentals; if true an argument for FVA to have played a role in the global financial crisis becomes more difficult. This chapter concludes by linking the review with the research objectives of the thesis.

2. The global financial crisis

The root cause of the global financial crisis is usually traced back to a boom and a bust in the American housing market. Fox (2010:312) writes that during the 1990s, house prices were rising mostly due to fundamental factors such as an excessive demand for housing in certain areas. The housing market received a further boost when the Federal Reserve Bank dropped short term interest rates in the aftermath of the bursting of the technology stock market bubble. In the 2000s, house prices started to rise above the increase reasonably attributable to these fundamental factors; this excessive increase was due to the development of complex feedback mechanisms that drove prices higher and even higher. Increased house prices meant that fewer and fewer people could afford houses under the traditional underwriting standards. To keep up loan origination volumes and to feed the securitisation machinery that banks had set up (as will be discussed shortly), the banks lowered their underwriting standards, eventually advancing credit to people of doubtful credit quality (for example low-doc or no-doc loans) and on conditions that only made sense if house prices were a one-way bet. Borrowers started to realise that there was good money to be made from the housing boom; for example, by house flipping or house equity withdrawal. Consequently, the demand for more credit increased simultaneously, driving up house prices.

Fannie Mae and Freddie Mac were not allowed to buy most subprime mortgages or any loans larger than $322 700 in 2003 (Fox, 2010:313), but they were allowed to buy mortgage-backed securities based on these loans. Wall Street investment banks stepped forward to fill this gap by packaging subprime loans into securities on which they obtained the AAA credit rating necessary for Fannie Mae and Freddie Mac and also for other investors such as pension funds. Rating agencies were conflicted in the process as they were paid by the investment banks and not by investors and the agencies assisted in many cases to slice and dice a portfolio of bad loans in such a way that it became seemingly low risk. These mortgage-backed securities offered higher returns than normal AAA instruments at superficially the same risk and therefore demand from investors increased, which increased the demand for the underlying loans, leading to increasing house prices. The drop in underwriting standards and the aggressive lending described all took place within the context of relaxed bank regulations under the assumption that markets are self-correcting.

In 2006, house prices levelled out and started to fall (Lo, 2012:153). The securities market based on these loans was initially unperturbed but in August 2007 the first serious problem emerged when a BNP Paribas money market fund froze fund redemptions. A shockwave rippled through the financial industry and central banks had to step in to keep liquidity flowing. The tide was going out and in September 2008 the investment bank Lehman Brothers declared bankruptcy and the world was on the brink of disaster. In hindsight this is regarded as the height of the global financial crisis. Central banks were able to save the banking system but five years later the world is still mired in anaemic growth.

Lo (2012) reviews 21 books written about the global financial crisis and its causes and concludes that "there is still significant disagreement as to what the underlying causes of the crisis were" (Lo, 2012:173). Indicative of the complexity of the crisis is the report of the Financial Crisis Inquiry Commission that spent 18 months and interviewed 700 witnesses and came to three different conclusions as to what caused the crisis (Lo, 2012:152). It can be argued that the Commission's report was influenced by party politics. Thus, the Democrat members of the Commission all approved the report, whilst the Republican members of the Commission all dissented.[1] Nevertheless the rest of this brief global financial crisis review

[1] Another interpretation is that the divide is simply a manifestation of how a different understanding of the way the economy works, can lead to different conclusions. A similar divide in worldviews becomes apparent when

will be based on the Commission's report as it constitutes the most detailed official account of the crisis.

The list that follows summarises the conclusions of the Commission:

- "We conclude this financial crisis was avoidable" (The National Commission on the Causes of the Financial and Economic Crisis in the United States (NCCFEC), 2011:xvii) - The crisis was not a once-off freak event. Its roots were to be found in previous actions over a number of years.
- "We conclude widespread failures in financial regulation and supervision proved devastating to the stability of the nation's financial markets" (NCCFEC, 2011:xvii) - Markets were not self-correcting and banks could not effectively regulate themselves and so they got out of control under a policy of deregulation.
    - "We conclude collapsing mortgage-lending standards and the mortgage securitization pipeline lit and spread the flame of contagion and crisis" (NCCFEC, 2011:xxiii) - This point was put below the previous point as it is related; if regulation was effective then underwriting standards would not have deteriorated to the level that they did (regulators allowed banks to make low-doc or no-doc loans) and the securitisation pipeline would not have grown so large.
- "We conclude dramatic failures of corporate governance and risk management at many systemically important financial institutions were a key cause of this crisis" (NCCFEC, 2011:xvii) - There were corporate governance and risk management failures in large banks because those banks took on excessive risk and shareholders did not prevent it; possibly due to the low levels of capital. Skewed incentives encouraged individuals and banks to take excessive risks.
- "We conclude a combination of excessive borrowing, risky investments, and lack of transparency put the financial system on a collision course with crisis" (NCCFEC, 2011:xix) - Banks and individuals became too indebted during the boom period to be able, safely, to take on the levels of risk that they did take on. When the crisis arrived there was no buffer. Risk was also hidden in the shadow banking industry.
- "We conclude the government was ill prepared for the crisis, and its inconsistent response added to the uncertainty and panic in the financial markets" (NCCFEC,

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the role of FVA in the crisis is reviewed; thus, there are those who see accounting as simply a messenger and those who see accounting as influencing economic interactions and thus the real economy.

2011:xxi) - This conclusion is perhaps most influenced by party political considerations and this view is supported as it argues for more government oversight. If regulation was already effective as previously pointed out would this point really be necessary?

- "We conclude there was a systemic breakdown in accountability and ethics" (NCCFEC, 2011:xxii) - Greed definitely played a role because the system allowed it to prosper.
- "We conclude that over-the-counter derivatives contributed significantly to this crisis" (NCCFEC, 2011:xxiv) - Derivatives allowed banks and insurance companies to gear even higher without always having much with which to back up their positions (low levels of capital relative to the risk). In other words, derivatives allowed the bubble to inflate even further.
- "We conclude the failures of credit rating agencies were essential cogs in the wheel of financial destruction" (NCCFEC, 2011:xxv) – Without the approval of these agencies the mortgage securities at the heart of the crisis would not have been marketable. The false sense of security brought on by these investment grade credit ratings facilitated the expansion.

As mentioned, some of the commissioners dissented. The first dissenting group (Hennesey, Holtz-Eakin and Thomas) chose to emphasise the role of the United States government's housing policies in the weakening of underwriting standards (NCCFEC, 2011:452). The second dissenting report (Wallison) comes to a similar conclusion by a different path. Mark-to-market accounting was mentioned in this dissenting report (NCCFEC, 2011:482) as the final step in a process through which government housing policies transmitted losses to the largest financial institutions. Basically, government policies overinflated the housing bubble, the bubble burst with no cause indicated. Liquidity was then withdrawn from the financial institutions that held mortgage-backed securities and mark-to-market accounting transmitted this credit and liquidity shock in a downward price spiral. What is clear is that accounting is not popularly regarded as a cause of the crisis and that even when it is mentioned it is only mentioned as a factor during the crisis period and not prior to the crisis period.

The purpose of this review was to contextualise FVA within the global financial crisis. The review revealed that there is no consensus yet on the causes of the global financial crisis and

that FVA might have played a minor role in the crisis as part of a feedback process. The next section will examine the role of fair value accounting in the global financial crisis and will review what has been written. The brief description of the global financial crisis, presented above, will be returned to in chapter six of this study where the results of the three papers will be related back to the conclusions and findings of the NCCFEC to bolster the case for theoretical generalisation.

3. The role of fair value accounting in the global financial crisis

This review starts with the Great Depression and the use of mark-to-market accounting at that time in American banks. Friedman and Schwartz (1971:Chpt.7, 100-102) describe and provide evidence of how the fall in the market value of bond portfolios was the most important source of bank capital impairment during the Great Depression. They also point out that, paradoxically, the most liquid assets were the most serious threat to bank solvency due to the mark-to-market regime for liquid assets rather than bonds for "which there was no good market and few quotations" carried at cost. These observations from the Great Depression are relevant to the discussion that follows for the following reasons. First, the feedback process described by Friedman and Schwartz where marked-to-market bond portfolios lost value, leading to further bond sales and lower prices, is similar to arguments made about the effect of FVA during the global financial crisis (see for example Pozen, 2009:85-86; Badertscher, Burks & Easton, 2012:600). Second, mark-to-market accounting in the Great Depression caused harm due to its impact on bank capital; this is also the primary channel of FVA causing harm investigated during the global financial crisis. Third, FVA is a more flexible regime than strict mark-to-market accounting as banks that disagree with market prices can make use of the flexibility built into FVA; for example, a bank can move from mark-to-market to mark-to-model or in certain circumstances, change from FVA to cost accounting.[2] Thus, the impact of FVA during the global financial crisis can be expected to have been less severe than the impact of mark-to-market accounting during the Great Depression. Finally, Friedman and Schwartz did not consider the possibility that the bond portfolios were perhaps overvalued after a decade-long bull market with a number of asset bubbles; similarly, most investigations of FVA focused on the crisis period and not on what

[2] Readers who are interested in more detail are advised to read the FVA definition section in the introduction chapter.

went before. The rest of this section will elaborate on these observations using evidence from the global financial crisis.

Cassidy (2009:308-309) uses a fictional Wall Street firm's balance sheet to illustrate the systemic effects of mark-to-market accounting. A small drop in asset values is recognized straight away and reduces capital significantly (due to the leveraged nature of banks). The bank's capital ratio is now too low and in order to restore its target capital ratio the bank has to sell assets and pay down debt. Again, due to the leveraged nature of banks, this asset sale is significant and if other banks are doing exactly the same, then the asset sales will lead to lower asset values. Those lower asset values are then marked-to-market immediately by the banks and the process starts again; this is a downward spiral. Similar feedback processes are described in other crisis-related studies such as United States Securities and Exchange Commission (2008:1), Ball (2008:1), Laux and Leuz (2009:831), Pozen (2009:86), Magnan (2009:200), Shaffer (2010:3), Badertscher, Burks and Easton (2012:600) and Khan (2010:2).

At the request of the U.S. Congress, the United States Securities and Exchange Commission conducted an investigation into FVA's contribution to the 2008 crisis and concluded that FVA did not cause or contribute to the crisis (United States Securities and Exchange Commission, 2008). Their conclusions were based on an analysis of the financial statements and FVA disclosure of a sample of 50 financial institutions. It was observed that a minority of assets (45%) and liabilities (15%) were fair valued and that for an even smaller percentage of assets (25%), changes in fair value impacted on income. FVA changes over three years were analysed and their effect on capital adequacy was assessed relative to other factors, such as incurred losses on loans. One shortcoming of the Commission's study was the inclusion of smaller banks and insurers with less focus on large banks who are the prime users of FVA. Two other shortcomings were the attempt to link failed banks to changes in their regulatory capital positions when banks usually fail due to a lack of liquidity, and the exclusion from the study of a role for FVA before the crisis. This second shortcoming is illustrated by the following quote from the Securities and Exchange Commission's explanation of what caused the global financial crisis: "Rather than a crisis precipitated by fair value accounting, the crisis was a "run on the bank" at certain institutions, manifesting itself in counterparties reducing or eliminating the various credit and other risk exposures they had to each firm" (United States Securities and Exchange Commission, 2008:3). The crisis is thus explained as the result of an unforeseen/external event: a "run on the bank". The question that is not asked

is why the run happened. Consistent with this view the study did not consider a role for FVA before the crisis and the possibility that FVA write-downs were delayed by management utilising the available flexibility in FVA.

Theoretical models by Allen and Carletti (2008) and by Plantin, Sapra and Shin (2008) examined the impact of mark-to-market accounting on capital markets and show that mark-to-market accounting worsens a downturn. Their studies have a shortcoming when attempting to explain the global financial crisis; mark-to-market accounting is not the same as FVA and managers can use the flexibility inherent in fair value accounting to decide not to accept market values that they believe are incorrect. This is argued by Laux and Leuz (2009:827) who also acknowledge that FVA can be procyclical both during the boom and the bust and that behavioural issues can make implementation of FVA difficult. They argue that the increase in profit and capital from asset value increases under FVA is also available as "gains trading" under historical cost accounting and thus that the two are similar during the upswing, but this argument is not exactly correct. FVA is a much faster process than gains trading that is inherently lumpy. Bonuses and dividends paid from gains trading are paid from increased cash resources whilst bonuses and dividends from FVA gains only decrease cash resources. The implication is that FVA is more able than gains trading to be at the centre of a feedback process and that FVA during a boom can leave the banking system with reduced cash resources.

Shaffer's (2010) paper is an empirical study "to determine whether fair value did in fact play a significant role in the crisis through the rapid destruction of bank capital and related procyclical effects by observing the actual impact of stress events on the regulatory capital of financial institutions". He only looked at the "largest financial institutions" (Shaffer, 2010:9) in the United States using the criterion of total assets greater than $100 billion. This focus is justified by arguing that the large banks' utilisation of FVA is far greater than smaller banks and also that large banks tend to be the investors in complex and illiquid investments (Shaffer, 2010:9). Shaffer finds that FVA had "minimal impact on the capital of most banks in the sample during the crisis period through the end of 2008" (Shaffer, 2010:22). Possible shortcomings of his study were the exclusion of a role for FVA before the crisis, not considering the possibility that FVA write-downs were delayed by management utilising the available flexibility in FVA, and limiting FVA's influence during the crisis to other-than-temporary impairments on available-for-sale assets. If management delayed the immediate

recognition of FVA write-downs, for example, by reclassifying financial instruments to cost or changing the valuation level of financial instruments from mark-to-market to mark-to-model, then it becomes possible that Shaffer's results did not completely capture the FVA write-downs following the global financial crisis as he only considered the year 2008.

Pinnuck (2012:7) writes that "there is preliminary evidence that corporate managers may have delayed write-downs during the GFC". Deep and liquid markets for financial instruments disappeared during the global financial crisis causing managers to not trust market values and by implication the assumptions behind mark-to-market accounting did not hold. Shaffer's (2010:10) argument for focusing only on available-for-sale securities is also problematic. Thus, FVA adjustments from the trading book were excluded because "There are few who would argue that fair value is inappropriate for measuring investments held for trading purposes where deep and active markets exist". If most instruments for trading purposes were actually traded on deep and active markets then they would have been shown at level 1 (mark-to-market) on the fair value hierarchy. The United States Securities and Exchange Commission (2008:62) found that for banks, most derivatives and trading assets were at level 2[3] and not at level 1 and for investment banks almost all derivatives and trading assets were at level 2 and not level 1. The conclusion is that trading assets and derivatives were not traded on deep and active markets and that the FVA adjustments based on those assets should not have been ignored. A related argument is that as trading assets and derivatives were marked-to-market during the 1990s and no global financial crisis took place in that time, then the FVA entries from these instruments should be ignored when looking at causes for the current global financial crisis. The problem with this argument is that it ignores the fact of financial innovation over time. During the 1990s, financial markets were much smaller and contained few of the complicated financial instruments that characterised the global financial crisis. The financial markets were also not dominated by the large banks. In addition, Shaffer's exclusion of financial instruments under the fair value option due to that option being "an explicit decision by management to value these assets this way and thus they are not included in the analysis" can also be questioned as it implicitly assumes that management will not abuse the fair value option.

[3] The potential impact of instruments at level 2 for FVA purposes is demonstrated in the example on page 149 in chapter six.

The empirical study by Badertscher, Burks and Easton (2012) also concludes that little evidence can be found for FVA driving a downward spiral in asset prices. In a way similar to that of Shaffer (2010), one can also criticise these writers' focus on available-to-sale assets as the only source of FVA write-downs that impacts regulatory capital. On the contrary, Khan (2010), in an empirical study, did find evidence of FVA worsening the global financial crisis by finding that "increase in the use of fair value accounting is associated with additional bank contagion. The increase in bank contagion is most severe during periods of market illiquidity".

Two commonalities can be identified from these papers that investigate the link between FVA and the global financial crisis. The first is the focus on finding FVA's role during the global financial crisis and not before the crisis (United States Securities and Exchange Commission, 2008; Ball, 2008; Allen & Carletti, 2008; Plantin, Sapra & Shin, 2008; Pozen, 2009; Magnan, 2009; Khan, 2010; Shaffer, 2010; Barth & Landsman, 2010; Badertscher, Burks & Easton, 2012). The second is the often-used refrain that accounting is only a messenger (United States Securities and Exchange Commission, 2008:2; Ball, 2008:1; Laux & Leuz, 2009:806; Pozen, 2009:86; Wallace, 2009:9). Pinnuck (2012), in his review of the evidence of the role of financial reporting in the global financial crisis, agrees numerous times that more attention on the years preceding the crisis is needed: "… and have ignored the role for FVA in the years immediately preceding the GFC" (Pinnuck, 2012:5); "In summary, further research is required into the role of FVA in the years immediately preceding the crisis to determine the extent to which inflated values of subprime securities, and the recording of these FVs in the balance sheets of banks, contributed to excessive lending" (Pinnuck, 2012: 6); "There is lack of debate as to whether financial accounting failed its valuation objective in the years preceding the GFC" (Pinnuck, 2012:10" and "There has been a lack of attention as to whether FVA in the years immediately preceding the crisis could have contributed to excessive lending" (Pinnuck, 2012:10).

Some evidence emerged during the review to suggest that an investigation of the role of FVA before the crisis is warranted. The United States Securities and Exchange Commission (2008:34) wrote that mark-to-market accounting for banks was changed in 1938 for reasons that included the impact of mark-to-market accounting on bank behaviour: "Further, prior to 1938, banking organizations were required for supervisory purposes to use market value accounting for their investment securities portfolios. Serious concerns on the part of the U.S.

Treasury and the bank regulators over how this affected the banks' financial performance and investment decisions led the agencies to abandon in that year the use of this accounting concept for supervisory purposes". Laux and Leuz (2009:829) mention that "FVA and asset write-ups allow banks to increase their leverage in booms, which in turn makes the financial system more vulnerable and financial crises more severe" but these writers reason that these effects are likely to be similar under historical cost accounting with gains trading. It has already been shown that this argument ignores important aspects of FVA that imply a greater build-up of systemic vulnerabilities under FVA during a boom. Cassidy (2009:310) writes that during good times, rising asset values under FVA will give a boost to banks' equity capital that encourages further debt financed asset expansion. Pinnuck (2012:9) speculates that the market for subprime mortgages might not have expanded as quickly as it did if firms had to account conservatively; in other words, by not recognising increased asset values. It was shown that the impact on capital and income that stems from trading assets and instruments for which the fair value option has been chosen, cannot simply be ignored as argued by Shaffer (2010:10).

The purpose of this section was to review the results of investigations into the role of FVA in the global financial crisis. What emerged from the review is that few researchers consider the possibility that FVA encouraged dangerous behaviour prior to the global financial crisis and even less researchers gathered empirical evidence from before the crisis. There seems to be no empirical evidence that FVA during the crisis added to the severity of the crisis. Evidence suggested the possibility that bank managers used the flexibility available in FVA to postpone losses during the crisis. The review also showed a focus on FVA adjustments related to available-for-sale assets as the channel for FVA to have played a role in the crisis. It was argued that FVA adjustments through profit and loss should be investigated.

The next section of the review will explore the relationship between FVA and the EMH. This relationship is a plausible reason for why so few studies considered FVA's role before the global financial crisis. The argument is further bolstered by points of view above that the crisis was caused by exogenous events or that "accounting is only a messenger". The EMH and its validity is important for this thesis because the argument that market prices are always equal to fundamental values makes it impossible for FVA (level 1) to have played a role prior

the global financial crisis.[4] In writing the next section the author is not arguing for the validity or not of the EMH but rather aims to focus the discussion on the relationship between the EMH and FVA.

4. The relationship between fair value accounting and the efficient market hypothesis

There have been studies that investigated the relationship between FVA and the EMH. Milburn (2008), based on an examination of IASB and FASB pronouncements, found that an assumption of reasonable market efficiency is behind the relevance of fair value. Whittington (2008), based on a discussion of the issues raised by the IASB's public pronouncements, found that the fair value worldview assumes perfect and complete markets. Arnold (2009) investigated the implications of the financial crisis for accounting and states that conventional accounting research needs to go beyond the assumption that accounting provides the transparency for capital markets to function efficiently. It is important to note that although these three writers' findings seem similar, one of them is different from the other two; a contradiction that will be returned to later in this section. Thus, the first two papers found that efficient markets are a necessary condition for FVA whilst the third paper argues that FVA makes markets more efficient.

The section that follows will review the EMH and the questions regarding its validity. Arguments will then be proposed for and against a strong relationship between FVA and the EMH. The implications of the findings will conclude this section.

4.1 *The efficient market hypothesis*

John Cassidy, in his book on the global financial crisis and its possible causes, places the EMH within the broader context of free market ideology (Cassidy, 2009:87). The EMH is a theory about how financial markets process information and is distinct from, but related to, the concept of economic efficiency. The original link between market efficiency and economic efficiency can be clearly seen in the following quote from Eugene Fama who popularised the EMH (Fama, 1970:383):

[4] Market values equal to fundamentals would not exclude a role for FVA prior to the crisis based on inexperience or earnings management.

> *The primary role of the capital market is allocation of ownership of the economy's capital stock. In general terms, the ideal is a market in which prices provide accurate signals for resource allocation: that is, a market in which firms can make production-investment decisions, and investors can choose among the securities that represent ownership of firms' activities under the assumption that securities prices at any time 'fully reflect' all available information.*

This link between market efficiency and economic efficiency did not last long. Joseph Stiglitz is famous for his work on information and its role in market failures. Stiglitz showed that an informationally efficient asset market need not generate allocative or production efficiency in the economy (Stiglitz, 1981). More generally, an economy may fail to generate an efficient allocation of resources for two broad reasons; market power and the nonexistence of markets (Rosen, 1995:51). Included in the term "nonexistence of markets" are issues such as asymmetric information, externalities and public goods.

This was not the only change over time; the meaning of information efficiency also changed. Initially an efficient market was a market which "adjusts rapidly to new information" (Fama, Fisher, Jensen & Roll, 1969:1). Later, it was one where asset prices "fully reflect all available information"[5] (Fama, 1991:1575) and finally it was "the idea that competitive markets ruthlessly exploit all available information when setting security prices" (Ball, 2009:8). Whilst these definitions seem similar at first glance, the fundamental change over time is a move away from the idea that prices are aligned with fundamentals, towards the lesser requirement of competition on the stock market making it difficult to beat the market (Fox, 2010:299). Fama and French (2007:683) conclude *inter alia* that "for prices to converge to rational values, the beliefs of misinformed investors must converge to those of the informed, so eventually there is complete agreement about old news". This is a roundabout way of saying that prices are most of the time not rational as convergence is highly unlikely with the requirement of homogenous expectations.

[5] Concurrent with this development of the EMH, the world economy experienced a long period of high inflation in the 1970s. During high inflation, the historical cost of an asset or liability loses relevance quickly and accountants started looking for alternatives to historic cost accounting. The information qualities of market prices as predicted by the EMH made FVA very attractive; by incorporating market prices into the accounting records one is actually incorporating a summary measure that "fully reflect all available information".

Beechey, Gruen and Vickery (2000:4), in their evaluation of the validity of the EMH, write that information is not instantaneously incorporated into price as predicted by the EMH; also, almost all market participants use technical trading techniques in contrast to the weak form of the EMH and, the existence of financial crises points to asset price misalignments. Milburn (2008:299) finds similarly that information is not always instantaneously incorporated into price, even in deep markets, and that asset prices can deviate from fundamental values. It is arguably the occurrence of financial crises that cast the most serious doubt on the continued validity of the EMH. The current global financial crisis generated harsh criticism of the EMH with reasoning that boils down to this: investors and regulators neglected to investigate and verify the true values of traded securities due to a belief in the notion that market prices reflect all available information (Ball, 2009:8). In addition, the global financial crisis is an example of where the market prices of securities adjusted materially downwards (some securities became worthless as liquidity dried up completely) without any underlying information flow that caused the change.

Economics commentator and visiting professor of economics at the London School of Economics, John Kay, writes that FVA is based on the EMH and that the reality of the past decade has "mugged" the EMH (Kay, 2013). Interestingly as well as important for the discussion in later chapters, he also argues that market prices in active markets[6] are likely to be disconnected from fundamental values due to speculation: "Concern is often expressed about the difficulty of applying mark-to-market principles when there is no active market. Actually, the larger problem arises when there is an active market. The greater the volume of trading, the greater the extent to which prices are determined not by informed assessment of fundamental value but by speculation". Prof. Kay wraps up his argument by proposing industry-specific financial reporting.

The history of the EMH thus explains why market prices are usually regarded as being important summary measures of information and perhaps explains why accounting standard setters wanted to incorporate that information into accounting records. Doubt on the validity of the EMH derives from what is collectively known as behavioural finance (Ball, 2009:15). The end result of price anomalies related to the EMH is that the proponents of the EMH had

[6] Accounting standard setters have arguably accepted the notion that inactive markets are not likely to be (information) efficient and have put more onerous disclosure requirements in place for information derived from inactive markets. The unstated assumption seems to be that active markets are likely to be (information) efficient.

to reduce the extent of its implications. What remains is the view that competition on capital markets makes it difficult to beat the market and what fell away was the notion that capital market prices are consistent with economic fundamentals. FVA built on an EMH where asset prices "fully reflect all available information" makes a great deal of sense and makes it impossible for mark-to-market accounting (FVA level 1) to play a role in feedback processes. In contrast, FVA built on a foundation of the EMH that is no more than the idea that it is difficult to beat the market, is open to challenge.

4.2 *How strong is the relationship between fair value accounting and the efficient market hypothesis?*

Accounting research

Accounting researchers seem to have two opposing views on the relationship between FVA and the EMH. Some researchers argue that the causality is usually from an efficient market to FVA. In contrast, other researchers argue the opposite and claim that the causality is usually from FVA to an efficient market. A number of researchers even argue for both directions. Milburn (2008:293) analyses the arguments put forward by the IASB and the FASB for the relevance of fair value for financial reporting and concludes that an assumption of reasonable market efficiency is its essence. Whittington (2008:139) writes that the fair value view assumes that markets are relatively perfect and complete and that the alternative view assumes relatively incomplete and imperfect markets. Hitz (2007:325) finds that the informational contribution from fair value measurements under conditions of complete and perfect markets is without question, but then cautions that the contribution is unclear in the more realistic setting of imperfect markets. In contrast Scott (2009:195) argues that FVA improves market efficiency by "helping investors overcome behavioural biases". Underlying Scott's argument is a departmentalised view of capital markets where the reporting company's share market is assumed to be inefficient and capable of being improved, while the capital markets on which the assets or liabilities of the reporting company trade are assumed to be efficient. A problem with this view is that share markets are generally believed to be more efficient than other markets; Scott's argument implies that information from the less efficient markets can improve the efficiency of the most efficient market. Pinnuck (2012) reviews the role of financial reporting in the global financial crisis and *inter alia* argues for both directions of causality. According to him, financial reporting reduces information asymmetry "thus providing the transparency needed for capital markets to function

efficiently" (Pinnuck, 2012:1) and later he states that "A critical assumption that underpins FVA is that markets are efficient (as it is from markets that FV prices are obtained)".

In contrast to the conclusions of Milburn and Whittington, above, stating that the IASB has a strong EMH orientation, Al Jifri and Citron (2008: 124) write that the IASB's preference for disclosure versus recognition indicates a weaker relationship between the EMH and FVA. If markets processed information efficiently then it should not matter whether any new information is to be found in the notes of the financial statements or in the body of the financial statements.

The argument that accounting is only a messenger

The defenders are prone to calling the attack on FVA, following the global financial crisis, as a case of killing the messenger (The Economist, 2009; Ball, 2008; Magnan, 2009:208; Pozen, 2009:86). The argument is clearly closely related to the information view of accounting and it implies a belief that accounting plays no economic role other than to provide information. The underlying assumption is that investors would be able to see through the accounting veil to the economic fundamentals. The market would price instruments according to their fundamentals and thus this argument demonstrates a strong belief in the validity of the EMH. In commercial banks accounting plays a key role in the money supply.

Language used by the standard setting bodies

"Fair value is the amount for which an asset could be exchanged or a liability settled, between knowledgeable, willing parties in an arm's length transaction" (Vorster, Koornhof, Oberholster, Koppeschaar, Coetzee, Janse van Rensburg, Binnekade, Leith & Hattingh, 2008:601). For markets to function efficiently, one important assumption is that the market participants are well informed; in other words, there are no information asymmetries between them. The use of the word "knowledgeable" in the above quotation points to this assumption. IFRS also allows for the use of valuation techniques if the market for an instrument is no longer active (Vorster *et al.*, 2008:601). This use of the word "active" is only understandable in the context of the market for the instrument being efficient enough to produce a reasonable estimate of value. Thus the use of these terms indicates the EMH as a foundation for FVA, a conclusion which concurs with Milburn's (2008) conclusion based on an analysis of the language used by the IASB and FASB in their accounting statements and other publications.

In response to the financial crisis, the IASB created an external Expert Advisory Panel in May 2008 to consider issues relating to measuring fair value in illiquid markets. The use of the word "illiquid" makes sense in the context of an efficient market; is the market liquid enough to process information efficiently and thus provide a reasonable estimate of value? Another IASB body, the Financial Crisis Advisory Group, states in its report that "Financial reporting is also dependent on the generation of reliable data by well-functioning markets that have proper infrastructure …" (2009:5). A well-functioning market with proper infrastructure makes sense within the EMH framework.

In summary: the IASB and FASB never refer directly to the EMH as the foundation for FVA, but the language used in their reports only makes sense if the EMH is at the heart of the argument.

Public opinion

Catalano (2009) accuses the FASB of being radical efficient marketers who ignored decades of behavioural finance research when they proposed mark-to-market accounting. Kay (2009) writes that the founders of the accounting profession believed that only birds in the hand mattered; in contrast, modern accountants have been trained in modern finance theory where markets are efficient and those accountants mark assets and liabilities to market. Kay states that the use of mark-to-market accounting in the hands of a creative man such as Jeff Skilling from Enron enabled Skilling to profit from a good idea as soon as he thought of it.

Arguments used to justify fair value accounting

The transparency argument is the main argument in favour of fair value (Hitz, 2007:323). The argument is that historic prices are outdated and not relevant to current decision making. FVA on the other hand is based on current market prices which incorporate all relevant information. Lee (2009) agrees that FVA makes for transparent accounting that puts the emphasis on potentially dangerous businesses and their positions. Ryan (2008) emphasises that FVA provides market participants with the most accurate and complete information needed to stem the crisis.

The FASB (2006b) rationalises the superior relevance of fair values as follows:

1. Fair value incorporates the current market assessment of the future, including the amount, timing, and uncertainty of future cash flows attributable to a financial instrument. Fair value information provides a benchmark measurement that users of financial statements may adjust to reflect their own expectations. Fair value information permits financial statement users to make decisions on the basis of information about current conditions rather than on information about conditions that existed at the time an entity purchased a financial asset or incurred a financial liability.

2. As a concept, fair value reflects the collective assumptions and expectations of market participants rather than entity-specific assumptions and expectations. Fair value information facilitates period-to-period comparisons for a single entity, as well as comparisons between different entities.

The FASB and IASB believe that markets are efficient enough to produce information of interest to users of financial statements. Even a weak form of the EMH, by definition, implies that all historic price information is known by that market and is incorporated into the price of securities; thus, informing the market via the accounting records of price information should be of no value to a reasonably efficient market. The dichotomy is that markets are believed to be efficient enough to provide useful information, but are also believed to be so inefficient that current price information will be news.

Conclusion on the relationship between FVA and the EMH

The evidence leads to the conclusion that a strong relationship exists between the concepts of FVA and the EMH whilst recognising that there are differences concerning the nature of the relationship. The differences noted are the lack of clarity on the direction of causality between FVA and the EMH as well as the IASB's preference for recognition versus disclosure. These differences are probably the result of the way that accounting standards and theory are developed with the influence of normative and positive approaches. The question on causality can be resolved by allowing for feedback effects between FVA and market prices. Feedback effects are an important aspect of the model that will be developed later in the thesis.

What is left of the EMH does not include the assumption that market prices are always aligned with fundamentals. The implication for this thesis is that the possibility of FVA

playing a role in feedback processes cannot simply be argued away as impossible under the EMH.

5. Conclusion

The objective of this chapter was to review the role of FVA in the global financial crisis. The chapter also explored the link between FVA and the EMH as a possible reason for scholars not considering FVA's role prior to the global financial crisis. The review helps to contextualise the larger thesis study. The chapter showed that there is not yet consensus on the cause of the global financial crisis and even less so on the role of FVA in the crisis.

The section on the role of FVA in the crisis showed that empirical evidence from before and after (and not just during) the crisis are needed and that the focus should not just be on FVA for available-for-sale assets. It was also shown that empirical evidence suggests that FVA did not add to the severity of the crisis during the crisis as management could use the flexibility allowed in FVA to avoid losses.

The review of the role of FVA in the global financial crisis revealed a link between the EMH and FVA which was explored further as a the EMH assumption that market values are equal to fundamental values can explain the disregard of the possibility that FVA's role in the crisis is to be found before the crisis. The review showed that there is a strong relationship between FVA and the EMH and that what remains of the EMH does not include prices that are always aligned with fundamentals. Thus FVA (level 1) can play a role in feedback processes. The more subjective levels (2 and 3) of FVA allows for FVA to have played a role in the global financial crisis independent of the validity or not of the EMH and its impact on FVA. Bank management could have inflated profits and/or capital with inflated fair values. This possibility is further investigated in the final chapter before the conclusion.

This thesis will make a contribution to the literature by obtaining evidence on how banks practically applied FVA before and after the global financial crisis. This can be realised in the South African context with fewer banks in the system, rich data available from the reserve bank and the opportunity to meet with bankers, their auditors and regulators. Unlike other studies the focus will not be on FVA adjustments related to available-for-sale but rather on FVA adjustments that impact profit and loss. FVA adjustments that end up in retained

income forms part of regulatory capital whereas available-for-sale reserves do not form part of regulatory capital under Basel II. No other study has investigated how FVA was used by South African banks even though such a focus is warranted. First, the South African bank regulator maintains a high international profile and thus exemplary behaviour from South African banks can be expected which should be tested. Second, in 2014 South Africa switched to a fair value based income tax regime for banks based on assumption that include the argument that most financial assets held by South African banks are marked-to-marketed.

The next three chapters of this study will narrow the focus and investigate how FVA was implemented within the South African banking system. The next chapter contextualises this South African case study by investigating the similarities and differences between large South African banks and other Western banks. This knowledge of commonalities and differences will be needed to evaluate whether the South African results can be generalised. The subsequent two chapters will present empirical findings on the South African banks; one paper will look at individual bank level data and the other paper will look at South African banking system data. The results of the South African case study will be useful to inform and enrich the model developed in the final paper.

CHAPTER THREE: THE SOUTH AFRICAN CONTEXT

1. Introduction

This study can be divided into two parts; a model part and a South African case study part. The purpose of the model part is to develop theory that explains bank behaviour when capital regulations and accounting standards meet. The purpose of the South African case study is twofold; first, to observe in detail the use of FVA in practice and second, to inform and enrich the theory developed in the model. This section focuses on the case study part and specifically provides some context to the South African case study. According to Robson (2002) case studies always occur in a specified social and physical setting and cases cannot be studied devoid of their context. The specific context that will be provided is an overview of the development of bank regulatory standards and how they were and are applied in South Africa. That overview examines the development and application of accounting standards in South Africa culminating in the requirement in 2005 that all listed South African companies adopt IFRS (Prather-Kinsey, 2006:142). Both bank regulatory standards in South Africa and accounting standards in South Africa will be evaluated to determine the similarities and differences between South Africa and other countries.

2. Bank regulation

2.1 *International*

The financial system and banks in particular have certain characteristics that provide the rationale for the extensive regulation of the industry. Examples of some of these characteristics include the essential role of money in the economy and the possibility of a systemic crisis when bank failures occur (Heffernan, 2005:175; Howelss & Bain, 2008:548-549). Typically a country's central bank plays the supervisory role in bank regulation.

With the deregulation of global financial markets and the development of sophisticated and complex financial products, the need arose to standardise banking regulations and to provide a framework for minimum capital standards to be maintained by large and internationally active banks. The rest of this section will focus on the capital adequacy aspect of bank regulations as this is where FVA and its effect on bank capital becomes relevant.

Bank capital is the ultimate defence against risk (Howelss & Bain, 2008:560; Rose & Hudgins, 2008:479). The Basel Committee on Bank Supervision, based at the BIS in Basel Switzerland, spearheaded the development of a standardised framework for capital measurement. This culminated in the Basel Capital Accord (Basel I) which was adopted in 1988 by the Group of Ten countries and subsequently implemented by more than 100 countries world-wide. The framework was improved during the period 2001 to 2006, resulting in the introduction of Basel II.

2.1.1. Basel I

Basel I provides a standardised framework for measuring capital adequacy and it imposes minimum required capital reserves. This can be expressed in the following simplified formula:

$$\frac{Adjusted\ accounting\ capital}{Risk-weighted\ assets} > \text{Required percentage (usually 8\%)} \quad (1)$$

Basel I initially distinguished between two types of capital; Tier 1 capital (core capital) and Tier II capital (supplementary capital). Core capital consisted mainly of shareholders' equity, disclosed reserves that were available to cushion losses, retained earnings and non-cumulative preferred shares less goodwill. Supplementary capital consisted of funds not fully owned or controlled by the bank, such as "general" provisions that the bank set aside against unidentified future losses and medium or long-term subordinated debt issued by the bank (the information in this paragraph is mostly from Howelss and Bain (2008:563). Tier II capital was limited to 100 percent of Tier 1 capital. A reasonable summary of Tier II capital is as follows; accounting capital plus "general" provisions plus long-term subordinated debt less goodwill. What is clear is that regulatory capital is primarily an accounting concept.

The risk weighting of assets at first incorporated only credit risk and consisted of five simple risk buckets. However, banks are also exposed to market risk via their trading activities and therefore, in 1996, an Amendment to Basel I was issued to account for market risk. The four different forms of market risk recognised in the Amendment include: equity price risk, interest rate risk associated with fixed income securities, currency risk and commodities price risk (Howelss & Bain, 2008:186). Under the Amendment, one of two approaches to market risk could be adopted; either the internal model approach or the standardised approach. Under

the internal model approach banks were allowed to use their own internal value at risk models to calculate the amount of capital to set aside for market risk. Under the standardised approach the amount of capital to be set aside was determined by an additive process based on the four market risk categories. In each risk category, all derivatives were converted into spot equivalents and a capital charge determined. No allowance was made for portfolio diversification in this process (Howelss & Bain, 2008:190).

Basel II was primarily motivated by the need to use internal models to assess credit risk, instead of the "one size fits all" broad risk buckets under Basel I. Another motivation was the need to incorporate operational risk in the process, in addition to credit risk and market risk. The greater use of asset securitisation by banks was also a factor (Howelss & Bain, 2008:566). Implementation was to take place on 1 January 2008 (Mathews & Thompson, 2008:198).

2.1.2. Basel II

Basel II is not just focused on capital adequacy, unlike Basel I. It makes use of three interactive, "mutually reinforcing" pillars: Pillar 1 (minimum capital requirements), Pillar 2 (role of bank supervisors) and Pillar 3 (use of market discipline) (Heffernan, 2005:194). Our focus is on Pillar 1 (capital adequacy). The changes made to capital adequacy from Basel I to Basel II can be seen in the following formulas that are variants of the formula previously presented for Basel I:

Basel I (with the 1996 Amendment):

$$\frac{Capital\ (Tier\ 1\ \&\ 2)}{Credit\ risk + market\ risk} > 8\% \qquad (2)$$

Basel II:

$$\frac{Capital\ (Tier\ 1\ \&\ 2)}{\begin{matrix}Improved\ credit\ risk + market\ risk + \\ operational\ risk\end{matrix}} > 8\%^{1} \qquad (3)$$

A major change, in addition to the inclusion of operational risk, was that the calculation of credit risk and the capital required was changed from a "one size fits all" approach to a more

[1] In South Africa, under Basel II, the required percentage was 9.5% due to the concentrated nature of the South African market; in other words, there are few banks in that market. (Bakoro, de Jager & Parsons, 2013:6).

individualised and bank orientated approach. Three approaches were specified for credit risk to suit different levels of risk and sophistication according to the operations of the bank (Mathews & Thompson, 2008:198). The standardised approach was an extension of the Basel I approach of risk buckets; the difference with Basel II was that the risk buckets were being ordered according to the credit ratings assigned to assets by external rating agencies. Banks that had more sophisticated risk management controls were, with the permission of their local regulatory authority, allowed to apply their own internal ratings; in other words, they could use their own models and credit history to determine what level of capital to hold for credit risk. For securitisation exposures, banks were now required to calculate the capital needed as if they were exposed to the underlying assets in the securitisation transactions.

2.1.3. Basel III

In a response to the deficiencies in financial regulation revealed by the global financial crisis, the Basel Committee on Bank Supervision introduced Basel III. This strengthens bank capital requirements and introduces new regulatory requirements for bank liquidity and bank leverage.

2.2 *South Africa*

According to Botha and Makina (2011:32), prior to the 1980s, South African bank regulation was out of line with international best practice. Capital requirements were based on simple ratios of capital to total assets. Off-balance sheet activities and derivatives were unregulated. The De Kock Commission of 1987 recommended the regulation of specific activities and the adoption of risk-weighted measures of capital adequacy. The Banking Act of 1990 implemented these recommendations and had the important effect of steering South African bank supervision towards international best practice, as based on the Basel rules.

The Banking Act of 1990 made bank supervision the responsibility of the Department of Bank Supervision of the SARB. From the beginning, the Department actively engaged with international best practices and the Basel rules and over the next fifteen years the mission statement of the department transformed from “To promote the soundness of banks through effective supervision” (Bank Supervision Department of the SARB, 1995:1) to “To promote the soundness of the domestic banking system and to minimise systemic risk through the effective and efficient application of international regulatory and supervisory standards” (Bank Supervision Department of the SARB, 2011:c); this transformation reflects even

greater conformance with international practice. A possible culmination of the South African adherence to international best practice is the World Economic Forum which rated the soundness of South African banks as being second in the world in 2012 (World Economic Forum, 2012).

South Africa's strict adherence to international standards was demonstrated by the fact that while Basel II was implemented in South African by the effective date of 2008, countries were allowed to assess their own readiness, and as a result not all countries implemented Basel II at that time (the United States of America is a significant example) (Bank Supervision Department of the SARB, 2009). South African implementation of Basel III will start in 2013 (Bank Supervision Department of the SARB, 2012:16) and Basel II is in place until then.

Another area where the SARB followed international best practice was with the adoption of inflation targeting in February 2000 (Van der Merwe, 2004:2). Importantly for this study the adoption of inflation targeting coincided with a structural reduction in interest rates in the South African economy with the prime interest rate (an important short-term reference rate) falling from 21% at the beginning of the 1990s to single digits by 2010; this reduction in interest rates had a material impact on the valuation of fixed income securities.

It can be concluded that in terms of bank regulation the modern South Africa is comparable to developed countries that subscribe to the Basel Accords.

3. South African accounting standards

Submissions by South African banks had to be consistent with South African generally accepted accounting practice (GAAP) before 2005. This changed to the requirement that listed South African banks had to prepare their consolidated financial statements in accordance with IFRS for years ending on or after 31 December 2005 (Bank Supervision Department of the SARB, 2006:27). Banks not listed were allowed to continue in accordance with South African GAAP but the bank supervisor notes in its annual report of 2005 that "the Accounting Practices Board, which issues accounting standards in South Africa, has reissued all South African GAAP statements and interpretations when there were differences between these standards and those issued by the IASB." (Bank Supervision Department of the SARB,

2006:27). Finally, South Africa wrote IFRS into South African law under Regulation 3 of 2008 of the Banks Act of 1990, by requiring that all submissions made by banks for regulatory purposes be prepared in terms of IFRS.

The adoption of FVA for financial instruments was the culmination of the introduction of the fair value concept into accounting (Magnan, 2009:192) and is the key FVA standard for this study. IAS 39 *Financial Instruments: Recognition and Measurement* came into effect from 1 January 2001 and was adopted into South African GAAP as AC 133 from that date. Important for the banks in this study is that their accounting practices, even for the period at the beginning of the 2000s under South African GAAP, can be regarded as being consistent with IFRS (Prather-Kinsey, 2006:145).[2] It can be concluded that in terms of accounting standards the modern South Africa is comparable to developed countries that implemented IFRS.

South Africa's timely implementation of IFRS and South Africa's active participation in the activities of the Basel Committee are illustrated by the appointment of the current South African Registrar of Banks, René van Wyk, as the chairman of the Accounting Task Force sub-committee of the Basel Committee.

4. Why did no South African banks fail during the financial crisis?

It was argued in the previous sections that South's Africa's compliance with bank regulations and accounting standards is at a high level, comparable with developed countries, as far as the Basel Accords and IFRS are concerned. The question that arises in the context of the global financial crisis is as follows: if South African banks are so typical then what explains why none of them failed? The aim of this section is to highlight the differences that explain why no South African banks failed during the financial crisis.

One significant way in which the operating environment of South African banks differs from that of other international banks, are exchange controls. In the words of Brian Kahn, the SARB's then head of the Research Department, South African banks were isolated: "With respect to banks, there are restrictions in terms of the exchange control act, on the types of

[2] Local accounting standards in South Africa have been harmonized with international accounting standards since the mid-1990s (UNCTAD Secretariat, 2007:3; Prather-Kinsey, 2006:145).

assets or asset classes they may get involved in (cross-border). These include leveraged products and certain hedging and derivative instruments. For example banks cannot hedge transactions that are not SA linked. Effectively it meant that our banks could not get involved in the toxic assets floating that others were scrambling into. They would have needed exchange control approval which would not have been granted, as they did not satisfy certain criteria" (Padayachee, 2012:8). The protection offered by exchange controls limited exposure to subprime-related products in the United States and this is one reason why no South African banks failed during the crisis (International Monetary Fund, 2008:11; BIS, 2011:365). Another reason why no South African banks failed is that South African loan underwriting standards never declined to the same extent as in the United States (BIS, 2011:371).

5. Fair value accounting and prudential filters

Some authors such as Barth and Landsman (2010) argue that prudential filters in the Basel framework neutralise most fair value gains and losses and thus remove the volatility of those gains or losses from bank capital. It is thus of importance to focus on this specific issue in the calculation of capital adequacy. If FVA gains and losses are specifically excluded from bank capital by the bank regulator (generally elsewhere and in South Africa) then it becomes unlikely that fair value could have possibly played a role in influencing bank behaviour prior to the global financial crisis.

A study by Bakoro, de Jager and Parsons (2013) specifically addressed this matter of prudential filters. They found that the South African bank supervisor adjusts accounting capital in the area of impairments (bank regulators require forward looking impairments) and for reserves resulting from available-for-sale instruments, cash flow hedging, share based payments and foreign currency translation. The general principle in Basel II is that Tier 1 capital should be equity capital made up from permanent shareholders' equity and disclosed reserves that, importantly, are required to have been posted through profit and loss (BIS, 2006: 245). The implication is that accounting entries posted directly to reserves would be excluded. This explains the exclusion of available-for-sale reserves, cash flow hedging reserves and foreign currency translation reserves. Share based payment expenses, even though posted via profit and loss, do not represent a decrease in total capital available to absorb losses and are thus added back: it is a transfer from current shareholders to new shareholders. Fair value adjustments that were posted directly to profit and loss such as those

that relate to trading assets and assets for which the fair value option was chosen are, however, not excluded from regulatory capital; consequently, all or most volatility will not be removed, contrary to the findings of Barth and Landsman (2010).

6. Conclusion

The main objective of this chapter was to provide a contextualisation of the use of FVA by South African banks. As explained earlier, the objective of the larger study is to investigate the role of FVA in the global financial crisis by gathering empirical evidence on the use of FVA by South African banks (with the focus on the time period before the crisis) and then to develop a theoretical perspective on the problem. Case studies should always be considered within their specific context. In terms of capital adequacy and how it is determined in South Africa, it was found that South Africa takes part in the setting of and implements promptly the latest international best practice in terms of bank supervision. Basel II was implemented in South Africa on 1 January 2008 and Basel III will be implemented on the dates set by the Basel Committee. The accounting standards under which South African banks operated during the 2000s can be regarded as IFRS.

The South African context thus indicates that a study of banks in South Africa can be regarded as a representative case study; this is because of the country's propensity to implement international accounting and bank supervisory standards quickly. It is reasonable to expect that the findings of the South African case study will be more internationally descriptive than if South Africa were a unique case. Differences were identified that can explain why no South African banks failed during the financial crisis; unlike banks in the United States and in Europe. These differences are firstly, exchange controls that limited the exposure of South African banks to subprime-related instruments and secondly, better loan underwriting standards in South Africa. These differences will be kept in mind when considering whether the South African case study results can be generalised.

The argument that prudential filters remove the volatility in bank capital resulting from fair value adjustments was found not to be fully accurate. Fair value adjustments that are booked directly to reserves without passing through profit and loss are removed by the bank supervisors in accordance with the prudential filter argument. However, fair value

adjustments that are booked to profit and loss are not removed by prudential filters and form part of retained income and thus regulatory capital.

The following two chapters form the South African case study. Chapter four will use data obtained from individual South African banks. Chapter five will use individual bank data as well as data obtained from the total South African banking system. The next chapter, four, will be exploratory in the sense that it aims to investigate how South African banks applied FVA in practice before and after the global financial crisis. Some variability is built into the investigation by using a comparative case design where the one bank selected is the largest South African bank (comparable in size to a large Western bank) and the other bank is a smaller bank on the dividing line between systemic or not. The variability might help to delineate between effects driven by bank size and other effects. What both selected banks have in common is that they are universal banks; in other words, a combination of a retail bank and an investment bank.

CHAPTER FOUR: LIBERAL FAIR VALUE ACCOUNTING IN BANKS: A SOUTH AFRICAN CASE STUDY[1]

1. Synopsis[2]

The overall objective of the larger study is to investigate the role of FVA in the global financial crisis by gathering empirical evidence on the use of FVA by South African banks (with the focus on the time period before the crisis) and then to develop a theoretical perspective on the problem. Chapter two reviewed the global financial crisis and the role of FVA in that crisis. Chapter three contextualised the empirical work which is a South African case study. The main aim of this chapter is to observe in detail how FVA was used in practice by two large South African banks.

An objective of the thesis is to determine the use of FVA by banks in practice. This is possible in this South African case study of two large banks. The results indicate that the South African banks did not use FVA in a neutral manner; instead FVA adjustments that increased profits (and thus capital) were accepted whilst FVA adjustments that decreased profits were actively avoided. This asymmetry in application, with FVA losses slow to follow the global financial crisis (in Investec Bank Limited's case postponed by two years), speaks to the objective of the thesis to focus on the time period before the crisis as well as on the time period after the crisis. In both banks the unrealised portion of retained income was material, peaked just before the crisis and thus proved risky.

FVA adjustments can be posted directly to capital reserves or through profit and loss. A common assumption is to only focus on FVA for available-for-sale assets. An objective of this thesis is to rather focus attention on FVA adjustments through profit and loss. This focus is justified by the results in this paper (especially Table 4.2) which shows how FVA adjustments posted directly to capital reserves are immaterial compared to FVA adjustments posted through profit and loss. The FVA adjustments through profit and loss proved to be risky as evidenced by the patterns observed.

[1] Paper was published in the journal *Australian accounting review* (volume 24, number 2 of 2014).

[2] The three main chapters are papers that have been published and are included in the thesis verbatim and are thus standalone papers. The *Guidelines for the inclusion of publications in a doctoral thesis* of the University of Cape Town require that each paper is prefaced by a synopsis of how the paper contributes to the thesis aims and objectives.

Another objective of the thesis is to investigate to what extent the financial instrument assets and liabilities of a bank must be accounted for under FVA before potential dangerous effects are possible; must it be most financial instruments or a much smaller portion of financial instruments? This paper demonstrates two cases where the average portion of assets at fair value was small (33% and 28%) and the average portion of liabilities at fair value was also small (17% and 25%), yet large impacts on profit and capital were observed that could be dangerous.

The investigation of the use of FVA by two large South African banks also had the following benefits for the specific parties listed. The South African bank supervisor should be interested in the extent of unrealised FVA adjustments through profit and loss and thus in regulatory capital, and in the Standard Bank of South Africa's (SBoSA's) avoidance of the prohibition on reclassifications by adjusting comparative figures. The shareholders of the SBoSA should be interested in the R26 992 million mistake picked up in the 2011 annual report. The revenue authority of South Africa, who changed the taxation on financial instruments for banks, assumes in their discussion document that most financial instruments are valued at market values. The two cases in this paper show that most financial instruments are in fact not valued at market values but rather at level 2 of the FVA hierarchy.

Other researchers should be interested in the finding that profits and losses from FVA can be influenced, not by tweaking the individual valuations, but rather on a macro level by managing the gap between assets at fair value and liabilities at fair value. Accounting standard setters should be interested in the use of one accounting standard (IAS 8) to get around the requirements of another accounting standard (IAS 39).

The published paper follows.

2. Abstract

Research findings on the role of fair value accounting (FVA) in the global financial crisis can be interpreted as showing that FVA is not applied neutrally by banks. The results of FVA are accepted when they contribute to higher profits and are actively resisted when they lead to losses. The aim of this article is to investigate in some detail how FVA is practically applied by banks. The focus is on banks as most of their assets are financial instruments and thus

potentially fair valued, and banks' behaviour is significantly influenced by their regulatory environment. The research objective is pursued by using a case study of two South African banks. One of these is the largest and most systemically important bank in the South African system and the other is on the crossover between systemic and not systemic. It is found that FVA as applied by these two banks is not neutral. Also included is a demonstration of a method to derive the unrealised portion of profit and equity, the identification of the gap between assets and liabilities at fair value as the driver of where in a banking group profits and losses are realised, and the finding that the restatement of comparative figures was used to circumvent the prohibition on reclassifications into and out of the "designated as at fair value" category.

3. Introduction

Modern accounting information should be neutral according to standard setters. Neutrality is defined as free from bias and incompatible with conservatism (International Accounting Standards Board (IASB), 2008:49). In contrast, evidence from the global financial crisis can be interpreted as pointing towards the liberal use of FVA by banks.

The upswing period that preceded the crisis could have been amplified by the effects of FVA. The Bank of England, in its *Financial Stability Report* (2009:43), writes that a tendency for excessive risk-taking during the upswing of the credit cycle was one of the root causes of financial instability. Writers Taylor (2009), McMahon (2011) and Kusano (2011) argue that FVA was an important factor behind this tendency. FVA increases bank capital, makes the bank seem less risky (even though bank capital is increasingly full of unrealised profits and unstable gains) and encourages further risk-taking. Lifschutz (2002) found that in the period 1997-2000, American banks took advantage of the flexibility in Statements of Financial Accounting Standards (SFAS) 115 *Accounting for Certain Investments in Debt and Equity Securities* to manage earnings; consequently, these accounting standards influenced certain decisions of managers and the result was that the neutrality of accounting was impaired. Lunawat, Pronin, Stecher and Zhang (2012) write that mark-to-model accounting has an optimistic bias.

The downturn period that followed the crisis could also have been amplified by the effects of FVA accounting. FVA was accused of worsening the global financial crisis with an excessive

write-down of asset values depleting bank capital; according to this argument, the effects of FVA could have been exacerbated by liquidity issues and/or other feedback effects (Cassidy, 2009:308; Laux & Leuz, 2009; Pozen, 2009; Shaffer, 2010). Accounting research into the global financial crisis has tackled the excessive write-down argument and found it to be invalid (Badertscher, Burks & Easton, 2012; Shaffer, 2010; United States Securities and Exchange Commission, 2008). In fact, Laux and Leuz (2009) found that banks overvalued financial assets during the crisis. Vyas (2011) concurred by finding that write-downs were less timely than implied by the movement in credit indices. These findings should be considered within the context of the Bank for International Settlements' (BIS) current belief that banks have not fully recognised the impairment in asset values stemming from the crisis (BIS, 2012:9).

The argument that FVA is procyclical[3] (BIS, 2008; Kusano, 2011) is closely related to the feedback effect argument presented above. A possible difference is that procylicality requires the effect to be present both in the upswing and the downturn whilst the bulk of the feedback effect arguments were made only in respect of the downturn. McMahon (2011:54) argues for feedback effects during both the upswing and the downturn but qualifies "feedback loops also occur during upswings, although not quite as fast".

An interpretation of the findings presented above is that FVA provides bank managers with enough flexibility to avoid being neutral in application. When profits are increased by FVA the results are accepted but when profits are decreased by FVA the results are not accepted and actions are taken to avoid the losses. The aim of this article is to investigate how FVA is practically applied by banks. Accounting can be viewed as a social science (Gaffikin, 2006) where the best and well-designed accounting rules are applied and audited by people with their individual objectives and incentives. George Soros, in a speech about the Euro crisis (2012), argues that feedback loops and people's behaviour are related and important factors behind boom and bust cycles.

A research design entailing a comparative-case case study is used, with a mixed methods research strategy, to investigate the research question. The units of analysis are two banks; one is the largest South African bank and the other is a South African bank, the size of which

[3] It amplifies the business cycle.

is on the border between systemic and not systemic. It is expected that a too-big-to-fail bank will be less inclined than a smaller bank to use FVA as a profit and capital management tool. Four themes will be used to guide the data gathering process:

- How important is FVA for the banks?
- What is disclosed under FVA by the banks?
- Why did the banks use FVA in the way they did?
- How do the banks manage FVA?

The specificity of the case study design enables the demonstration of where and how discretionary practices were applied opportunistically by specific entities. It also indicates the presumed motivations for the practices and their consequences. These are all required research results for "passionate" accounting research (Briloff, 1997:14).

The study makes four contributions to accounting literature, accounting standard setters and bank supervisors. First, it suggests that neutral FVA is unlikely to result from practices by banks. Second, it demonstrates a novel method to derive the unrealised portion of profit and equity due to FVA on financial instruments, using deferred tax balances. Third, the gap between assets and liabilities at fair value is identified as a key instrument that determines where eventual fair value profits or losses realise in a banking group. This contributes to the on-going discussion on whether the fair value option leaves too much flexibility in management's hands. Finally, the study identifies the restatement of comparative figures as a way to avoid the International Accounting Standard (IAS) 39 – *Financial Instruments: Recognition and Measurement* prohibition on reclassifications into and out of the "designated as at fair value" category.

The paper proceeds as follows: section 3 discusses related literature, section 4 describes the methods and the data that will be used to address the research question, section 5 discusses and interprets the results and section 6 provides the conclusion.

4. Theoretical background

The qualitative research approach adopted in this paper necessitates only a brief theoretical section as an over-emphasis on theory could restrict insights and create bias.

4.1 *Fair Value Accounting*

In the recent past, most financial reporting was based on historical cost. Assets or liabilities (but for brevity, only assets are discussed in this paragraph) were shown on the balance sheet of companies at the original price paid for the asset or at the original price paid for the asset amortised over time. Under mark-to-market accounting, an asset is carried on the balance sheet at the price the asset could fetch in the current market. Changes in mark-to-market value, in other words unrealised holding gains or losses, are recognised in current earnings. In contrast, under historical cost accounting, changes in value are usually only recognised when realised.[4]

FVA is more complex than mark-to-market accounting. Fair value is the exchange value in an idealised market and can be determined in three ways, in order of preference:[5]

- Mark-to-market accounting (level 1): the significant inputs are quoted prices on an idealised market for similar instruments.
- Mix of mark-to-market accounting and modelling (level 2): the significant inputs are directly observable market inputs other than Level 1 inputs; for example, adjusted market values etc.
- Mark-to-model (level 3): significant inputs are not based on observable market data; instead, an estimate is made of what the value of the instrument would be if it were to be traded.

The adoption of FVA for financial instruments was the culmination of the introduction of fair value into accounting (Magnan, 2009:192). IAS 39 *Financial Instruments: Recognition and Measurement* came into effect from 1 January 2001 and is the accounting standard on

[4] Historical cost accounting recognised declines in the market value of assets if that decline indicated impairment.
[5] A formal order of preference only entered accounting standards under the IASB in October 2008 with an amendment to IAS 39 which adopted the American tiered system of fair value determination.

financial instruments under which the banks in the study reported. IAS 39 is summarised in the following table.

Classification of financial instruments	Treatment	Reclassification allowed?
ASSETS		
1.1 Held for trading financial instruments*	Financial instrument valued at fair value and value change taken to profit and loss and thus ordinary capital	1.1 Can be reclassified out of this category if non-derivative, change of intention and "rare circumstances" or meets definition of loans and receivables
1.2 Financial instruments designated as at fair value through profit or loss		1.2 No reclassification allowed in or out
2. Held-to-maturity financial instruments	Financial instrument valued at amortised cost	Reclassification possible subject to "tainting" rule
3. Loans and receivables	Financial instrument valued at amortised cost	Reclassification possible
4. Available-for-sale financial instruments	Financial instrument valued at fair value and value change taken directly to capital	Can be reclassified to 3. if change of intention and meets definition of loans and receivables Can be reclassified to 2 & 3 if change of intention and "rare circumstances"
LIABILITIES		
1.1 Held for trading financial instruments*	Financial instrument valued at fair value and value change taken to profit and loss and thus ordinary capital	1.1 Can be reclassified out of this category if non-derivative, change of intention and "rare circumstances" or meets definition of loans and receivables
1.2 Financial instruments designated as at fair value through profit or loss		1.2 No reclassification allowed in or out
2. Other financial liabilities	Financial instrument valued at amortised cost	Reclassification possible

Table 4.1 Disclosure categories for financial instruments according to IAS 39.
*** - Includes all derivatives.**

Two matters in Table 4.1 warrant further explanation as they become relevant in the rest of the study:

1) Financial instruments designated at fair value through profit and loss: IAS 39 permits the designation of any financial asset or financial liability to be measured at fair value even if the item would ordinarily, by its nature, be measured at amortised cost. In 2005 the IASB issued an amendment to IAS 39 that restricted the use of the fair value option. The revision limited the use of the fair value option to the elimination or reduction of an

accounting mismatch (so called macro hedging/ portfolio hedging) or to where a group of financial assets, financial liabilities or both are managed on a fair value basis. The basis for conclusions that accompanied the amendment explained that some constituents, including prudential supervisors of banks, securities companies and insurers, were concerned that the fair value option might be used inappropriately and that the use of the option might increase profit and loss volatility. In other words there were worries that bankers might finesse the option in an unacceptable way.

2) Reclassification changes in the midst of the global financial crisis: on 13 October 2008, and in response to the global financial crisis, the IASB issued amendments to IAS 39 and the International Financial Reporting Standard (IFRS) 7 *Financial Instruments: Disclosure*. These amendments created the space for banks to reclassify non-derivative financial instruments from the held-for-trading category in "rare circumstances" or if those instruments met the definition of loans and receivables. Similar reclassifications from the Available-for-sale category were made possible if the item met the definition of loans and receivables. The amendment reiterated that no reclassification out of the designated at fair value category is allowed.

IFRS 9 *Financial Instruments,* is expected to become effective from 1 January 2015 but with early adoption allowed. This will replace the classification and measurement provisions of IAS 39. The four categories of IAS 39 will be reduced to two categories; one measured at amortised cost and the other at fair value. Financial instruments with basic loan features, managed on a contractual yield basis and not classified as at fair value at initial recognition, will be carried at amortised cost. Other financial instruments will be at fair value. The fair value option under IAS 39 will be retained.

Reclassifications and movements between the levels of fair value measurement are the official IAS 39 channels of accounting choice. How do bank managers make use of this flexibility?

4.2 *The use of accounting numbers in bank capital*

According to Berger, Herring and Szego (1995) banks differ from other firms in two important respects that affect their capital structure: the first difference is the existence of a

regulatory safety net that protects the soundness of the sector and the second is the imposition of minimum required capital levels.

The combination of a regulatory safety net that encourages "risk shifting" behaviour where banks take more risk than normal (Merton, 1977) and a declining return on assets (ROA) due to competition from other firms, incentivises bank managers to increase leverage. One way in which bank managers can maintain or achieve the expected return on equity (ROE), even when ROA is decreasing, is to increase leverage.

Banks are thus highly leveraged institutions and the primary protection offered to depositors against bank failure is a prescribed minimum level of capital. The Basel Accord provides a standardised framework for measuring capital adequacy and it imposes minimum required capital reserves. These are expressed in the following formula (highly simplified):

$$\frac{\text{Accounting capital}}{\text{Risk weighted assets}} > \text{required } \%$$

This combination of a regulatory safety net and a minimum capital level can be used to explain an asymmetry in the acceptance by bank managers of FVA profits and losses.

During the business cycle upswing, profits are likely to be generated by FVA as asset values are increasing. More profits provide flexibility, making it possible for the bank to take on more debt to increase gearing and maximise future profits and remuneration, or pay out increased levels of remuneration or dividends.

During crisis periods, banks would be incentivised to carry higher levels of capital. This is not only because banks want to signal health to potential depositors but also because they are often directly required by bank supervisors to carry those higher levels of capital. However, capital is expensive or unavailable during crisis periods and thus retained earnings are the usual source of capital during crisis periods, putting pressure on accounting and FVA results for positive results. This is especially true if there are reversals of previously increased asset values or if there are assets that are held to maturity but should be written down.

5. Research approach and units of analysis

5.1 *Research approach*

The quantitative research tradition has been closely linked to positivism, the aim of which, according to Coetsee (2010:84), "is to record an objective reality that exists independently from human behaviour". This paper, however, investigates the possibility that human interventions hamper accounting neutrality and a world view that assumes an objective outside reality is thus inappropriate; therefore a more qualitative approach is needed. However, the choice of a qualitative approach is not at the total exclusion of quantitative data.

In addition, Robson (2002) prefers the fixed design versus flexible design distinction as opposed to the quantitative versus qualitative distinction. In agreement with his distinction, the exploratory/descriptive aim of this study is best approached within a flexible design context.

A comparative case study design is used. Case studies are the preferred method when (a) a "how" or "why" question is being asked, (b) the investigator has little control over events, and (c) the focus is on a contemporary phenomenon within a real-life context (Yin, 2009:2). The comparative design allows for the identification of what is unique and what is common across the cases.

Structure is added to the research approach by using the following four themes to guide the data gathering process:

- How important is FVA for the banks?
- What is disclosed under FVA by the banks?
- Why did the banks use FVA in the way they did?
- How do the banks manage FVA?

Both primary and secondary data are utilised. Primary data has been gathered using key informant interviews, feedback at presentations and email exchanges with the investor

relations departments of the banks. Secondary data was sourced primarily from the annual reports of the banks and this comprises the bulk of the evidence presented.

Only the primary data obtained from the key informant interview is deemed to have potential ethical implications. These concerns were mitigated as follows. Written clearance was obtained from the relevant university's Ethics in Research Committee, written informed consent was obtained from the interviewee and the identity of the interviewee will not be disclosed.

5.2 *Units of analysis*

The units of analysis are two banks. The first of these is the largest South African bank: The Standard Bank of South Africa Limited (SBoSA). The second is a South African bank on the border between systemic or not: Investec Bank Limited (IBL). It is expected that a too-big-to-fail bank will be less inclined to use FVA as a profit and capital management tool.

IBL is the South African banking licence holder entity in the Investec Group. IBL describes itself as an "international, specialist bank and asset manager that provides a diverse range of financial products and services to a select client base" (IBL, 2011: 2). Investec was founded as a leasing company in Johannesburg in 1974. It acquired a banking licence in 1980 and in 1986 it was listed on the Johannesburg Stock Exchange.

In July 2002, a dual listed companies structure was implemented with linked companies listed in London and Johannesburg. The effect of this structure is that shareholders in Investec Limited (listed in Johannesburg) and shareholders in Investec Plc. (listed in London) have rights as if the two companies were a single entity whilst creditors, including depositors, are ring-fenced in their exposure to one of the two companies with no cross guarantees between the two companies. This asymmetrical treatment of shareholders and creditors speaks to a focal area of this study; how a bank must balance the interests of its shareholders and depositors in a different manner when compared to a normal company.

The South African Reserve Bank (SARB) is the lead regulator of the group according to a memorandum of understanding signed between the SARB and the United Kingdom Financial Services Authority; this situation will continue until 70% or more of on- and off-balance sheet assets of the group are held by Investec Plc. (Investec Limited, 2003:83). The SARB is

the regulator of Investec Limited and the United Kingdom Financial Services Authority is the regulator of Investec Plc. Figure 4.1, which follows, shows the Investec group structure and highlights the entity that holds the South African banking licence.

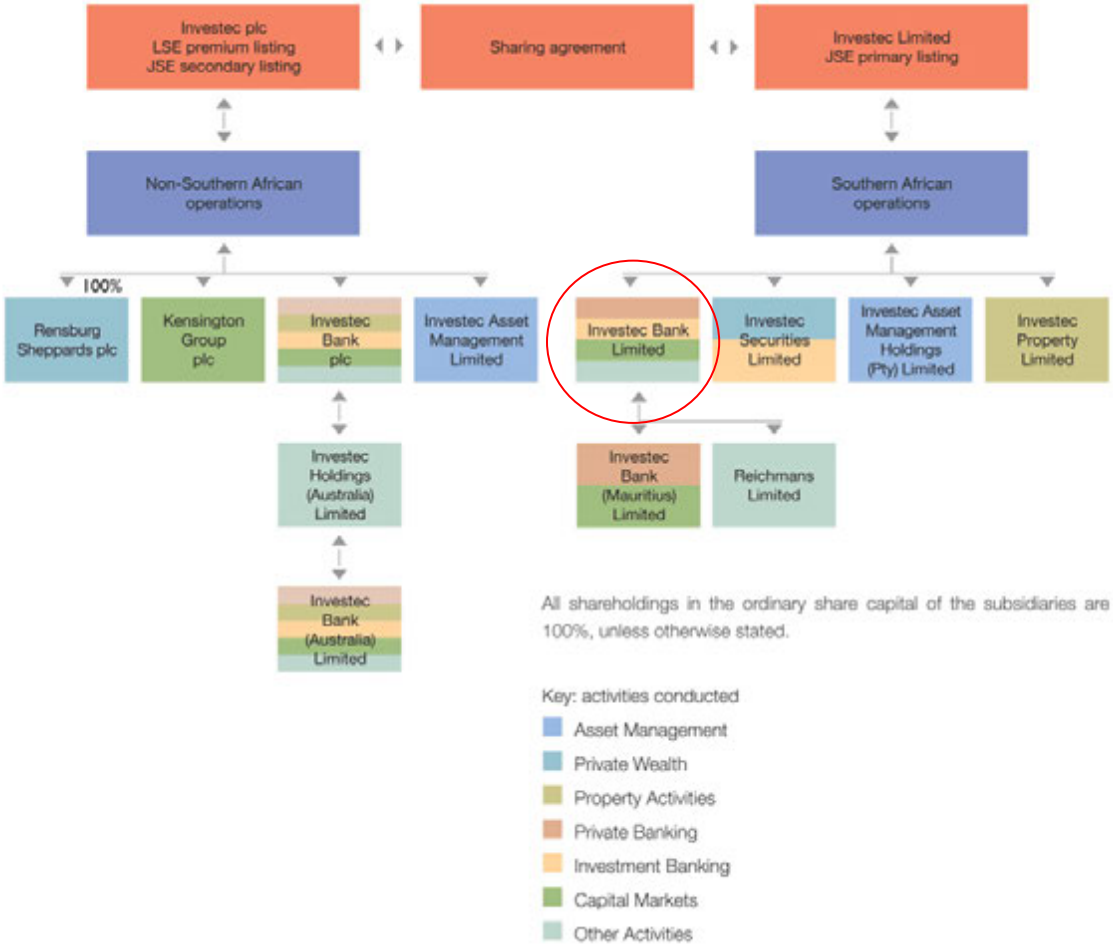


Figure 4.1 Graphical representation of the Investec group structure with the subject entity emphasised (source is Investec Bank Limited, 2011:3).

In IBL's annual financial statements for 2011 it is stated that Investec group operates as if it is a single economic enterprise. An implication of this statement is that intragroup transfers for accounting convenience are likely.

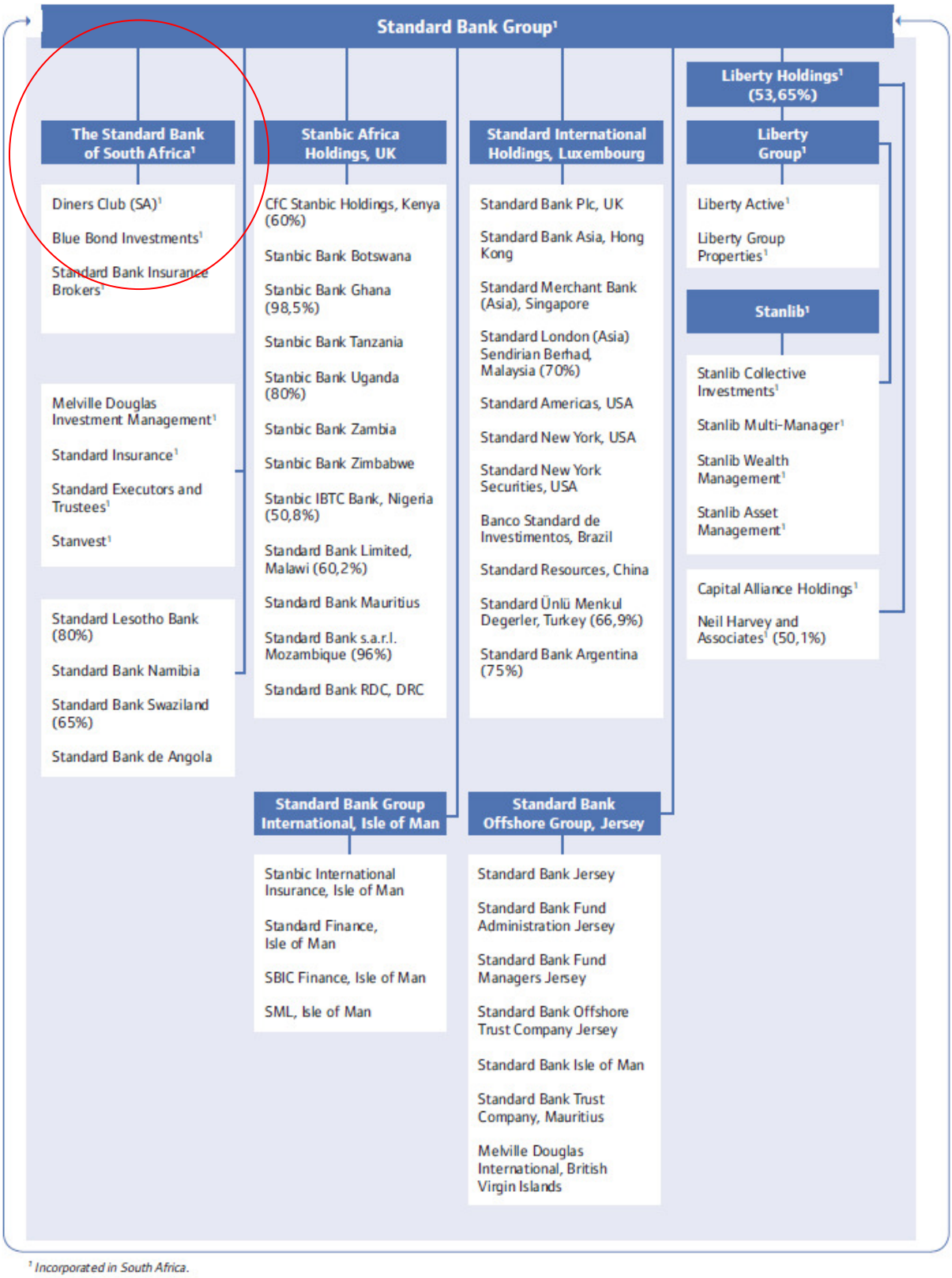
IBL was South Africa's fifth largest bank in 2011. Measured by total assets the bank represented 7% of the South African banking system in August 2011 (data was obtained from the BA900 returns published by the SARB). IBL represented 71.4% of the total asset base and 73% of the profit attributable to ordinary shareholders of Investec Limited in 2010.

IBL consists of three principal business units: Private Banking, Investment Banking and Capital Markets. In 2011 Private Banking contributed 13% to profit before taxation,

Investment Banking contributed 21% and Capital Markets 33%.[6] Private Banking offers credit and investment services to ultra-high net worth individuals, active wealthy entrepreneurs, high income professionals, self-employed entrepreneurs, owner managers in mid-market companies and sophisticated investors. Investment banking activities such as corporate finance and principal investments are offered to listed and unlisted companies, fund managers, government and parastatals. Capital Markets provides treasury services to corporate clients, public sector bodies and institutions and this is the business unit in which market trading activities take place.

SBoSA is the South African banking licence holder entity in the Standard Bank Group. Figure 4.2, which follows, shows how SBoSA fits into the larger Standard Bank Group. The Standard Bank Group describes itself as the "the largest African bank by assets and earnings" that "offers a range of banking and related financial services" (Standard Bank Group, 2011). The Standard Bank Group was started in 1857 as the Standard Bank of Port Elizabeth. Its holding company was Standard Bank Limited in the United Kingdom that later became Standard Chartered Bank Plc. Standard Chartered Bank Plc disinvested in 1987. Standard Bank Investment Corporation (the Group) was listed on the Johannesburg Stock Exchange in 1970. In October 2007, a deal was announced in which a 20% stake in the group was sold to the Industrial and Commercial Bank of China; R15.9 billion of new capital flowed into the group from the "supportive, non-controlling shareholder".

[6] The balance of 32% was attributable to Group Services and Other Activities.



[1] *Incorporated in South Africa.*

Figure 4.2 Graphical representation of the Standard Bank Group structure with the subject entity emphasised (source is Standard Bank Group, 2010b).

SBoSA was South Africa's largest bank in 2011. Measured by total assets the bank represented 25% of the South African banking system in August 2011 (data was obtained from the BA900 returns published by the SARB). SBoSA represented 62.8% of the total asset base and 73.6% of the profit attributable to ordinary shareholders of the Standard Bank Group Limited in 2010.

SBoSA consists of three principal business units: Personal and Business Banking, Corporate and Investment Banking and Other Services. In 2010 Personal and Business Banking contributed 53% to profit attributable to ordinary shareholders, Corporate and Investment Banking contributed 54% and Other Services contributed a loss of 7%. The Personal and Business Banking business unit offers banking and other financial services to individual customers and to small-to-medium-sized enterprises as well as municipalities. The Corporate and Investment Banking business unit offers corporate and investment banking services to government, parastatals, larger corporates, financial institutions and international counterparties. SBoSA's Other Services unit offers support functions to business units and advisory services, activities and taxes that are not allocated to business segments, inter-segment eliminations and restructuring costs.

Both IBL and SBoSA are the South African banking entities (registered as banks with the SARB) within their respective groups and are of a similar size relative to their respective South African holding company. Both have numerous fellow subsidiaries and therefore transfers out of the regulated bank entity to other group companies are very possible. Any numbers from the financial statements of the two banks used or presented below are thus from the group figures of the respective bank and not from the individual company figures. This is in accordance with the way in which the banks report to the supervisor. The banks are both universal banks that participate in many kinds of banking activities and combine a commercial bank and investment bank. The obvious difference between the two banks is size.

6. Descriptive work, evidence and discussion

6.1 *How important is FVA for the banks?*

The purpose of this first part of the descriptive work is to establish the importance of FVA for the two banks on a high level. What portion of profits and what portion of shareholder equity is due to FVA?

It is difficult to find the information needed to answer this question. The Banking Project Group is a forum that brings together representatives of the large South African banks, their auditors and bank supervisors at the South African Institute of Chartered Accountants in Johannesburg with the objectives of participating proactively in accounting standard setting and of examining legislative issues that impact on the banking industry. At a meeting of that Group on 21 July 2010, where the author presented preliminary findings, bank representatives expressed the opinion that it was not possible to split the net income of a bank into an unrealised and a realised portion by using the annual financial statements. It should be noted that IFRS 7 *Financial Instruments: Disclosure* (IASB, 2005) does not require disclosure of the realised and unrealised portions of items of income, expense, gains, and losses related to financial instruments; only the combined total is required.

Fair value profits or losses that realise within a particular period do not differ much from realised profits under a historical cost regime. It is the unrealised profits and resultant unrealised equity capital that is of much greater interest.

The deferred tax[7] notes to the financial statements of both IBL and SBoSA contain information that makes it possible to derive the portion of net profit attributable to unrealised fair value adjustments on financial instruments. IBL discloses the following as part of its deferred taxation note: "Deferred taxation liability due to unrealised fair value adjustments on financial assets". SBoSA discloses the following as part of its deferred taxation note: "Movement on deferred tax due to fair value adjustments on derivatives" and "Movement on deferred tax due to fair value adjustments on financial instruments". The annual after-tax profit or loss attributable to unrealised fair value adjustments on financial instruments can then be derived with the following formula:

> *After-tax profit/loss due to fair value adjustments on financial instruments = (movement in deferred taxation liability / tax rate) * (1 – tax rate) – (movement on AFS reserve & cash flow hedge reserve due to fair value adjustments)* (1)

[7] Deferred tax arises when a difference exists between accounting net profit and taxable income. Accounting net profit contains realised and unrealised items whereas current South African taxable income mostly contains only realised items.

This amount can then be expressed as a ratio of the net profit of the bank:

Unrealised portion as % of net profit = after-tax profit/loss due to fair value adjustments on financial instruments / net profit attributable to ordinary shareholders (2)

The 12% unrealised percentage of net profit for SBoSA in 2011 in Table 4.2 below will now be calculated from source to illustrate the application of formulas (1) and (2).[8]

9.	**Current and deferred tax assets**		
	Current tax asset	**170**	191
	Deferred tax asset	**138**	293
		308	484
9.1	**Deferred tax analysis**		
	Accrued interest	**4**	4
	Assessed losses	**3**	1
	Assets on lease	**(459)**	(435)
	Depreciation	**(32)**	(26)
	Derivatives	**(1 592)**	(1 222)
	Fair value adjustments on financial instruments	**(215)**	(71)
	Impairment charges on loans and advances	**527**	730
	Post-employment benefits	**30**	99
	Secondary tax on companies	**121**	276
	Share-based payments	**218**	254
	Other differences	**831**	680
	Deferred tax closing balance	**(564)**	290
	Deferred tax asset	**138**	293
	Deferred tax liability	**(702)**	(3)

[8] The following section up until the last paragraph on the following page does not form part of the published article.

		Group	
		2011 Rm	2010[1] Rm
9.	**Current and deferred tax assets** continued		
9.2	**Deferred tax reconciliation**		
	Deferred tax balance at the beginning of the year	290	(583)
	(Reversing)/originating temporary differences for the year:	(854)	873
	Accrued interest		
	Assessed losses	2	
	Assets on lease	(24)	(38)
	Depreciation	(6)	28
	Derivatives	(370)	1 862
	Fair value adjustments on financial instruments[2]	(144)	(115)
	Impairment charges on loans and advances	(203)	(823)
	Post-employment benefits	(69)	(184)
	Secondary tax on companies	(155)	(21)
	Share-based payments	(36)	48
	Other differences	151	116
	Deferred tax balance at the end of the year	(564)	290

Figure 4.3 Excerpts from the deferred tax disclosure of the SBoSA (source is SBoSA (2011:139&140)).

By combining the movement in derivatives and fair value adjustments on financial instruments in 2011 a total credit increase in deferred tax due to those two items of 514 is obtained. This movement of 514 minus the increase in deferred tax on AFS instruments during the year of 63 gives a total of 514-63=451 tax on unrealised fair value gains through profit and loss. The income tax rate is 28% and thus 451/28%*(1-28%)=the after tax unrealised component of earnings for 2011 of 1160. Total earnings after tax for 2011 is 9510 thus 1160/9510=12% of earnings as indicated in Table 4.2 in 2011 for SBoSA.

The portion of the deferred taxation liability due to fair value adjustments on financial instruments can be used to derive the cumulative unrealised profits contained in shareholders' equity with the following formula:[9]

[9] The results obtained using formulas 1 and 2 showed that the available-for-sale and cash flow hedge entries did not materially affect the portion of annual after-tax profits that are due to unrealised fair value adjustments on financial instruments and so the available-for-sale reserves and cash flow hedge reserves were not taken into account when calculating the unrealised portion of shareholders' equity.

*Unrealised portion of shareholders' equity = (deferred taxation liability due to fair value adjustments on financial instruments / tax rate * (1 – tax rate)) / total shareholders' equity* (3)

The 9% unrealised portion of shareholders' equity for SBoSA in 2011 in Table 4.2 below will now be calculated from source to illustrate the application of formula (3). Thus, for 2011 the total stock of deferred tax due to derivatives and fair value adjustments on financial instruments is 1592+215=1807. The total of shareholders' equity for 2011 was 54847 and the tax rate was 28%. Thus the FVA caused unrealised portion of shareholders' equity is (1807/28%*(1-28%)/54847=8.5% rounded to 9%.[10]

	2004	2005	2006	2007	2008	2009	2010	2011	2012
Unrealised % of net profit attributable to ordinary shareholders - IBL	18%	27%	-8%	22%	4%	32%	54%	-10%	-39%
Unrealised % of net profit attributable to ordinary shareholders - SBoSA	5%	16%	21%	23%	27%	-55%	-54%	12%	
Unrealised portion of shareholders' equity - IBL	1%	4%	4%	7%	6%	10%	15%	12%	8%
Unrealised portion of shareholders' equity - SBoSA	22%	24%	29%	28%	31%	18%	7%	9%	

Table 4.2 Unrealised percentage of net profit and shareholders' equity. IBL has the grey background and SBoSA has clear background.

The unrealised portion of net profit attributable to ordinary shareholders is significant for both banks. The unrealised profit portion for IBL builds up and peaks in the 2010 financial year, with the next highest peak in 2009. Thereafter, in 2011, the unrealised portion of net profit attributable to ordinary shareholders of IBL starts to unwind. SBoSA similarly builds up to a peak in 2008 with a subsequent rapid unwinding. When comparing the two banks it is important to remember that the IBL financial yearend is in March whilst SBoSA's yearend is in December; thus the 2011 IBL percentage is more comparable with the 2010 percentage for SBoSA. On this basis the 2009 calendar year for IBL and the 2008 calendar year for SBoSA are similar; thus, the unrealised percentages of net profits are similar and the years represent relative maxima. These yearends are relatively close to the peak of the global economic crisis which was in September 2008 and marked by the collapse of Lehman Brothers: a subsequent decline in financial instrument valuations is to be expected. It is in 2010 for IBL and in 2009 for SBoSA that the two banks sharply diverge; thus, in 2010, IBL posts a new maximum unrealised portion of net profit attributable to ordinary shareholders whilst SBoSA posts a

[10] This paragraph does not form part of the published article.

large unrealised loss.[11] In 2011 IBL posts an unrealised loss that is still significantly less than the unrealised loss posted by SBoSA in 2009 and 2010. In 2012 the unrealised loss for IBL is approaching the same level as SBoSA's unwinding in 2009 and 2010.

The unrealised portions of shareholders' equity for both banks build up monotonically and for IBL peaks in 2010, while SBoSA Limited peaks in 2008. SBoSA's peak is substantially more than that of IBL. For reasons similar to those given in the previous paragraph, the unwinding of the unrealised profit build-up starts a year earlier in SBoSA compared to IBL and the unwinding is not as rapid for IBL.

6.2 *What is disclosed under FVA by the banks?*

In the previous section the importance of FVA for the banks was investigated and it was found that unrealised FVA profits are significant for the two banks being analysed in this report, in terms of total profits and shareholders' equity. The purpose of this section is to investigate, in more detail, where the FVA effects come from.

IBL adopted AC 133, the South African GAAP version of IAS 39, in the 2004 financial year (IBL, 2004:23). IBL's 2004 financial statements refer to the main impact of the new FVA standard being stricter requirements for hedge accounting related to derivatives. A downward adjustment of R 123 million to retained earnings resulted from "Fair value adjustments to derivatives and other financial instruments" (IBL, 2004:43).

IBL adopted IFRS in the 2006 financial year (IBL, 2006:10). A R347 million reduction in Equity was necessary to adjust the opening balance sheet for "refinements to the requirements under AC 133" (IBL, 2006:77) which include:

- Revised interpretation relating to the recognition of certain fees as part of the effective yield of a financial instrument, and
- designation of financial instruments as at fair value through profit and loss. This was adopted early and resulted in more stringent rules being applied to such designations.

[11] It is possible that declines in the deferred tax liabilities are not due to unrealised profits turning into unrealised losses but rather due to the underlying assets and liabilities being realised; a distinct possibility in a world where banks are deleveraging. This possibility cannot be eliminated but is not the whole story as often the movement in deferred tax was in an opposite direction to the movement in assets and liabilities at fair value (i.e. fair value assets and liabilities were increasing when the deferred tax liability was decreasing).

The Standard Bank Group[12] adopted AC 133, the South African GAAP version of IAS 39, in the 2003 financial year. According to the Group's accounting policies for 2002 (Standard Bank Group, 2002:83) the principal difference resulting from the change in accounting standards will be "that the new statement prescribes FVA and exceptions to this rule are tightly controlled while the previous practice permitted selective use of fair value accounting"; the new regime was thought to be less flexible. Investment securities were identified as the category that would be most affected and the change to AC 133 led to a R285 million reduction in retained earnings due to the new classification and valuation of financial instruments (Standard Bank Group, 2003:174).

SBoSA adopted IFRS in the 2005 financial year. A R6 million reduction in equity was necessary to adjust the opening balance sheet because "following the adoption of IFRS certain financial assets were reclassified with a small impact on equity." (SBoSA, 2006:80).

The accounting policy notes of the annual financial statements of IBL and SBoSA were studied to compile the following summary (Table 4.3) of the accounting policy movements regarding the fair valuation of financial instruments over the period of study.

[12] Standard Bank Group is used here and not SBoSA as SBoSA did not provide consolidated financial statements until the adoption of IFRS in 2005. Thus, Group financial statements are used for completeness of financial instrument coverage.

Category	Subcategory	Cost/FV	Reclassification allowed	2003	2004	2005	2006	2007	2008	2009	2010	2011
ASSETS												
Held for trading	Trading	FV	No information	AC 133 adopted by SBoSA	AC 133 adopted by IBL	IFRS adopted by SBoSA	IFRS adopted by IBL[1]		6			
	Derivatives	FV	No information									
	Designated[1]	FV	Not allowed					2 & 4		6		
Held-to-maturity		Cost	On tainting moved to AFS									
Originated loans and receivables		Cost	No information					3				
Available-for-sale		FV (equity)	No information						5 & 6			6
LIABILITIES												
Held for trading	Trading	FV	No information						6			
	Derivatives	FV	No information									
	Designated[1]	FV	Not allowed									
Non trading		Cost	No information									

1 - SBoSA designates to "fair value through profit and loss". IBL designates to "held for trading" until adoption of IFRS in 2006 when designated to "fair value through profit and loss"

2 - IBL now classifies in certain instances debt instruments which contain equity features as designated as "held at fair value through profit and loss"

3 - IBL stopped using the word "originated" in 2006. From 2007 SBoSA includes purchased loans and receivables in this category

4 - From 2007 SBoSA gives more information on the fair value option. It is to be used to reduce measurement inconsistencies, for portfolios managed at fair value and for embedded derivatives. This is similar to the IBL disclosure

5 - IBL category now includes strategic equity investments and designated loans and advances on that trade on active markets

6 - From 2008 post the financial crisis amendments SBoSA allows reclassifications from trading assets to loans and receivables where the intention has changed, reclassifications from trading assets to AFS in rare circumstances and reclassifications from AFS to loans where the intention has changed. Trading liabilities cannot be reclassified. In 2009 IBL allows reclassification out of the trading category to cost when intention changes or rare circumstances. In 2011 IBL also allows AFS reclassification to cost

Table 4.3 Summary of the financial instrument accounting policies of IBL and SBoSA. AC 133 was the base case with changes indicated in the notes.

The following Table 4.4 provides a summary of IBL's total assets and liabilities carried at fair value over the period of study. The table was compiled by working backwards in time from the latest financial reports. The best data was obtained from 2006 onwards (IFRS adoption) in the note on "Analysis of financial assets and liabilities by measurement basis". Before 2006 the total for fair value assets and liabilities was calculated by the summation of the items found at fair value in the notes to the financial statements.[13]

[13] Figures given in total pre-2006 as the item level disclosure was materially different from the item level disclosure post-2006.

Category/description	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Loans and advances to banks				1930			474	301	216	759
Repurchase agreements				1224	2343	1821	2620	3671	8155	5098
Trading securities				12208	13472	17913	19938	36375	41332	45039
Derivatives				9032	5693	9668	9950	7829	11487	10595
Investment securities				31	29	70	27	6	5766	6036
Loans and advances to customers				13671	13422	14423	14478	15146	13072	14820
Securitised assets					1929	1624	1514	1120	1085	335
Other assets				46	70	5	157	125	149	140
Group loans							979	738	1471	-40
	21775	35577	36903	38142	36958	45524	50137	65311	82733	82782
% of total assets	30%	43%	42%	34%	26%	27%	28%	33%	37%	32%
Derivatives				7138	5576	10152	10482	7144	10495	8570
Other trading liabilities				266	255	266	701	454	389	172
Repurchase agreements				919	2164	1497	2281	3281	5732	3817
Deposits				3934	13021	16015	13664	15274	9871	6748
Securitisation				11304	4611	3097	1514	1514	1087	492
Other liabilities				520	63		213	164	459	307
	6794	10204	12085	24081	25690	31027	28855	27831	28033	20106
% of total liabilities	11%	15%	16%	23%	19%	20%	17%	15%	14%	9%
% total assets less % total liabilities	19%	29%	26%	11%	7%	7%	10%	18%	24%	24%
Above excluding derivatives	19%	29%	26%	10%	7%	8%	11%	18%	24%	23%

Table 4.4 Summary of IBL's assets and liabilities carried at fair value.

In terms of the portion of the asset base carried at fair value, IBL is in line with the 31% of assets at fair value, on average, in the US banking industry during the first quarter of 2008 (United States Securities and Exchange Commission, 2008:47). On a line item level, the slight decline from 2007 to 2008 in "Securitised assets" shown in Table 4.4 is surprising as a news service reported on 20 November 2007 (I-Net Bridge, 2007) that Investec had placed another R1.6 billion of residential mortgage-backed securities (the assets were sold higher up in the Investec group – see section 4.4).

An early peak followed by a decline in the percentage of assets held at fair value is evident until 2008, after which the percentage of assets carried at fair value starts increasing. This declining and then increasing trend is less noticeable in the percentage of liabilities measured at fair value. When the difference between the percentages of assets and liabilities at fair value is calculated, the results show that the gap is large and volatile: it peaked and then declined until 2008, and thereafter sharply increased. This gap is not due to derivative positions as its general movement, excluding derivatives, is similar. The increase in assets

held at fair value, as well as the gap after 2008, seem to be driven largely by the "Trading securities" line item.

	2005	2006	2007	2008	2009	2010	2011	2012
Trading securities in IBL as % of trading securities in IL	81%	74%	65%	73%	74%	84%	91%	97%
Accumulated fair value profits on trading securities in IBL as % of accumulated fair value profits in trading securities in IL	172%	97%	121%	70%	224%	404%	122%	NA

Table 4.5 Trading securities disclosure.

This presumption is supported by the data in Table 4.5 above. This indicates that much of the growth in the gap is probably attributable to the outcome of a transfer of trading securities from Investec Limited to IBL. As shown in Table 4.5, the percentage of trading assets of the larger group held in IBL rose monotonically from 73% in 2008 to 91% in 2011. The next line in Table 4.5 indicates that the assets being transferred are possibly cherry picked to protect the capital of IBL as the accumulated fair value profits on these assets inside IBL are substantially more than the accumulated fair value profits inside the larger group.

Other line items that, when combined, are material and volatile enough to be behind the gap between assets and liabilities at fair value are "Loans and advances to customers" (including Securitised assets) and "Deposits" (including Securitisation). It is important to examine these line items as well, as they are usually part of any explanation of why banks need to be able to designate items at fair value.

	2005	2006	2007	2008	2009	2010	2011	2012
Loans granted versus deposits @ fair value gap	NA	-4%	-6%	-7%	2%	-1%	4%	10%

Table 4.6 (Loans granted + Securitised assets) – (Deposits + Securitisation) expressed as a percentage of total assets at fair value.

The observed volatility of this measure is surprising. In an interview with a senior Investec financial manager with a reporting mandate on 17 March 2010 he used portfolios of assets at fixed interest rates paired with portfolios of liabilities at fixed interest rates as the example of items they designate at fair value; a more stable relationship was thus expected. What can be observed is that the trend in percentages in Table 4.6 correlates closely with the trend in the assets and liabilities at fair value gap identified in Table 4.4.

The following Table 4.7 provides a summary of SBoSA's total assets and liabilities carried at fair value over the period of study. The table was compiled by working backwards in time from the latest financial reports. Accounting adjustments, identified when comparative figures differ from the figures disclosed in the previous financial year, are highlighted and explained in the following paragraphs. The best data was obtained from 2006 onwards (one year after IFRS adoption) in the note on "Classification of assets and liabilities". Before 2006 the total for fair value assets and liabilities was calculated by the summation of the items found at fair value in the notes to the financial statement. For 2003 and 2004, consolidated financial statements were not prepared for SBoSA and the figures shown for 2003 and 2004 are all company-only figures.

Category/description	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Derivatives	77347	93463	70742	67058	69090	164542	76501	105221	93422
Trading assets	9068	6625	11492	6397	29456	24019	22644	13825	24626
Pledged assets				2914	1750	2243	1057	2035	3737
Investments	23298	27694	37265	41092	40205	59995	59857	68282	70694
Loans and advances to banks					28	4022	1194	1304	1588
Loans and advances to customers				37234	34745	3777	1396	2982	2028
Interest in goup companies				5142	8206	24418	26392	23906	17000
	109713	127782	119499	159837	183480	283016	189041	217555	213095
% of total assets	30%	33%	26%	28%	26%	31%	24%	26%	23%
Derivatives	72880	87538	70252	69069	71489	172744	75196	102476	98730
Trading liabilities		4989	12938	6147	29912	23524	16707	9031	13581
Deposits from banks				1845		5120	6134	1775	2352
Deposits from customers				65029	84891	40754	49040	82170	81235
Group companies				2670	2861	10004	12754	7017	3027
	72880	92527	83190	144760	189153	252146	159831	202469	198925
	24%	25%	19%	27%	28%	29%	21%	26%	23%
% total assets less % total liabilities	6%	8%	7%	1%	-2%	2%	3%	0%	0%
Above excluding derivatives	9%	7%	8%	2%	-1%	4%	3%	1%	1%

Table 4.7 Summary of SBoSA's assets and liabilities carried at fair value.

Significant accounting restatements, where comparative figures were different from those in the annual report for the financial year to which they refer, were evident in the following cases: 2011 (2010 figures were adjusted), 2008 (2007 figures were adjusted) and 2007 (2006 figures were adjusted). The financial statements provided more details of these restatements in an annexure to those statements. The annexure provided the restatement of each line item on a net basis, combining the movement on that part of a line item carried at cost with the movement on that part of a line item carried at fair value; what happens is that transfers between cost and fair value are obscured.

The most material of such transfers for 2006 was from “Loans and advances to customers at cost” to “Loans and advances to customers at fair value”. The quantum was R37 234 million of which R32 274 million was into the designated category. A second material transfer in 2006 was from “Deposits from customers at cost” to “Deposits from customers at fair value”. Here the quantum was R65 029 million of which R58 771 million was into the designated category.

Moving on to 2007, the most material of those transfers was from “Loans and advances to customers at fair value” to “Loans and advances to customers at cost” and the quantum was R14 750 million. A second material transfer in 2007 was from “Deposits to customers at fair value” to “Trading liabilities at fair value”; here, the quantum was R26 036 million, of which R8 085 million was out of the designated category. The impact of the restatements is put into context when referring to the two oval figures in Table 4.7: these highlight, firstly, the drop in “Loans and advances to customers” between 2007 and 2008 and secondly, the drop in “Deposits from customers”, also between 2007 and 2008. Without the restatements these drops would have been even more dramatic.

The restatement of the 2010 comparatives in the 2011 annual report similarly transferred an amount of R26 992 million from “Deposits from customers at cost” to “Deposits from customers at fair value” of which all was transferred into the designated category; the difference was that in this instance the bank specifically highlighted the transfer and it was not obscured in a net movement. Unfortunately the transfer was mistakenly reported in the annexure as being from fair value to cost and not from cost to fair value. When this was pointed out, the bank acknowledged the mistake and undertook to correct the electronic copy of their 2011 financial report available on their website according to an email received from the investor relations department on 2 May 2012.

In all three instances, 2007, 2008 and 2010, the restatement must have been made on the last day of the comparative period as no adjustments were needed in respect of the equity attributable to the ordinary shareholders or profit for the period. This adjustment would have been required if the transfers from cost to fair value were made on any other day.

In terms of the portion of the asset base carried at fair value, SBoSA is in line with the 31% of assets at fair value in the US banking industry, on average, in the first quarter of 2008

(United States Securities and Exchange Commission, 2008:47). The percentage is also in line with that of IBL, shown in Table 4.4. No general trend in assets held at fair value is discernible with SBoSA, which is in contrast to Investec. Relative to assets at fair value, liabilities at fair value were found to have declined substantially in 2009 and 2010. Financial instruments carried at fair value by SBoSA contain a significantly higher proportion of derivative securities than in the case of IBL. Excluding derivatives, the gap between assets and liabilities at fair value is significantly lower than that of IBL and more stable. The gap did reach a minimum point in December 2007 and has monotonically increased from that date. On a line item level, the 2007 to 2008 drop in "Loans and advances to customers" and the 2007 to 2008 drop in "Deposits from customers" stand out and these are explored in the following paragraph.

The drop in "Loans and advances to customers" from R34 745 million in 2007 to R3 777 million in 2008 together with the drop in "Deposits from customers" from R84 891 million in 2007 to R40 754 million in 2008, combined to cause a net decrease of R13 169 million in liabilities at fair value. Between 2007 and 2008 the amount owed to SBoSA by fellow banking subsidiaries increased by R13 851 million and the amount owed by SBoSA to fellow banking subsidiaries also increased by R26 083 million. The result was a net increase in liabilities amounting to R12 232 million; this amount is fairly close to the net decrease in liabilities at fair value as indicated earlier in the paragraph. Further evidence to support the notion that SBoSA transferred selected financial instruments to fellow subsidiaries in the Standard Bank Group can be obtained from the data in Table 4.8. Until 2007 the annual fair value profits disclosed as ascribable to "Loans and advances from customers" and "Deposits from customers" were exactly the same for SBoSA and for its holding company Standard Bank Group; however, from 2008 onwards the figures are not the same. The following Table 4.8 shows that from 2008 to 2010 the transfer of fair valued financial instruments between group companies meant that less profit was made inside SBoSA than in the Standard Bank Group. In 2011 the transfer of fair valued financial instruments between group companies meant that more profit was made inside SBoSA than in the Standard Bank Group.

Description	2005	2006	2007	2008	2009	2010	2011
Year's fair value profit on Loans and advances - SBoSA	1077	409	-35	1821	-635	723	-157
Year's fair value profit on Deposits from customers - SBoSA	-436	-250	1275	-2067	-214	-804	-293
	641	159	1240	-246	-849	-81	-450
Year's fair value profit on Loans and advances - SB Group	1077	409	-35	2374	-227	795	-467
Year's fair value profit on Deposits from customers - SB Group	-436	-250	1275	-1971	245	804	-354
	641	159	1240	403	18	1599	-821

Table 4.8 Summary of annual disclosed fair value profits generated by "Loans and advances to customers" and "Deposits from customers". Figures obtained from SBoSA and the Standard Bank Group annual financial statements.

The following Table 4.9 provides a summary of the valuation methods applied by the two banks. The time series is short for SBoSA as the 2008 Amendment to IFRS 7 that mandated this disclosure gave the option not to provide comparative figures for years before 2009. The IBL information shows that IBL values relatively more assets and liabilities at level 1 than SBoSA. IBL moved a significant portion of fair value assets from level 1 to level 2 during 2008 and thereafter started moving the assets back to level 1. A similar trend is not apparent in "Liabilities at fair value" where in 2009, IBL moved more liabilities to level 1 and increased liabilities at level 1 from that point onwards.

		2007	2008	2009	2010	2011	2012
Assets at level 1 fair value	IBL	39%	38%	27%	36%	45%	41%
	SBoSA			15%	17%	17%	
Assets at level 2 fair value	IBL	60%	62%	72%	64%	55%	59%
	SBoSA			83%	82%	81%	
Liabilities at level 1 fair value	IBL	10%	6%	16%	13%	22%	21%
	SBoSA			3%	5%	4%	
Liabilities at level 2 fair value	IBL	90%	94%	84%	87%	78%	79%
	SBoSA			97%	95%	95%	

Table 4.9 Percentage of fair value assets/liabilities at levels 1 or 2 classifications. IBL has the grey background and The Standard Bank Group has no coloured background.

6.3 *Why did the banks use FVA in the way they did?*

The purpose of this section is to use market data to show that during the height of the financial crisis, significant pressure was placed on the two banks chosen for this study. Those changes made by the two selected banks after the pressured periods are likely to be their response to the stress. It is difficult to observe directly the pressure that the financial crisis placed on a bank. Writers such as Berger & Davies (1998) and Krainer & Lopez (2004) indicate that abnormal bank share returns are associated with bank fragility and thus the following method will be used: An expected daily return will be calculated for each bank and then that expected daily return will be deducted from the actual daily return realised by each

bank. The expected daily return was calculated in accordance with the model suggested for event studies in Benninga (2008:371) and is explained below.

The closing share price data for the period January 2007 to December 2008, for Investec Group Limited[14] and Standard Bank Group Limited, was obtained from the South African data provider McGregor BFA. Daily returns were calculated and the effects of the two shares going ex-dividend were taken into account.

The starting point in calculating an expected return for each bank was to obtain the total return value of the Financial and Industrial 30 Index (FNDI) for January 2007 to December 2008 and to calculate a daily return. This index was chosen as the base for an expected return calculation, because the Johannesburg Stock Exchange All Share Index would have contained information not directly applicable to the banks; for example, commodities etc. The FNDI was preferred to the Financial 15 Index (FINI) as individual banks, such as Standard Bank Group Limited, make up a material component of the FINI and this can potentially skew an expected return calculation. The FNDI is a broader measure in which it is unlikely that the measure's value is materially influenced by only one bank.

Daily bank returns were then regressed on daily FNDI returns (with an estimation window of the immediate six months' prior daily observations) to forecast the expected bank return based on the realised FNDI return. The difference between the realised return per bank and the expected return is the abnormal return measure. Abnormal return results were obtained for two specific time-periods; the four months in 2007 when liquidity problems first started to appear in the world economy (starting June 2007) and the four months starting September 2008, just before the Lehman Brothers failure. Table 4.10 below highlights significant information events during those two selected periods and shows how the two selected banks reacted; daily abnormal returns are provided.

[14] Please note that these listed entities are not IBL and SBoSA; the units of analysis. They are the South African holding companies of those companies. The units of analysis companies make up most of these holding companies as elucidated in the section introducing the units of analysis.

Date	Description	Inv. (%)	Sta. (%)
LIQUIDITY PROBLEMS			
June 7, 2007	Bear Stearns informs investors that it is suspending redemptions from its High-Grade Structured Credit Strategies Enhanced Leverage Fund.		
July 31, 2007	Bear Stearns liquidates two hedge funds that invested in various types of mortgage-backed securities.	1.5	-0.9
August 6, 2007	American Home Mortgage Investment Corporation files for Chapter 11 bankruptcy protection.	-0.7	1.6
August 9, 2007	BNP Paribas, France's largest bank, halts redemptions on three investment funds.	-6.3*	-1.6
August 16, 2007	Fitch Ratings downgrades Countrywide Financial Corporation to BBB+, its third lowest investment-grade rating, and Countrywide borrows the entire $11.5 billion available in its credit lines with other banks.	0.5	0.6
September 14, 2007	The Chancellor of the Exchequer authorizes the Bank of England to provide liquidity support for Northern Rock, the United Kingdom's fifth-largest mortgage lender.	-3.2*	-0.4
LEHMANS FAILURE			
September 7, 2008	The Federal Housing Finance Agency (FHFA) places Fannie Mae and Freddie Mac in government conservatorship.		0.5
September 15, 2008	Bank of America announces its intent to purchase Merrill Lynch & Co. for $50 billion.	-4.7*	-1.1
September 15, 2008	Lehman Brothers Holdings Incorporated files for Chapter 11 bankruptcy protection.	-4.7*	-1.1
September 16, 2008	The Federal Reserve Board authorizes the Federal Reserve Bank of New York to lend up to $85 billion to the American International Group (AIG) under Section 13(3) of the Federal Reserve Act.	1.6	1.0
September 19, 2008	The Federal Reserve Board announces the creation of the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF) to extend non-recourse loans at the primary credit rate to U.S. depository institutions and bank holding companies to finance their purchase of high-quality asset-backed commercial paper from money market mutual funds.	2.2	0.5
September 21, 2008	The Federal Reserve Board approves applications of investment banking companies Goldman Sachs and Morgan Stanley to become bank holding companies.	2.1	4.3*
September 25, 2008	The Office of Thrift Supervision closes Washington Mutual Bank. JPMorgan Chase acquires the banking operations of Washington Mutual in a transaction facilitated by the FDIC.	-1.3	0.4
September 29, 2008	The FDIC announces that Citigroup will purchase the banking operations of Wachovia Corporation.	-0.5	1.9
October 3, 2008	Congress passes and President Bush signs into law the Emergency Economic Stabilization Act of 2008: the Troubled Asset Relief Program (TARP).	2.9	-
October 14, 2008	U.S. Treasury Department announces the Troubled Asset Relief Program (TARP) that will purchase capital in financial institutions under the authority of the Emergency Economic Stabilization Act of 2008.	5.1*	1.34
October 29, 2008	The International Monetary Fund (IMF) announces the creation of a short-term liquidity facility for market-access countries.	-6.2*	-2.2
November 18, 2008	Executives of Ford, General Motors, and Chrysler testify before Congress, requesting access to the TARP for federal loans.	2.9	0.6
November 23, 2008	The U.S. Treasury Department, Federal Reserve Board, and FDIC jointly announce an agreement with Citigroup to provide a package of guarantees, liquidity access, and capital.	-5.6*	-1.0

Table 4.10 Significant events during July – October 2007 (start of the financial crisis) and September – December 2008 (peak of the crisis) that influenced bank share prices. The description field is from the financial crisis timeline maintained by the Federal Reserve Bank of St. Louis.
*** - statistically significant at 5%**

Table 4.10 shows that the market was more pessimistic about Investec Group Limited during the crisis than Standard Bank Group Limited. A possible explanation is the size difference between the two banks with investors fleeing to quality during the liquidity crisis. Quality in this context would be the larger of the two banks, which is perceived to be too-big-to-fail.

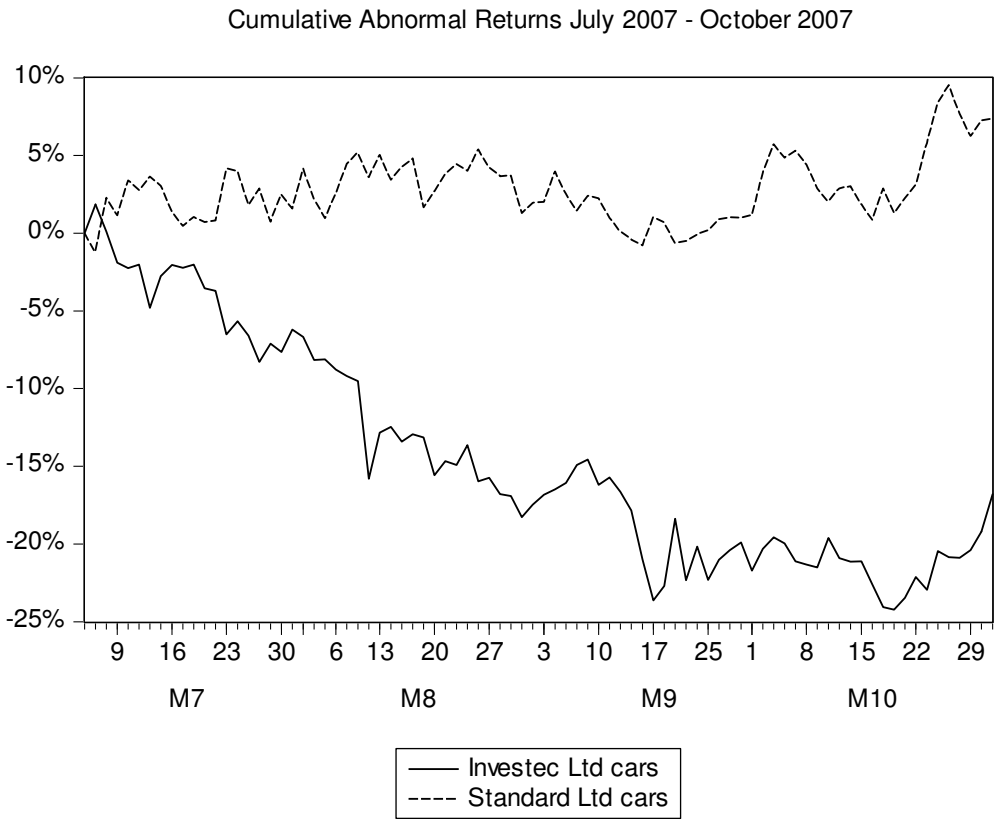


Figure 4.4 Cumulative daily abnormal returns for the period July to October 2007.

A similar, but clearer picture is obtained when the daily abnormal returns are cumulated for the two periods. As shown in Figure 4.4, in July to October 2007 the market is clearly

worried about Investec Group Limited in comparison to Standard Bank Group Limited.

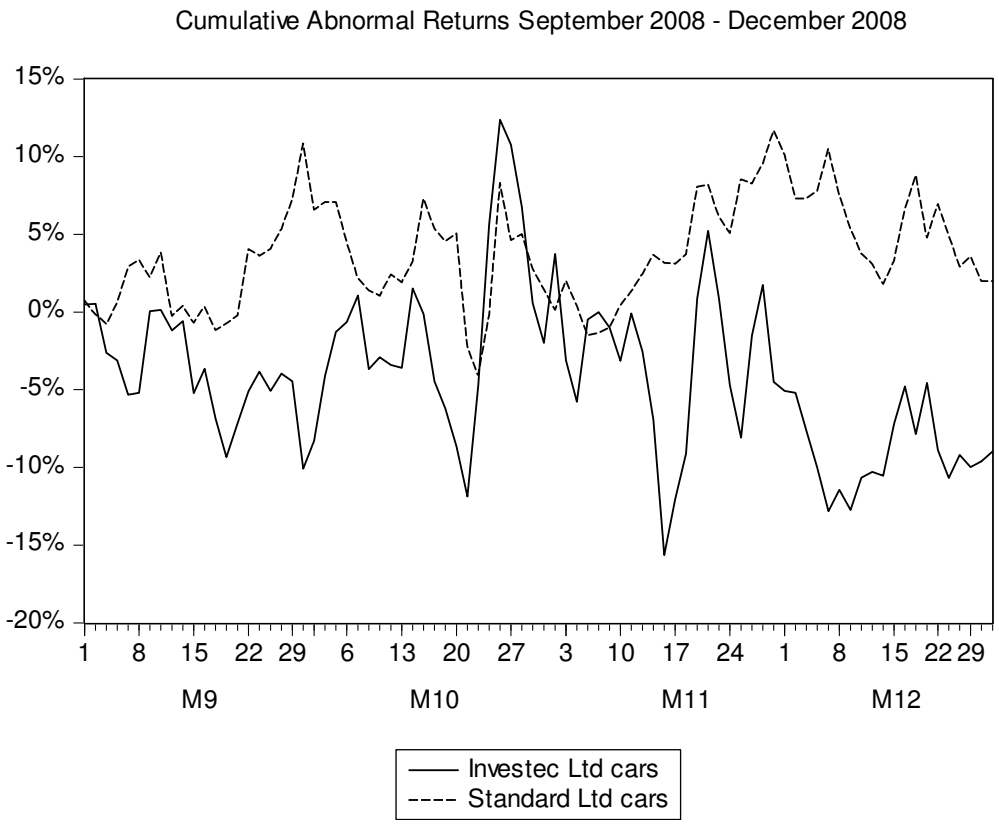


Figure 4.5 Cumulative daily abnormal returns for the period September to December 2008.

Figure 4.5 above shows the cumulative abnormal returns of the two banks for the period September 2008 – December 2008; this period was the height of the global financial crisis. During this time, the difference between the two banks is not as stark. At first the market again punished Investec Group Limited relative to Standard Bank Group. However, the graph indicates that on 21 October 2008 the gap between the two banks closed. What happened? According to the financial statements of Investec Group Limited they were able to secure a syndicated loan rollover of USD 450 million towards the end of October to bolster liquidity (IBL, 2009:63). Unfortunately that was not enough to regain the trust of the market and the gap re-appeared towards the end of 2008.

The message that this share price information gives us is that, even in the midst of the financial crisis, the market was not worried about Standard Bank Group. But it was worried about Investec Group. The best way for a bank to signal health to the market during a liquidity crisis, which the global financial crisis initially was, is to obtain additional liquidity; this is difficult and almost impossible to do in the midst of the crisis. Alternatively, the bank can signal health to the market by showing a healthy capital ratio. The following Figure 4.6

provides the monthly capital ratios of the two subject banks as reported to the SARB. The capital ratio shown is calculated as follows:

$$\textit{Capital ratio (\%) = (Total shareholders' equity / total assets) * 100} \quad (4)$$

This ratio is not in the Basel Capital Accord format where Total shareholder's equity is divided by *Risk-weighted assets*. The rationale is that this paper focuses on accounting effects and not on measurement issues around risk-weighted assets. The four months in 2007 and the four months in 2008 for which daily abnormal returns were calculated, are highlighted in the Figure 5.5 below.

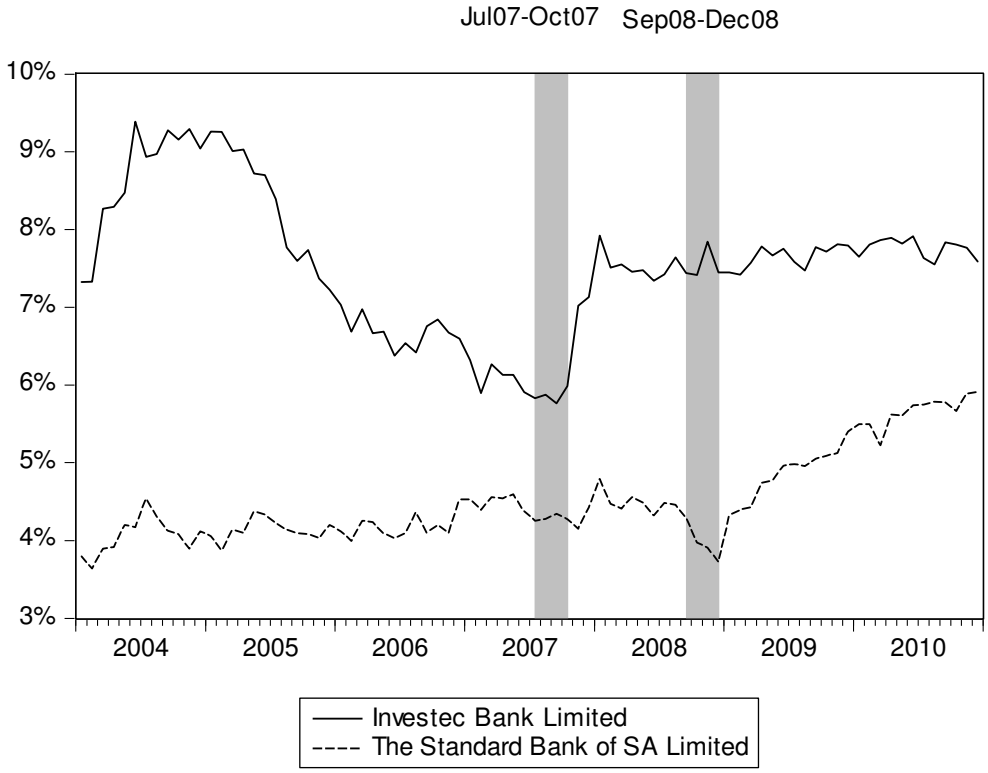


Figure 4.6 Monthly capital ratio % per bank (Sourced from the SARB).

Figure 4.6 shows that IBL reacted to the pressure imposed on it by the financial crisis in 2007 by substantially increasing its capital ratio. In this way it could signal its health to the market. The lack of reaction to the pressure in 2008 can be explained by the already higher capital ratio level and international governmental intervention at that time during the crisis. In contrast, SBoSA's capital ratio hardly moved in 2007. In 2008, after the pressure period, the SBoSA capital ratio started trending upwards. Note that this was a trend and therefore was gradual and not as sudden as the increase in IBL's capital ratio.

How did IBL adjust its capital ratio so rapidly? According to the presenter of a Basel III seminar organised by the South African Institute of Chartered Accountants in Glenhove, Johannesburg on 14 May 2012, the probable mechanism was the issuance of shares by IBL to Investec Limited. That immediately improved capital at bank level but did not help with capital at holding company level. The holding company only has to report capital levels on a six-monthly basis to investors. So, in the medium term, the pressure remains to use accounting profit generating techniques to improve capital levels.

6.4 *How do the banks manage FVA?*

The purpose of this section is to combine the evidence found so far (related to FVA and reclassifications, transfers and remeasurements) with further evidence available from the financial statements. Table 4.11 provides a summary:

Bank	Description	2006	2007	2008	2009	2010	2011
IBL	Reclassification between IAS 39 categories			Assets: AFS to cost - R251 m based on change of intention			
	Transfer between IAS 39 measurement levels (1-3)				Assets from levels 1 to 2 - R6 bn Liabilities from levels 2 to level 1 - R 3 bn		
	Intergroup transfers		Minimum point in gap between assets and liabilities @ FV - R14 bn out of assets	Sale of securitisation SPVs - R8 bn			
SBoSA	Reclassification between IAS 39 categories			Assets: Listed group FV to cost - R5 bn based on change of intention	Assets: FV to cost - R3 bn based on change of intention		
	Intergroup transfers		Minimum point in gap between assets and liabilities @ FV - R27 bn out of assets	Liabilities @ FV transferred - R15 bn			
	Adjustments to comparatives		Assets: Cost to FV - R37 bn Liabilities: Cost to FV - R65 bn	Assets: FV to cost - R15 bn			Assets: R4 bn from FV to cost Liabilities: Cost to FV - R27 bn

Table 4.11 Summary of evidence on the use of reclassifications, transfers and remeasurements to influence FVA outcomes. IBL has the grey background and SBoSA has no coloured background.

The minimum point in gap calculations in the above Table 4.11 worked as follows. The difference between the average assets and liabilities at fair value gap (2003 – 2011) and the minimum gap (for both banks this was in 2007) multiplied by total assets during the

minimum year. Some of the evidence presented in Table 4.11 has not been discussed up to this point. The following paragraphs in this section expand on those items.

During 2008 IBL reclassified a portfolio of loans of R251 million from "Carried at fair value" (available-for-sale) to "Carried at cost" due to a change in intent (IBL, 2008:104). In the same year it sold the first loss positions held in securitisation special purpose vehicles (SPVs) higher up in the Investec group. R7.6 billion of assets and R7.4 billion of liabilities were transferred (IBL, 2008:123). This is shown as R8 billion rounded in the table. In this way the SPVs were no longer consolidated into the IBL financial statements.

In the 2008 financial year the Standard Bank Group used the amendments to IAS 39 and IFRS 7 *Reclassification of Financial Assets* to reclassify foreign denominated trading assets to "Loans and receivables" due to a change in intent. A fair value loss of R547 million after tax was thus avoided (Standard Bank Group, 2009:261). SBoSA did not reclassify anything in 2008.

In 2009 SBoSA reclassified assets from "Held-for-trading" to "Loans and receivables" due to a change in intent and avoided a fair value loss of R17 million after tax (SBoSA, 2010:143). The Standard Bank Group did not reclassify anything else in addition to the changes mentioned in the previous paragraph and according to its financial statements (Standard Bank Group, 2010a:290) had avoided fair value losses of R252 million after tax which would have been incurred if all these reclassifications not been done.

In 2010 neither SBoSA nor Standard Bank Group reclassified any assets (Standard Bank Group, 2011:284; SBoSA, 2011:164). Cumulative fair value losses avoided at that point on remaining reclassified assets were a gain of R72 million after tax for SBoSA and a loss of R38 million after tax for the Standard Bank Group.

Table 4.11 shows how the banks only used reclassifications, transfers and remeasurements related to FVA *during and after* the global financial crisis.

6.5 *Discussion*

The use of FVA in the South African banking system has grown over the years (Bank Supervision Department of the SARB, 2009:10) but the actual level of profits and capital

derived from FVA was found to be surprisingly high. In the case of IBL, there was a peak of 54% of after-tax profit in 2010 and 15% of total equity capital in 2010 derived from FVA. SBoSA peaked at 27% of after-tax profit in 2008 and 31% of total equity capital in 2008 derived from FVA. The percentage of assets and liabilities at fair value was found to be comparable to American banks (United States Securities and Exchange Commission, 2008:47).

The findings in Table 4.2 concur with the view that FVA is procyclical. During the business cycle upswing, FVA increased the level of profits and capital only to turn negative during the post crisis downturn when FVA decreased profits and capital. The results for SBoSA follow the business cycle almost exactly with IBL only following 1.25 years later. A possible reason for the lag is that IBL could not afford to signal ill health via its capital ratio during the global financial crisis and used the discretion available to it under FVA to avoid losses (see Tables 4.9 and 4.11).

This procyclicality in unrealised profits and equity as well as the use of the flexibility allowed in the FVA framework, provide evidence of the asymmetry in the use of FVA when it generates profits compared with its use when it generates losses. This asymmetry is not in compliance with the neutrality goal of accounting (IASB, 2008). In addition to its influence on bank capital ratios, the procyclicality of FVA can have real economic consequences. It can, for example, be used to justify higher levels of remuneration. Before 2009: "Annual bonuses are closely linked to business performance, based on target business unit performance goals determined in the main by Economic Value Added (EVA) profit performance against pre-determined targets" (Investec, 2008:170). Compare this with after 2009: "Annual bonuses are closely linked to business performance, based on target business unit performance goals determined in the main by *realised* Economic Value Added (EVA) profit performance against pre-determined targets" (author's emphasis) (Investec, 2009:193). The implication is that bonuses before the financial crisis were based on profits that were inflated by procyclical FVA profits[15] and that bonuses after the crisis were not reduced by the procyclical FVA losses. At least Investec avoided paying proportionally larger bonuses during the two years (2009 and 2010) when FVA increased profits the most.

[15] At the 2012 Annual General Meeting of Investec Group Limited the CEO of the bank replied that the insertion of the word "realised" was simply a refinement of the wording used and did not imply a change in behaviour.

Both banks were found to use intergroup transfers to maximise the benefits from FVA and to manage the costs of FVA. The discussion following Table 4.5 and Table 4.6 shows how IBL altered the gap between assets at fair value and liabilities at fair value by the transfer of "Trading securities" and "Loans and advances" between group companies. The result of changing the gap between total assets at fair value and total liabilities at fair value is a change in the group entity where overall FVA profits and losses manifest. According to the interview with the Investec financial manager with a reporting mandate on 17 March 2010, group transfers are done for the purposes of regulatory capital and income tax management. In a similar fashion, SBoSA used this combination of group transfers and FVA to transfer FVA profits between entities as seen in the discussion following Table 4.8.

A reason often given for the designation of assets or liabilities at fair value is that it reduces measurement inconsistencies; for example if a portfolio of fixed interest rate loans is funded by a portfolio of fixed interest rate deposits then under the measurement inconsistency criterion, both portfolios can be designated as at fair value through profit and loss. In this way the effect is similar to hedging; however, hedge accounting is strict in terms of determining whether a hedge is effective or not, but FVA is not strict in terms of what qualifies or not to reduce "inconsistent measurement".

The discussion following Table 4.7 highlighted how SBoSA restated comparative figures in 2007, 2008 and 2011 by providing a reconciliation on an item level where transfers between the portion of an item at fair value and the portion of an item at cost were netted out. This practice obscures transfers between cost and fair value, warrants better disclosure and is contrary to the IAS 39 prohibition on transfers into and out of the "designated at fair value" category. According to an email explanation received from SBoSA's investor relations department on 11 June 2012, the 2011 restatement is allowed in terms of IAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors* and was done "to reflect the original intentions of management". The fact that any restatement is always done on the last day of the comparative year gives the bank a "look back" option. At the end of the current year a calculation can be made to determine whether carrying an item at cost or fair value is more advantageous. The implementation of that position on the last day of the comparative period is simple as it avoids the onerous disclosure requirements of IFRS 7 in the case of an IAS 39 reclassification.

The evidence presented above is consistent with the application of FVA not being neutral. When profits are increased by FVA the results are accepted by management but when profits are decreased by FVA the results are not accepted and actions are taken to avoid the losses. It can be argued that this is less of an issue following the replacement of IAS 39 with a less complex standard on financial instruments, IFRS 9 *Financial Instruments*. Nevertheless, the tools used to increase profits using FVA and to avoid losses using FVA remain. Intergroup transfers take place without the requirement to disclose the details of what was sold at what cost and to whom. Also, management flexibility in the choice of the disclosure level of FVA remains, as well as the fair value option.

6.6 *Generalising to theory*

Case study research is often criticised on the basis that findings cannot be generalised beyond the actual cases. Statistical generalisation is not possible in this study because the two cases do not form a sample that can be generalised to a population. It is important to note that the correct context for generalising beyond immediate case findings is that of theory development and generalisation to theory (Yin, 2009). Case study findings, like classic scientific experiments, are generalised to a theoretical base according to the degree of support the findings provide for the original propositions. Multiple case studies can be used to increase confidence.

In both cases studied, the findings were consistent with the theoretical expectation that FVA results are accepted when they increase profits and bank capital and actively avoided when they cause losses. The clearest evidence was found in Table 4.9 when in 2009, IBL transferred assets from fair value level 1 to level 2 but at the same time transferred liabilities from level 2 to level 1; a move consistent with using the flexibility in IAS 39 to preserve profits. With the one case being the largest too-big-to-fail bank and the other case being a smaller bank, an understandable difference was observed in the results. The reversal of IBL's unrealised fair value profits was much slower than that of SBoSA. IBL could not rely on liquidity support from the central bank and thus could not afford to signal ill health to the market via a reduced capital ratio; management aggressively protected profits. This aggression can be observed in the much more volatile gap between assets at fair value and liabilities at fair value for IBL.

The finding that the too-big-to-fail bank used its accounting flexibility less aggressively should be tempered by the finding that SBoSA did make use of an accounting technique that is certainly not in the spirit of the regulations, in order to avoid the prohibition on transfers into and out of "Designated at fair value".

It can be argued that the finding that managers accept profits and want to avoid losses is to be expected and is not limited only to banks. This argument ignores important differences between banks and non-banks. One difference is that non-banks cannot rely on liquidity support from a central bank and thus cannot reduce capital levels to near the low levels of banks; non-banks need to keep a safety buffer during the good times whilst banks do not. A second difference is that non-banks do not have a binding capital level at which regulatory intervention is guaranteed. Thus, during the upswing banks can reduce their capital levels more than non-banks, sometimes to the minimum level allowed; during the downturn banks are forced to use more aggressive accounting than non-banks as they cannot afford to fall under the regulatory capital level.

7. Conclusion

Modern accounting standards require the presentation of neutral information. But, is neutrality achievable when the proper adherence to complex accounting standards, such as those standards concerning FVA, depends on management's discretion? Studies that investigated the claim that FVA caused excessive write-downs during the global financial crisis found evidence that in fact, bank assets were overvalued during the crisis. Do bank managers accept the results of FVA when it boosts profits and not when it negatively impacts profits?

Moral hazard theory combined with a minimum bank capital regime (Basel) explains why. During the business cycle upswing FVA will probably increase bank profits. These increased profits can be used to justify further remuneration, dividends and asset growth that will lead to further future profits, remuneration and dividends. Capital is not in a short supply and managers will be incentivised to reduce the relative capital held by the bank by taking on more debt. During the business cycle downturn capital is scarce or even unobtainable. Internally generated capital becomes important as losses realise and the minimum capital level becomes binding. Thus, during the upturn the results of FVA are accepted as they open

up further opportunities but during the downturn the results of FVA are not accepted as they reduce the opportunities available.

The aim of this article was to investigate how FVA is practically applied by banks and to do this, a comparative-case case study research design was used with a mixed methods research strategy. The units of analysis were two banks: the largest South African bank and and the other is on the crossover between systemic and not systemic. It was expected that a too-big-to-fail bank would be less inclined than a smaller bank to use FVA as a profit and capital management tool, and this was found to be true.

The results of the study indicate that FVA is not neutral in application by banks. During downturns, effort is expended to avoid losses generated by FVA. The study found that the techniques used by the banks to avoid losses in downturns included intergroup transfers, FVA levels 1 to levels 2 and 3 transfers, reclassifications and adjustments to comparative figures. IFRS 9 *Financial Instruments* is unlikely to restore the neutrality of FVA in banks as the techniques described above will continue to be available under the new standard.

An option that should be considered is to prescribe conservative accounting for systemically important institutions; bank supervisors would agree with this. Also, conservative accounting for banks would create a “buffer” against opportunistic behaviour by management.

8. Additional work and link to next chapter

Additional work on this chapter, that is not part of the published paper, will now follow. The relationship between unrealised profits (and capital) and the increase in assets of the banks will be briefly considered. The relationship between unrealised profits and remuneration will also be briefly considered.

Table 4.2 shows how bank profits and thus capital was materially increased by FVA gains during the period 2005 until 2008. After 2008 FVA losses briefly impacted profits and capital. For SBoSA for the period 2005 until 2012 the average growth rate in assets was 13%. For the period 2005 until 2008 the average growth rate in assets was 25%, substantially higher. For IBL for the period 2005 until 2012 the average growth rate in assets was 15%. For the period 2005 until 2008 the average growth rate in assets was 24%, substantially

higher. Thus, for the period during which FVA mainly positively impacted profits and peaked as a component of retained income, assets increased the most.

The following Figure 4.7 illustrates the evolution of staff remuneration relative to the evolution of net profit attributable to ordinary shareholders and net profit attributable to ordinary shareholders *excluding the unrealised FVA portion*. All series have been benchmarked to 2004.

Figure 4.7 Annual staff costs, net profit and net profit excluding FVA gains benchmarked to 2004.

Staff costs for IBL significantly outpaced the growth in net profit and *net profit excluding FVA gains* until 2010. This process accelerated until 2010 where staff costs were at 307% of the 2004 level, net profit was at 226% of the 2004 level and *net profit excluding FVA gains* was at 127% of the 2004 level. In the case of SBoSA, staff costs grew faster than *net profit excluding FVA gains* but slower than net profit, before 2008 (the financial crisis). In 2008 staff costs were at 156% of the 2004 level and net profit at 157% of the 2004 level; this suggests that inflated net profit was driving remuneration higher as *net profit excluding FVA gains* was only at 120% of the 2004 level. Thereafter the patterns change and SBoSA's net profit is hit by significant negative FVA losses for 2009 and 2010 with the two net profit series almost converging in 2011 and staff costs still higher. The patterns for both banks indicate an overpayment of remuneration before (and even during in the case of IBL) the financial crisis; this was probably justified on the basis of net profit inflated by risky FVA gains. After the crisis the convergence of the different variables confirms the overpayment before the crisis.

The next chapter of this study forms the second part of the South African case study. In the next chapter, use will be made of bank sector level data, obtained from the South African bank regulator, to quantify the profit increase that results from FVA and to see whether South African banks pay dividends from FVA profits. The payment of unrealised profits as a dividend can weaken the South African system.

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CHAPTER FIVE: FOR BANKS FAIR VALUE ADJUSTMENTS DO INFLUENCE DIVIDEND POLICY[1]

1. Synopsis[2]

The overall objective of the larger study is to investigate the role of FVA in the global financial crisis by gathering empirical evidence on the use of FVA by South African banks (with the focus on the time period before the crisis) and then to develop a theoretical perspective on the problem. Chapter two reviewed the global financial crisis and the role of FVA in that crisis. Chapter three contextualised the empirical work, which is a South African case study. The objective of the South African case study is to inform and enrich the model in chapter six. Chapter four investigated how FVA was used in practice by two large South African banks. The aim of this chapter is to continue the South African case study, but to use different data and a different approach.

An objective of the thesis is to determine the use of FVA by banks in practice. This is possible in the South African case. In this paper total bank sector data could be linked back to individual bank data due to the concentrated nature of South African banking. Also, it was possible to meet with the Banking Project Group that brings together bankers, bank supervisors and their auditors. The results show that South African banks paid increased dividends due to unrealised FVA gains in profit and loss. If those unrealised FVA gains are risky then this would have left the South African banks more fragile prior to the crisis. Results also show that FVA entries from the banking book add volatility to the net profit of South African banks and materially lift the average profit level. Financial yearend dummy variables show results consistent with the view that bankers use mark-to-market/fair value entries to facilitate hitting the "right" profit level at yearend.

FVA adjustments can be posted directly to capital reserves or through profit and loss. A common assumption is to only focus on the adjustments related to available-for-sale assets.

[1] This paper was titled in response to the article by Gonharov and van Triest (2011) "Do fair value adjustments influence dividend policy". The paper was presented at the ECCE & USB Conference on Financial Globalisation and Sustainable Finance, Cape Town, 29-31 May 2013.

[2] The three main chapters are papers that have been published and are included in the thesis verbatim and are thus standalone papers. The *Guidelines for the inclusion of publications in a doctoral thesis* of the University of Cape Town require that each paper is prefaced by a synopsis of how the paper contributes to the thesis aims and objectives.

An objective of this thesis is to rather focus attention on FVA adjustments through profit and loss. This focus is justified by the results in this paper (especially Table 5.6) which show how FVA adjustments from the banking book materially impact profit and loss in a procyclical way (the effect was strongest immediately before the crisis). The financial statement excerpt from the post crisis period indicated that FVA adjustments through profit and loss are risky.

The paper follows.

2. Abstract

Most researchers who investigate the interplay between fair value accounting (FVA) and the financial crisis look at the time period during the crisis. This paper investigates a potential role for FVA prior to the crisis: If FVA led to increased accounting profits with the recognition of transitory gains through profit and loss during the boom, and if those increased profits provided the rationale for increased dividends, then bank capital became riskier prior to the crisis; this would have made the system more prone to failure. A study by Gonharov and van Triest (2011) found no empirical support that dividends increase in response to unrealised positive fair value adjustments to income. In contrast, when the setting is limited to only South African banks, this paper finds that South African banks did pay dividends from unrealised transitory gains. This finding is based on a combination of three strands of evidence: a Panel regression of the annual dividends declared by the large South African universal banks that showed that those banks probably ignored the unrealised nature of FVA profits when dividends were determined; monthly data from the total South African bank system in a co-integrated regression that showed that unrealised fair value profits from the banking book raised the average level of bank profits materially; and simple descriptive statistics on distributions that showed that South African banks distributed a greater proportion of profits during the critical period of 2004 – 2008 when unrealised fair value profits from the banking book raised the level of bank profits. The finding that South African banks did pay dividends from unrealised transitory gains was also confirmed by bank representatives and the post financial crisis disclosure of one of the South African banks.

3. Introduction

The on-going financial crisis is the worst global economic downturn since the Great Depression. Understanding its causes and preventing a reoccurrence is of immense social and economic importance.

Excessive write-down of asset values under FVA, which depletes bank capital, has been suggested as a possible cause of the crisis (Veron, 2008; Pozen, 2009:85). The question about the role of FVA in the crisis was taken so seriously by American politicians that two official investigations following the crisis have already reported on it. The office of the Chief Accountant in the United States Securities and Exchange Commission found that FVA did not appear to have played a significant role in the 2008 bank failures (United States Securities and Exchange Commission, 2008). The National Commission on the Causes of the Financial and Economic Crisis (NCCFEC) in the United States' statutory instructions included an inquiry into "accounting practices, including mark-to-market and fair value rules, and treatment of off-balance sheet vehicles". Their final report does not include accounting as a major role player in the crisis, but the dissenting Wallison report does (The National Commission on the Causes of the Financial and Economic Crisis in the United States, 2011). Academic accounting researchers have also started to investigate the role of FVA during the crisis and mostly find that FVA had an insignificant effect (Badertscher, Burks & Easton, 2012; Barth & Landsman, 2010; Laux & Leuz, 2009; Shaffer, 2010;).

The previous mentioned studies looked for FVA's role during the crisis and not before the crisis, except for Laux & Leuz (2009:9) who provides arguments "that FVA and asset write-ups allow banks to increase their leverage in booms, which in turn makes the financial system more vulnerable and financial crises more severe". Pinnuck (2012), in his review of the evidence of the role of financial reporting in the global financial crisis, argues numerous times that more attention on the years preceding the crisis is needed. In the popular press it seems to be common knowledge that FVA allowed the payment of remuneration and dividends from imaginary[3] profits during the boom (Haldane, 2011; Kay, 2009; Kay, 2012; Mundy, 2012; Taylor, 2009; Wood, 2010). It is the concern that dividends were paid from transitory FVA gains investigated in this paper.

[3] Terms used include "imaginary profits", "spurious profits" and "unreliable gains".

Goncharov and van Triest (2011) used a Russian setting to investigate this question and they found that unrealised positive fair value adjustments were not paid out as dividends by firms. Their finding is in accord with the Lintner model (Lintner, 1956) where only permanent increases in earnings are dividend relevant. Their sample contained most Russian public companies and was not restricted only to banks. By investigating whether unrealised positive fair value adjustments are paid out as dividends in a different setting, of large South African banks, this paper aims to provide a counterexample to the Russian example. This setting is at the same time different yet similar to theirs. By focusing solely on banks those firms most impacted by FVA are investigated with the concurrent disadvantage of a limited number of observations. South African banks are rated third best in the world for "soundness of banks" by the World Economic forum (2013:347). The South African country setting is similar to Russia in being another BRICS country and a commodity producer.

A behavioural perspective can explain why banks might be more inclined to pay dividends from transitory FVA gains in profits than firms in general. Bank regulators regard a bank with more capital as a safer bank whilst bank management wants to reduce bank capital to the minimum allowed in order to maximise returns for shareholders and thus remuneration for themselves. During the business cycle upswing that preceded the financial crisis, banks were making record profits, possibly boosted by transitory FVA gains; those profits increased capital. Management needed to do something with that additional capital as it reduced the gearing effect available and thus future profitability. The increase in capital could have been used to fund further loan book expansion as argued by Pinnuck (2012:5), perhaps beyond what the market required, and thus turning banks into aggressive sellers of debt; alternatively or probably concurrently, the increase in capital could have been partly reduced by paying higher levels of remuneration and dividends.

The aim of this study is thus not to investigate dividend policy *per se,* but to repeat as far as possible the investigation of Goncharov and van Triest (2011) in a different setting with the implication that the literature review will not be so focused on dividend policy as it is will be on their paper and FVA.

The South African banks context does not allow for a direct test of the dividend relevance of positive FVA gains, unlike the Goncharov and van Triest (2011) paper, and the investigation thus relies on three different strands of evidence: First, a panel regression of the annual

dividends of the five large South African universal banks, that make up 90% of the South African banking system, is used in a manner similar to Goncharov and van Triest (2011) to show that the banks probably ignored unrealised transitory FVA gains when dividends were determined. The same assumption was made as in Goncharov and van Triest (2011:54) that these fair value adjustments are transitory. Second, a co-integrated regression of monthly total bank profits is used to show that unrealised fair value entries from the banking book raised bank profits materially, especially in the critical period before the financial crisis (2004 – 2008). Third, simple descriptive statistics on distributions is used to show that the banks did not reduce the proportion of profits paid out as dividends when profits were inflated by FVA gains from the banking book (2004 – 2008).

Interview and financial statement evidence provide a final confirmation of the findings. In South African banks positive FVA gains are not ignored when dividends are determined; in contrast to the Goncharov and van Triest (2011) finding.

The paper proceeds as follows. Section 2 discusses relevant literature focusing on the Goncharov and van Triest (2011) paper. Section 3 describes the data and the methods that will be used to address the research question. Section 4 presents, discusses and interprets the results and Section 5 draws conclusions.

4. Theoretical background

4.1 *Earnings persistence and dividends*

Lintner (1956) proposed a partial adjustment model linking reported earnings with dividends. Companies aim to pay out a certain percentage of permanent or core earnings as dividends. The implication is that dividends can be modelled as a function of past dividends and current earnings. Fama and Babiak (1968) confirmed the model empirically. Similar links between earnings and dividends have been found by DeAngelo, DeAngelo and Skinner (1992) in the United States and by Goergen, Renneboog and Correia da Silva (2005) in Germany. Skinner (2008) found that dividends and share buybacks are complementary in their relationship to earnings.

The Lintner model proposes that managers are reluctant to increase the level of dividend payments unless earnings have increased in a sustainable manner. If fair value gains and

losses are transitory then the Lintner model would suggest that the fair value gains and losses have no distributional consequences.

4.2 *Fair value accounting*

FVA entered into accounting regulations in the 1990s first in the Statement of Financial Accounting Standard (SFAS) No. 115 (FASB, 1993) in the United States of America and later in International Accounting Standard (IAS) 32 (IASB, 1998) which mandated that some securities be accounted for at their fair value. This was followed by SFAS No. 157 (FASB, 2006) and IAS 39 (IASB, 1998); these both formally defined fair value and the measurement and disclosure of financial instruments. South African accounting standards closely followed the IASB developments and from 1 January 2005, IFRS formally replaced South African Generally Accepted Accounting Practice (GAAP).

Fair value can be broadly defined as "the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date" (IASB, 2011). Assets and liabilities are categorised into three categories according to the level of subjectivity associated with the inputs to measure their fair values. Level 1 or mark-to-market represents unadjusted prices in active markets for identical assets or liabilities. Level 2 represents an in-between category where a direct market price is not used and instead, inputs, observable on markets, are used to determine a price suitable for that particular asset or liability. Level 3 or mark-to-model represents the situation where unobservable inputs are used to derive a fair value; this process usually entails the use of some form of discounted cash flow model.

Not all value changes in financial instruments held at fair value impact profit and loss. Only value changes in financial instruments that form part of the trading book (including derivatives) as well as value changes in financial instruments designated at fair value impact profit and loss. Fair value changes in available-for-sale financial instruments are posted directly to reserves. This investigation, similar to Goncharov and van Triest's (2011) study, focuses exclusively on the changes that are posted through profit and loss. An implication of FVA changes posted through profit and loss is that once those entries form part of retained income it is impossible to separately identify which part of retained income is realised and which part is unrealised, even though the unrealised part might be riskier. Bank management, operating in a regulatory regime which does not require the specific tracking of those items

(for example Russia and Japan requires companies to disclose items through profit and loss that are unrealised; this is not required in most Western countries such as South Africa), might treat those reserves as similar to realised reserves and pay them out as dividends.

Prior studies indicate five ways in which FVA can introduce transitory components into earnings. FVA brings the present value of future cash flows into current earnings (Dechow, Myers & Shakespeare, 2010) even though those cash flows might be subject to operational risk. The best example of this practice, often referred to as frontloading of profits, is Enron's recognition of future contract income the moment the contract was signed (Benston, 2006). In the case of securitisation, where the accounting treatment of the transaction is that of secured borrowing, FVA will frontload the interest margin that would have been earned over time (Dechow, Myers & Shakespeare, 2010). In addition, FVA might merely pick up a transitory change in the underlying economics of an asset/liability and thus bring transitory effects into profit. Also, not all assets or liabilities are measured at fair value and this failure to match all the fair value changes in the mixed measurement model of accounting can lead to volatility in earnings (Penman, 2007; Plantin, Sapra & Shin, 2008). Furthermore, bubble prices can be incorporated into accounting via mark-to-market accounting (Penman, 2003). Finally, evidence is emerging that FVA can be used as an earnings management tool, especially when combined with securitisation (Dechow, Myers & Shakespeare, 2010).

Goncharov and van Triest (2011:54) assume that fair value adjustments are transitory based on previous studies that "suggest managers exhibit over-optimism and tend to overestimate implications of current earnings for future earnings". This study makes the same assumption based on the reasons given above as well as the acknowledgement by the CEO of one of the five large banks in South Africa that FVA gains in earnings are "of lower quality and more difficult to forecast" (Tarrant, 2013).

4.3 *Goncharov and van Triest (2011)*

Their paper examined the impact of positive fair value adjustments on dividend policy and they found no empirical support for the concern that dividends increase in response to positive fair value adjustments. Their sample period spanned 2003 – 2006 and their final sample consisted of 4424 firm-year observations from 1179 unique firms listed in Russia. Their core model shows that a change in dividends is a function of profitability before the gain through profit and loss from FVA and that the FVA gain actually reduced the dividend

paid. Al variables were scaled by average total assets. They made use of controls for size, financial leverage, cash holdings and growth.

Important and unique to their study was that "Russian accounting standards mandate mark-to-market accounting for financial investments with changes in fair value reported in net income" (Goncharov and van Triest, 2011:54). In their regression model they could thus directly test for the relationship between fair value gains in net income and changes in dividends.

A few areas can be identified for improvement in a replicate study. There is no indication in their paper that they controlled for heterogeneity between firms in their regression models. The low R^2 values indicated collaborate this. The use of fixed effects would have had the advantage of better model fit as well as compensating for time invariant omitted variables per firm. It can be argued that the use of a differenced dividend model compensates for firm specific omitted variables that are constant between following years but this technique does not control for all firm specific omitted variables. The validity of firm fixed effects in the differenced dividend models of this paper demonstrates. It has already been mentioned that their sample covered most listed Russian firms and thus was not exclusively focused on banks; banks are the firms most impacted by FVA and thus arguably of greater interest in the context of the research question. And finally, they used the average total assets of each firm to deflate variables used for size, whilst the usual deflator is rather to use market capitalisation (Easton and Summers, 2001). In a later paper by Gonahrov (Goncharov and Veenman, 2013) an argument is made that confirms this point on how to improve the original study: "…we show that market value deflation is essential in market-based tests of dividend displacement and signalling because it controls for 'stale' information in addition to scale (size) differences across firms".

A few papers have taken the Goncharov and van Triest (2011) study further. In a review paper on the consequences of mandatory IFRS adoption Brüggemann, Hitz and Sellhorn (2013:) argues that IFRS adoption, that increases reliance on FVA, may cause changes in dividend policies. Kochiyama (2013) utilised a unique Japanese setting to investigate whether Japanese firms pay out dividends from revaluation profits on the fair valuation of trading securities. From 2001, with the adoption of IFRS, FVA revaluation profits and losses from trading securities were included as part of net profit in Japan. For the period 2001 until 2006

the Japanese Commerce Law implemented the deduction of revaluation profits from distributable profits and the study found revaluation reserves for this period not relevant for dividends. But, from 2006 the Japanese Company Act allowed the revaluation profits as part of distributable reserves and the study found that from 2006 the revaluation reserves were dividend relevant.

This study will repeat as far as possible the Goncharov and van Triest (2011) study in a different setting. The Japanese example above already shows that the Goncharov and van Triest (2011) results did not hold in a different setting when the law allowed payments from unrealised FVA gains. For South African banks there is nothing that prohibits them from making distributions from unrealised FVA gains that ended up in profit and loss.

4.4 *Why bank managers might pay dividends from transitory FVA gains*

3.4.1. Declining return on assets (ROA)

Bank managers operate in an environment where earnings are under pressure due to the entrance of non-banks into the banks' competitive space. At the same time, shareholder activism is increasing and one way in which bank managers can maintain or achieve the expected return on equity (ROE), even when ROA is decreasing, is to increase leverage. Transitory gains from FVA will increase bank capital and reduce leverage, all else being equal. Paying those gains out as dividends or remuneration will reduce the decrease in leverage.

3.4.2. Agency theory/moral hazard

Another reason for the behaviour of bank managers can be found in agency theory, but not in the normal management versus shareholders sense. The capital provided by shareholders in the average bank forms only a minor part of the total capital utilised in that bank; for example, the average for the five banks included in this study over 17 years was 6.23% of the total. Shareholders have little skin in the game and they face an asymmetric payoff. If the bank performs really well then the shareholders have an unlimited potential share of the profits and if the bank fails, then the shareholders can walk away from their small investment in the capital of the bank. More so than at more conservatively financed firms, bank shareholders are incentivised to work together with management to implement strategies that will be detrimental to the creditors of the bank. Strategies that reduce the value of a bank's debt without reducing the bank's total value increase the bank's share price.

The most obvious strategy is for the bank to take on excessive risk. If the risk pays off, then the reward goes to shareholders and management; if the risk does not pay off then the depositors are left with the result (for example see Galai & Masulis, 1976; Jensen & Meckling, 1976). Hillier, Grinblatt and Titman (2008) summarise another three categories of conflict of interest between shareholders and debt holders. Firstly, firms might pass up profitable investments because the firm's debt holders capture most of the benefits of the projects. Secondly, shareholders are incentivised to accept short-term projects rather than long-term projects, even if the long-term projects might be more profitable. Thirdly, shareholders may want to keep a firm operating when the liquidation value of the firm exceeds its operating value.

It can be argued that in reasonably efficient capital markets, debt providers will be aware of these self-interested incentives of shareholders and price their loans appropriately. This raises another agency conflict; management/shareholders/depositors versus the government. If government insures the deposits of a bank directly or indirectly by treating a bank as too-big-to-fail then depositors have no incentive to monitor the banks actively. Depositors would scramble to provide capital at any return greater than the risk-free interest rate. Hillier, Grinblatt and Titman (2008: 581) refer to the Savings and Loans crisis of the 1980s as an example. Those managers, shareholders and depositors can effectively take on risk with government money and would want to pay profits out as soon as possible.

The theoretical overview has shown that according to ordinary dividend theory transitory fair value gains through profit and loss should have no effect on dividends paid. FVA accounting was also introduced and briefly explained and five possible ways presented how FVA can introduce transitory components into earnings. The paper by Goncharov and van Triest (2011) was then discussed as this paper is strongly related to it. Suggestions were made for improvement in a replicate study in a different setting. Finally, some motivations why bank managers might pay dividends from transitory FVA gains were presented. This leads to the following research question: Did South African banks pay out dividends from FVA increased profits?

The next section will discuss the data used and the tests that will be performed.

5. Research approach

Banks do not normally disclose what portion of their net profit is unrealised. The study by Goncharov and van Triest (2011) was able to directly test whether unrealised FVA gains in profit and loss were relevant to dividend decisions due to a unique disclosure requirement in the Russian setting. A direct test is not possible in the South African setting as no special disclosure requirement exists in South Africa; thus, IFRS 7 *Financial Instruments: Disclosure* (IASB, 2005) does not require disclosure of the realised and unrealised portions of items of income, expense, gains, and losses related to financial instruments. Only the combined total is required.

Three proxies for FVA gains in profit will be considered in this paper in the stead of a direct measurement. The first proxy will be the difference between net profit after tax and broad cash flow from operations (after tax and working capital adjustments), the second proxy will be the difference between net profit after tax and narrow cash flow from operations (before tax and working capital adjustments). All else equal, an unrealised gain component of net profit after tax should imply a cash flow from operations that is less than net profit. A negative aspect of these two proxies is that they will contain noise from sources other than just FVA adjustments. The third proxy will be the total of extra-ordinary items in income identified by fundamental data provider McGreggor BFA, including some observations of mark-to-market entries. The mark-to-market observations included in proxy three were few and thus this proxy also seems to be a noisy measure of FVA gains included in profit.

The first step in the investigation will be to perform a regression analysis, explaining changes in dividend, similar to that done by Goncharov and van Triest (2011) – this will be called "dividend analysis" in the rest of the paper. Unfortunately, due to the noisiness of the three proxies for FVA gains, the results will not be as trustworthy as in the Goncharov and van Triest (2011) study. To reinforce the argument that FVA led to the recognition of additional gains during the economic upswing a regression analysis, with the dependant variable being the monthly net profit after tax of the total South African banking system (2001 – 2010), will be performed - called "profit analysis" in the rest of the paper. To reinforce the argument that banks ignored the transitory components of net income simple descriptive statistics of the portion of distributable net profit distributed as a dividend for all five banks combined, over the period 1994 – 2010 will be shown with the period immediately preceding the global

financial crisis emphasised. Finally, interview and financial statement evidence will be considered.

Next the data for the dividend analysis will be presented including statistical considerations. Thereafter the data for the profit analysis will be presented including some statistical considerations.

5.1 *Data and some statistical considerations – dividend analysis*

Annual financial statement data pertaining to the five largest listed[4] South African banks were obtained. These data were obtained in a standardised format from the fundamental data provider McGregor BFA and covered the period 1994 to 2010. This period started in 1994 with the democratisation of South Africa and ended in 2010. These five banks were chosen as they dominate South African banking, all have time-series available for the period under discussion and all have securitised assets in the immediate past. Survivorship bias is not expected to be a problem because this group of banks has been stable throughout the period studied.

As mentioned in the introduction this part of the study will attempt to duplicate as closely as possible the key model used by Goncharov and van Triest (2011:60). The dependant variable in this study similarly will be the change in dividend declared by bank *i* in year *t* (ΔDIV_{it}). DIV_{it-1} is the first explanatory variable and is the previous year's dividend for that bank. The next two independent variables are net profit after tax of bank *i* in year *t* before the proxies for FVA adjustments ($NPBPROXY?_{it}$) and net profit after tax of bank *i* in year *t-1* before the proxies for FVA adjustments ($NPBPROXY?_{it-1}$). The independent variable of interest in the Goncharov and van Triest (2011) study is not available for this study and instead three proxies will be considered: $PROXY1_{it}$ is the difference between NP_{it} and broad cash generated by operations (after tax and working capital changes) by bank *i* in year *t*; $PROXY2_{it}$ is the difference between NP_{it} and narrow cash generated by operations (before tax and working capital changes) by bank *i* in year *t*; and $PROXY3_{it}$ is the total of extra-ordinary items identified by fundamental data provider McGreggor BFA, including some (incomplete)

[4] The data used in the dividend analysis and the profit analysis relate to different entities within the same banking group. The profit regressions use data from the registered banking entities in each banking group whilst the dividend regressions use data from the listed entities in each banking group. In all instances the banking entity in each group represents most of the activity within each listed entity. In 2010, the percentage of the listed banking group made up of the banking entity in that group ranged from 64% to 96% when measured by total shareholders' equity.

observations of mark-to-market entries. All of these variables have been deflated for size by using average market capitalisation. All of the same control variables in Goncharov and van Triest (2011) will be used, except for the cash balance variable as liquidity is not normally a constraint on a bank and in the Goncharov and van Triest (2011:60) results this was the only control variable that was not statistically significant. $SIZE_{it}$ is the natural logarithm of total assets of bank i in year t. LEV_{it} is financial leverage defined as the ratio of total debt to total assets of bank i in year t. $GROWTH_{it}$ is the growth in total assets of bank i in year t. The changes are summarised in Table 5.1 that follows.

Category	Goncharov and van Triest	This study
Dependent	ΔDIV_{it} - change in dividends in year t for company i	ΔDIV_{it} - change in dividends in year t for bank i
Independent	DIV_{it-1} is the dividend in year $t-1$ for company i	DIV_{it-1} is the dividend in year $t-1$ for bank i
	$NIBREV_{it}$ - *is* net income year t for company i before fair value adjustments	$NPBPROXY?_{it}$ - *is* net profit after tax in year t for bank i before the proxies for FVA adjustments
	$NIBREV_{it-1}$ - *is* net income year $t-1$ for company i before fair value adjustments	$NPBPROXY?_{it-1}$ - *is* net profit after tax in year $t-1$ for bank i before the proxies for FVA adjustments
	REV_{it} - is positive fair value adjustments due to revaluations of short-term and long-term financial assets in year t for company i	$PROXY1_{it}$ - difference between net profit after tax and a broad measure of cash generated in year t for bank i
		$PROXY2_{it}$ - difference between net profit after tax and a narrow measure of cash generated in year t for bank i
		$PROXY3_{it}$ - Data provider total of extraordinary items including mark-to-market values in year t for bank i
Controls	$SIZE_{it}$ - is the natuaral logarithm of total assets in year t for company i	$SIZE_{it}$ - is the natuaral logarithm of total assets in year t for bank i
	LEV_{it} - is financial leverage defined as a ratio of total debt to total assets in year t for company i	LEV_{it} - is financial leverage defined as a ratio of total debt to total assets in year t for bank i
	$GROWTH_{it}$ - is percentage change in sales in year t for company i	$GROWTH_{it}$ - is percentage change in total assets in year t for bank i
	$CASH_{it}$ - is cash balance defined as cash scaled by average total assets in year t for company i	

Table 5.1 List of variables used in the main regression of the Goncharov and van Triest (2001:60) study compared to the list of the variables that will be used in this study.

Table 5.2 presents descriptive statistics for selected income and balance sheet variables that will be used in the panel data regression. All of the variables, except for the control variables, are deflated by the average market capitalisation of the bank for that financial year.

Unadjusted for outliers					
Variable	**Mean**	**Median**	**Std. deviation**	**Minimum**	**Maximum**
DIVit	0.03322	0.03387	0.01181	0.00126	0.05528
NPBFPROXY1it	0.18386	0.16322	0.19495	-0.39186	1.21019
NPBFPROXY2it	0.11527	0.09302	0.16567	-0.24734	0.45633
NPBFPROXY3it	0.08921	0.09169	0.10129	-0.45913	0.28667
$PROXY1_{it}$	-0.08687	-0.05351	0.20336	-1.11592	0.38752
$PROXY2_{it}$	-0.01827	-0.00788	0.16535	-0.43862	0.32822
$PROXY3_{it}$	0.00778	0.00088	0.11155	-0.30420	0.57559
$SIZE_{it}$	19.26953	19.39181	1.07155	16.18955	21.12349
LEV_{it}	0.94199	0.94462	0.01938	0.88975	0.98512
$GROWTH_{it}$	0.27925	0.17125	0.66510	-0.32430	5.52809
95% Winsorised					
Variable	**Mean**	**Median**	**Std. deviation**	**Minimum**	**Maximum**
DIVit	0.03323	0.03387	0.01175	0.00228	0.05486
NPBFPROXY1it	0.17963	0.16322	0.14958	-0.22168	0.57842
NPBFPROXY2it	0.11600	0.09302	0.16192	-0.17327	0.45633
NPBFPROXY3it	0.09526	0.09097	0.08263	-0.15126	0.28667
$PROXY1_{it}$	-0.08035	-0.05351	0.15913	-0.48415	0.23118
$PROXY2_{it}$	-0.01672	-0.00788	0.15648	-0.29939	0.25415
$PROXY3_{it}$	0.00402	0.00088	0.08708	-0.20247	0.24897
$SIZE_{it}$	19.26897	19.39181	1.06655	16.26456	21.00414
LEV_{it}	0.94211	0.94462	0.01873	0.90467	0.98113
$GROWTH_{it}$	0.20626	0.17125	0.08708	-0.20247	0.24897

Table 5.2 Pooled descriptive statistics of the variables included in the dividend analysis.

Data sample represent 17 annual observations from 1994 until 2010 for the five largest South African banks. Fundamental data supplier BFA McGreggor was the source of the data. DIV_{it} is dividends in year *t* for bank *i*. $NPBFPROXY1_{it}$ is net profit after tax in year *t* for bank *i* before $PROXY1_{it}$. $NPBFPROXY2_{it}$ is net profit after tax in year *t* for bank *i* before $PROXY2_{it}$. $NPBFPROXY3_{it}$ is net profit after tax in year *t* for bank *i* before $PROXY3_{it}$. $PROXY1_{it}$ is the difference between net profit after tax and a broad measure of cash generated from operations in year *t* for bank *i*. $PROXY2_{it}$ is the difference between net profit after tax and a narrow measure of cash generated from operations in year *t* for bank *i*. $PROXY3_{it}$ is the total of extraordinary items including mark-to-market values identified by BFA McGreggor in year *t* for bank *i*. All of these preceding variables have been deflated for size by using average market capitalisation. $SIZE_{it}$ is the natuaral logarithm of total assets in year *t* for bank *i*. LEV_{it} is financial leverage defined as the ratio of total debt to total assets in year *t* for bank *i*. $GROWTH_{it}$ is the percentage change in total assets in year *t* for bank *i*. In the bottom half of the table a winsorisation[5] of 95% has been applied to all the variables.

As the data above are from five different banks and not collated it is to be expected that there will be some individual bank heterogeneity in the relationships and that some form of panel regression might be called for.

5.2 *Panel regression – dividend analysis*

Panel data regressions first and foremost allow one to formally model the heterogeneity across groups that are typically present in panel data (Green, 2008:334; Baltagi, 2005:4). In addition, panel data regressions provide more robust information, more variability, less collinearity among variables and more degrees of freedom (Baltagi, 2005). A first step to

[5] Winsorising is the transformation of statistics by limiting extreme values in the statistical data to reduce the effect of possibly spurious outliers.

using panel data regression would be to test the errors that results from a normal regression (where the data consists of observations from cross-sections over time) for heteroskedasticity. If heteroskedasticity is found one should test for the appropriateness or not of fixed or random effects. Not controlling, where appropriate, for individual fixed effects or random effects in a data panel can lead to an omitted variable bias problem and inconsistent estimates of the regression parameters.

In choosing between fixed effects or random effects Baltagi (2005:19) advises researchers to not simply interpret a rejection of the Hausman (1978) test as an adoption of the fixed effects model. That is why it is appropriate to consider what each model is for: According to Baltagi (2005:12) the fixed effects model is an appropriate specification when focusing on a specific set of firms and inference is restricted to that set of firms and the random effects model is appropriate if one is drawing individuals randomly from a large population (Baltagi, 2005:14). As the dividend analysis regression is only concerned with the specific five banks in the study and not about a larger population the fixed effects model is more appropriate. This line of argument is used in a number of recent accounting panel data studies (for example: Oliveira, Rodrigues and Craig, 2010:246; Setia-Atmaja, Haman and Tanewski, 2011:238).

5.3 *Data and some statistical considerations – profit analysis*

The Bank Supervision Department of the South African Reserve Bank (SARB) collects certain data on a monthly basis from all banks registered or licensed with the Department. In 2010 there were 17 banks, two mutual banks, 13 branches of international banks and 41 representative offices registered or licensed with the Department (Bank Supervision Department of the SARB, 2011:82). Monthly income statement data, collated for all banks, are available on their website. From 1994 to December 2007 the income statement was known as the DI 200 return and from January 2008 it was known as the BA 120 return. This date coincided with the introduction of the Basel II Capital Accord in South Africa.

The content of the DI 200 return and the BA 120 return are not identical, but the item "net profit after tax" (NP_t) appears in both these reports and, after consideration of the sequence and the content of the reports, the meaning of this term is considered to be reasonably equivalent in both reports.

The augmented Dickey-Fuller test (Dickey & Fuller, 1979) indicates that the NP_t time-series is not stationary, but possibly trend stationary. A simple time trend and exponential time trend were fitted to the data and it was found that an exponential time trend fitted NP_t better. An even better data fit (as measured by R^2 and the information criteria indicators) was obtained by replacing the time trend with nominal gross domestic product (GDP_t), also a non-stationary time-series that was obtained from the SARB. Econometric literature (Brooks, 2008) indicates that non-stationary data should not be used in a regression, unless a linear combination of the variables is stationary. The implication of co-integration is that the two variables are bound by some relationship in the long run (Brooks, 2008:336). The Engle-Granger and Phillips-Ouliaris residual-based tests for co-integration both indicate co-integration; NP_t and GDP_t move together.

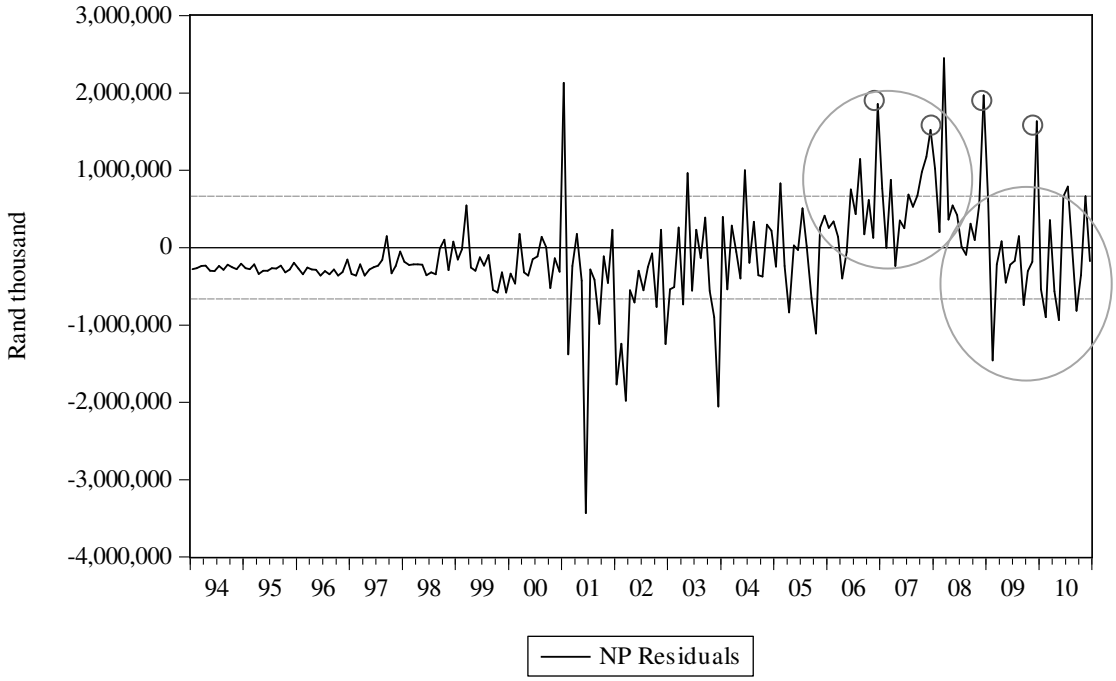

Figure 5.1 Stationary residuals obtained by regressing NP_t on GDP_t.

Data sample represents monthly observations from January 1994 until December 2010. NP_t is net profit after tax combined for all banks in the South African system. GDP_t is nominal gross domestic product for South Africa.

A stationary series was obtained by combining NP_t and GDP_t . The residual series shown in Figure 5.1 above reveals that for the period immediately before the financial crisis, NP_t was, on average, above the level predicted by its relationship with GDP_t (first large oval in Figure 5.1). [6] For the period following the start of the financial crisis, NP_t was, on average, slightly

[6] The use of dummies to capture the overshooting and undershooting of profits ignores the possibility that GDP_t itself was inflated prior to the global financial crisis as can be seen in this quote from the *Financial Times*:

lower than the level predicted by its relationship with GDP_t (second large oval in Figure 5.1). The points indicated by small ovals are all December data points. The ovals in Figure 5.1 represent where dummy variables will be utilised in the final regressions. The up spike in 2001 is due to mark-to-market adjustments from the banking book entering profit in January 2001. This is possibly due to the adoption of the local equivalent of IAS 39 on that date. Harder to explain is the down spike in June 2001 which was of a similar absolute size as the up spike; this was due to negative mark-to-market adjustments from the banking book entering profit. The possibility that these extreme movements might have influenced, unduly, the results of the profit analysis, was tested in the robustness checks done on the profit analysis.

In addition to NP_t and GDP_t, a time-series for mark-to-market gains or losses, included in NP_t, was obtained from the DI 200 returns before January 2008. From 1994 to December 2000 the mark-to-market entry was the total for the banking book and the trading book combined. From January 2001 until December 2007 it was possible to split the mark-to-market entry between a banking book portion and a trading book portion. From January 2008 only a FVA gain or loss on the banking book was available. At that time all FVA gains or losses on the trading book were combined with realised gains or losses on the trading book as the bank regulator assumed these to be closely equivalent (Bakoro, de Jager & Parsons, 2013). The following two mark-to-market time-series ($M2M1_t$ and $M2M2_t$) were built. The first of these, $M2M1_t$, is the combination of the following: (a) 1994 – 2000, the total mark-to-market entries; (b) 2001 – 2007, the banking book mark-to-market entries and (c) for 2008 onwards, the fair value entries from the banking book. The second of these, $M2M2_t$, is the combination of the following: (d) 1994 – 2000, the total mark-to-market entries; (e) 2001 – 2007, the combined banking *and trading book* mark-to-market entries and (f) for 2008 onwards, the fair value entries from the banking book. The only difference is thus in 2001 – 2007. Both $M2M1_t$ and $M2M2_t$ were found to be stationary.

The regression explaining NP_t (Table 5.6) are based only on the observations from January 2001 to December 2010 due to the unavailability of mark-to-market/fair value entries from the banking book as explained above, and the frequent changes in South African accounting standards during the late 1990s with the South African version of IAS 39 being implemented

"…GDP in 2007 was an illusion, wildly inflated by the debt bubble" (Melville, 2012). A plausible implication is that the dummies will underestimate the relationship.

with effect from January 2001. Descriptive statistics for the profit analysis follows in Table 5.3

Unadjusted for outliers					
Variable	**Mean**	**Median**	**Std. deviation**	**Minimum**	**Maximum**
NP_t	1727461	1774856	1115036	-2424046	4610448
GDP_t	146400	137522	45007	80841	234498
$M2M1_t$	103705	144582	623516	-2094497	3842738
$M2M2_t$	138491	116278	1050894	-2569457	4453024
95% Winsorised					
Variable	**Mean**	**Median**	**Std. deviation**	**Minimum**	**Maximum**
NP_t	1728438	1774856	1033362	-707186	3718659
$M2M1_t$	80612	144582	436714	-1229786	882181
$M2M2_t$	120295	116278	937604	-1817987	2735176

Table 5.3 Descriptive statistics of the variables included in the profit analysis.

Data sample represent 120 months of observations from January 2001 until December 2010. NP_t is the monthly net profit after tax of all the banks in South Africa combined. GDP_t is the monthly nominal GDP figure of South Africa. $M2M1_t$ is the monthly mark-to-market/FVA entries through profit and loss from the banking book. $M2M2_t$ is $M2M1_t$ + the monthly mark-to-market entries through profit and loss from the trading book for the period January 2001 - December 2007. NP_t and the $M2M_t$'s have been winsorised at 95% in the bottom half of the table due to the presence of large outliers.

5.4 *Single equation co-integrating regression – profit analysis*

The co-integrating relationship between *NP* and *GDP* implies that a long-running relationship exists between these two variables. The interaction between the financial and the real sectors of the economy is often procyclical (positive feedback mechanisms) (Bank for International Settlements, 2008). Because of this, it is expected that *NP* will overshoot its long-running relationship with *GDP* during the economic upswing and will undershoot during the downturn due to the natural procyclical nature of bank lending (Kusano, 2011:6); no role is required from FVA for this overshooting or undershooting to occur. This total overshooting or undershooting will be quantified by using three period dummies. A dummy variable (*DUMMY1)* will be used for the period January 2001 to June 2004 and will be useful to help understand the base case in which the economy is not in a strong upswing. The next dummy variable (*DUMMY2)* will be for the period July 2004 to September 2008 to signify a period when the economy was in a strong upswing, with FVA under IFRS fully implemented and the South African banks actively securitising assets. The final period dummy variable (*DUMMY3*) will be for the period that started in September 2008 with the collapse of Lehman Brothers and the world economy entering a state of shock.

In order to examine the effect of mark-to-market/FVA on the overshooting/undershooting of *NP*, the coefficients of the period dummies, before *M2M* is added to the regression, can be compared to the coefficients of the period dummies after *M2M* was added to the regression. If the coefficients of the overshooting/undershooting dummies are found to change materially, then the effect of *M2M* was to influence the average level of the overshooting/undershooting. A major advantage of this test is that it allows for derivative profits/losses in the trading book to hedge movements in other parts of the banks as *NP* is the final profit figure after any losses or profits have been cancelled out by counter derivative movements. *M2M* can only have explanatory power for *NP* if no cancelation took place.

Next the results for the dividend analysis will be presented including a discussion thereof. Thereafter the results for the profit analysis will be presented including a discussion thereof.

6. Results and discussion

6.1 *Dividend analysis*

The following initial model was fitted to the data.

$$\Delta DIV_{it} = \alpha_0 + \alpha_1 DIV_{it-1} + \alpha_2 PROFITBFPROXY?_{it} + \alpha_3 PROFITBFPROXY?_{it-1} + \alpha_4 PROXY?_{it} + \alpha_5 CONTROLS_{it} + \varepsilon_{it}, \quad (1)$$

where i and t represent banks and years. ΔDIV_{it} is the change in dividends. $\alpha_1 DIV_{it-1}$ is the dividend in the previous year. $PROFITBFPROXY?_{it}$ and $PROFITBFPROXY?_{it-1}$ is the current year and the previous year net profit after tax before the proxy variables. $PROXY?_{it}$ represents one of three possible proxies for the Goncharov and Van Triest (2011) FVA gain in profits presented in Table 5.1. When presenting the results for model (1) only the results for the model with the best fitting proxy variable (of the three possible proxies) will be presented (based on R-squared). $CONTROLS_{it}$ represents the Goncharov and Van Triest control variables in Table 5.1. This initial model is a pooled model without fixed effects.

Cross-sectional and period fixed effects were tested for and found to be valid for model (2). These test results are available in the appendix. Fixed effects were implemented in model (2) to (7).

$$\Delta DIV_{it} = \alpha_0 + \alpha_1 DIV_{it-1} + \alpha_2 PROFITBFPROXY1_{it} + \alpha_3 PROFITBFPROXY1_{it-1} + \alpha_4 PROXY1_{it} + \alpha_5 CONTROLS_{it} + \mu_i + \lambda_t + \varepsilon_{it}, \quad (2)$$

Changing to $PROXY2_{it}$ from $PROXY1_{it}$ gives the following model.

$$\Delta DIV_{it} = \alpha_0 + \alpha_1 DIV_{it-1} + \alpha_2 PROFITBFPROXY2_{it} + \alpha_3 PROFITBFPROXY2_{it-1} + \alpha_4 PROXY2_{it} + \alpha_5 CONTROLS_{it} + \mu_i + \lambda_t + \varepsilon_{it}, \quad (3)$$

Changing to $PROXY3_{it}$ from $PROXY2_{it}$ gives the following model.

$$\Delta DIV_{it} = \alpha_0 + \alpha_1 DIV_{it-1} + \alpha_2 PROFITBFPROXY3_{it} + \alpha_3 PROFITBFPROXY3_{it-1} + \alpha_4 PROXY3_{it} + \alpha_5 CONTROLS_{it} + \mu_i + \lambda_t + \varepsilon_{it}, \quad (4)$$

According to Table 5.2 outliers seems not to be a major issue for the dividend analysis. Nevertheless model (5) is model (2) with trimmed observations, model (6) is model (3) with trimmed observations and model (7) is model (4) with trimmed observations. Results are presented in Table 5.4.

	Not winsorised observations				95% winsorised observations		
Regressor	**Model (1)**	**Model (2)**	**Model (3)**	**Model (4)**	**Model (5)**	**Model (6)**	**Model (7)**
DIV_{it-1}	-0.6078*** (-4.64)	-0.7342*** (-6.15)	-0.7900*** (-5.98)	-0.7904*** (-6.19)	-0.8276*** (-6.68)	-0.8332*** (-6.57)	-0.8388*** (-6.94)
$NPBFPROXY?_{it}$	0.0496* (1.92)	0.0477** (2.06)	0.0465* (1.83)	0.0478* (1.77)	0.06322** (2.13)	0.0634** (2.10)	0.0747** (2.25)
$NPBFPROXY?_{it-1}$	-0.0174** (-2.51)	-0.0091* (-1.70)	-0.0179** (-2.04)	0.0086 (1.17)	-0.0130 (-1.32)	-0.0196** (-2.08)	-0.0011 (-0.08)
$PROXY1_{it}$	NA	0.0413* (1.69)	NA	NA	0.0596* (1.93)	NA	NA
$PROXY2_{it}$	0.0272 (1.09)	NA	0.0340 (1.31)	NA	NA	0.0519* (1.71)	NA
$PROXY3_{it}$	NA	NA	NA	0.0354 (1.42)	NA	NA	0.0515* (1.69)
$SIZE_{it}$	0.0046*** (3.24)	0.0037 (-1.23)	-0.0021 (-0.83)	-0.0034 (-1.32)	0.0044 (-1.65)	-0.0020 (-0.87)	-0.0032 (-1.35)
LEV_{it}	0.0436 (0.73)	-0.0430 (-0.70)	-0.0838 (-1.20)	-0.0410 (-0.63)	-0.0435 (-0.67)	-0.0847 (-1.17)	-0.0471 (-0.67)
$GROWTH_{it}$	0.0006 (0.96)	0.0017* (1.88)	0.0009* (1.72)	0.0013 (1.47)	0.0064 (1.13)	0.0051 (0.91	0.0071 (1.21)
c	-0.1125* (-1.92)	0.1324* (1.72)	0.1428* (1.73)	0.1248 (1.54)	0.1493** (2.10)	0.1421* (1.75)	0.1251 (1.52)
Fixed effects	No	Yes (cross-sectional and period)	Yes (cross-sectional and period)	Yes (cross-sectional and period)	Yes (cross-sectional and period)	Yes (cross-sectional and period)	Yes (cross-sectional and period)
White diagonal standard errors and covariance (d.f. corrected)							
N	80	80	80	80	80	80	80
R-sq	0.4579	0.6686	0.6804	0.6617	0.6852	0.7024	0.6830
adj. R-sq	0.4051	0.5060	0.5236	0.4958	0.5308	0.5565	0.5274

Table 5.4 Regression results of bank dividend models (1) to (7).

Change in dividends (ΔDIV_{it}) is the regressand. Data sample consists of 16 annual observations from 1994 until 2010 for the five largest South African banks. Fundamental data supplier BFA McGreggor was the source of the data. DIV_{it-1} is dividends in year *t-1* for bank *i*. $NPBFPROXY1_{it}$ is net profit after tax in year *t* for bank *i* before $PROXY1_{it}$. $NPBFPROXY1_{it-1}$ is net profit after tax in year *t-1* for bank *i* before $PROXY1_{it-1}$. $NPBFPROXY2_{it}$ is net profit after tax in year *t* for bank *i* before $PROXY2_{it}$. $NPBFPROXY2_{it-1}$ is net profit after tax in year *t-1* for bank *i* before $PROXY2_{it-1}$. $NPBFPROXY3_{it}$ is net profit after tax in year *t* for bank *i* before $PROXY3_{it}$. $NPBFPROXY3_{it-1}$ is net profit after tax in year *t-1* for bank *i* before $PROXY3_{it-1}$. $PROXY1_{it}$ is the difference between net profit after tax and a broad measure of cash generated from operations in year *t* for bank *i*. $PROXY2_{it}$ is the difference between net profit after tax and a narrow measure of cash generated from operations in year *t* for bank *i*. $PROXY3_{it}$ is the total of extraordinary items including mark-to-market values identified by BFA McGreggor in year *t* for bank *i*. All of these preceding variables have been deflated for size by using the average market capitalisation. $SIZE_{it}$ is the natural logarithm of total assets in year *t* for bank *i*. LEV_{it} is financial leverage defined as the ratio of total debt to total assets in year *t* for bank *i*. $GROWTH_{it}$ is the percentage change in total assets in year *t* for bank *i*. In the second half of the table a winsorisation of 95% has been applied to all the variables.
,**,, significant at the threshold of 10%, 5% and 1%, respectively (t-test). T-values are shown in parentheses.**

Consistent with the Lintner framework and the findings of the Goncharov and Van Triest (2011:60) study the results consistently indicate a negative coefficient on lagged dividends and positive coefficients on income with statistical significance. Lagged income is mostly negative and not significant, unlike what was found in Goncharov and Van Triest (2011:60). In contrast to the findings of Goncharov and Van Triest (2011:59), who found a negative association between fair value adjustments and the change in dividends, no significant negative relationships between the proxy variables and the change in dividends were found. For models (2) to (7) in four out of six times slightly significant positive coefficients for the dummy variables were found. The control variables were mostly insignificant, especially in the models with fixed effects. Statistical tests indicated that model (1) suffers from heteroskedasticity and that period and cross-sectional fixed effects are more appropriate. Coefficient estimates from (1) are thus not reliable.

The results from models (2) to (7) indicate that the change in dividend of a specific large bank can be explained by five factors: firstly, the bank declaring the dividend, secondly, the immediate preceding dividend and thirdly, the current and previous profitability of the bank. The fourth factor is the specific year in which the dividend was declared and this can be interpreted as arising from competitive pressure; after all, if the bank peer group was declaring large dividends then the individual banks will tend to conform. The final factor, in some cases, is the proxy for transitory FVA adjustments of the bank; FVA adjustments increase the change in dividends.

Model (3) for the untrimmed models and model (6) for the trimmed models had the best model fit as measured by R-squared. As representatives of models (2) to (7) the residuals of these two models were tested for serial correlation and heteroskedasticity within each cross-section; neither of these was found to be present. The LM test for serial correlation given fixed effects has a value of 0.83 for model (3) and a value of 0.95 for model (6); the 95% critical value is 1.96. The null hypothesis of no serial correlation cannot be rejected. The LM statistic of the test for heteroskedasticity has a value of 19.614 for model (3) and a value of 19.337 for model (6), less than the 5% critical value of 106.395 (Chi-square(N-1) distributed) and the null hypothesis of homoskedasticity cannot be rejected. Robust standard errors and covariance clustered across the cross-sections are thus not strictly necessary (Thompson, 2011:6).

Thompson (2011) wrote a paper that describes a method for computing standard errors that are robust to correlation along two dimensions, as is often found in corporate finance data. Thomson (2011:4) reminds readers that double-clustering comes at a cost of wrong statistical inference if the error structure does not support the double-clustering choice. He shows that if a panel is unbalanced (in this case it is with 16 years and only 5 firms) it is more important to cluster along the dimension with fewer observations and double-clustering is not necessary. But, in this case the errors showed no serial correlation and heteroskedasticity within each cross-section and clustering across cross-sections is also not necessary. To maintain comparability and to make conclusions more conservative we thus used White diagonal standard errors and covariance across all the panel data models as it is robust to observation specific heteroskedasticity in the disturbances. The residuals of models (3) and (6) are available in the appendix.

It is of course possible that behaviour changed over the course of the 16 years in the panel. The following robustness check was performed. Significant changes took place over the period 1994 – 2010 in accounting and banking regulations and so the dividend analysis results were tested for stability by splitting the sample in two and testing for the period 2001 to 2010 for models (3) and (6) (the best fitting models). In the case of model (3) fit improved from adjusted R-squared of 0.5236 to 0.5412. The significant regressors remained the same as well as the signs on their coefficients, except for the growth control variable that was no longer significant. What did not change was that the proxy variable remained insignificant with a positive coefficient. In the case of model (6) fit improved from adjusted R-squared of 0.5595 to 0.5986. The significant regressors remained the same as well as the signs on their coefficients, except for the proxy variable that was no longer significant. It seems as if the mixed result across the panel for the proxy variables is not valid for the period 2001 – 2010.
Our findings up to this point only served to illustrate a contrast with the results of Goncharov and Van Triest (2011); the FVA adjustment items in this paper do not have statistically significant negative coefficients. This evidence does not imply that the South African banks were paying dividends from FVA profits as the profit measures used in models (1) to (7) excluded the proxies for FVA gains and the proxies for the FVA gains were not statistically significant; thus there was nothing in the results of the regression models to indicate that FVA gains are increasing dividend payments. If the South African banks were using total profit, including FVA gains, when they determined their annual dividends then the models above can be improved by replacing profit before FVA gains with profit after FVA gains. By

replacing the $NPBFPROXY?_{it}$ and $NPBFPROXY?_{it-1}$ variables with NP_{it} and NP_{it-1} in all the models the following results are obtained where ΔDIV_{it} could be influenced by profit after tax inclusive of FVA gains.

	Not winsorised observations				95% winsorised observations		
Regressor	**Model (1)**	**Model (2)**	**Model (3)**	**Model (4)**	**Model (5)**	**Model (6)**	**Model (7)**
DIV_{it-1}	-0.6400*** (-5.02)	-0.9327*** (-7.49)	-0.9282*** (-7.12)	-0.9187*** (-7.04)	-0.9929*** (-6.34)	-0.9667*** (-6.16)	-0.9504*** (-6.35)
NP_{it}	0.0442** (2.20)	0.0467**(2.62)	0.0498** (2.65)	0.0568*** (2.90)	0.0535** (2.01)	0.0561** (2.09)	0.0691** (2.37)
NP_{it-1}	0.00448* (1.93)	0.0687***(4.26)	0.0684*** (4.03)	0.06626*** (3.83)	0.0607** (2.38)	0.0601** (2.61)	0.0463** (1.99)
$PROXY1_{it}$	-0.0107** (-2.28)	0.0000 (1.05)	NA	NA	0.0071 (0.92)	NA	NA
$PROXY2_{it}$	NA	NA	0.0000 (0.22)	NA	NA	0.0059 (0.96)	NA
$PROXY3_{it}$	NA	NA	NA	-0.0072 (-0.79)	NA	NA	-0.0151 (-1.00)
$SIZE_{it}$	0.0043*** (3.03)	-0.0059** (-2.38)	-0.0063** (-2.46)	-0.0062** (2.56)	-0.0064** (-2.31)	-0.0055** (-2.33)	-0.0047* (-1.97)
LEV_{it}	0.1194** (2.28)	-0.0075 (-0.12)	-0057 (-0.09)	0.0013 (0.02)	-0.0253 (-0.39)	0.0172 (-0.24)	-0.0280 (-0.39)
$GROWTH_{it}$	0.0007 (1.43)	0.0018** (2.34)	0.0019** (2.52)	0.0020** (2.56)	0.0078 (1.38)	0.0089 (1.54)	0.0095 (1.63)
c	-0.1847*** (-3.14)	0.1411* (1.70)	0.1467* (1.78)	0.1381 (1.60)	0.1691** (2.04)	0.1435* (1.73)	0.1368 (1.53)
Fixed effects	No	Yes (cross-sectional and period)	Yes (cross-sectional and period)	Yes (cross-sectional and period)	Yes (cross-sectional and period)	Yes (cross-sectional and period)	Yes (cross-sectional and period)
White diagonal standard errors and covariance (d.f. corrected)							
N	80	80	80	80	80	80	80
R-sq	0.4935	0.7468	0.7419	0.7441	0.7055	0.7044	0.7067
adj. R-sq	0.4443	0.6226	0.6152	0.6186	0.5610	0.5595	0.5629

Table 5.5 Regression results of bank dividend models (1) to (7) with the $NPBFPROXY?_{it}$ and $NPBFPROXY?_{it-1}$ variables replaced by NP_{it} and NP_{it-1}.

Change in dividends (ΔDIV_{it}) is the regressand. Data sample consists of 16 annual observations from 1994 until 2010 for the five largest South African banks. Fundamental data supplier BFA McGreggor was the source of the data. DIV_{it-1} is dividends in year *t-1* for bank *i*. NP_{it} is net profit after tax in year *t* for bank i_{it}. NP_{it-1} is net profit after tax in year *t-1* for bank *i*. $PROXY1_{it}$ is the difference between net profit after tax and a broad measure of cash generated from operations in year *t* for bank *i*. $PROXY2_{it}$ is the difference between net profit after tax and a narrow measure of cash generated from operations in year *t* for bank *i*. $PROXY3_{it}$ is the total of extraordinary items including mark-to-market values identified by BFA McGreggor in year *t* for bank *i*. All of these preceding variables have been deflated for size by using the average market capitalisation. $SIZE_{it}$ is the natural logarithm of total assets in year *t* for bank *i*. LEV_{it} is financial leverage defined as the ratio of total debt to total assets in year *t* for bank *i*. $GROWTH_{it}$ is the percentage change in total assets in year *t* for bank *i*. In the second half of the table a winsorisation of 95% has been applied to all the variables.

,**,, significant at the threshold of 10%, 5% and 1%, respectively (t-test). T-values are shown in parentheses.**

Model fit has improved in all the models and the most for the untrimmed models compared to Table 5.4. The average improvement in adjusted R-squared for these three models was 11.03%. The untrimmed models now fit the data better than the trimmed models. When comparing the coefficients of the untrimmed models above with the coefficients of the untrimmed models in Table 5.4 the following is noticed. In all three models the coefficient on the current year profit variable has increased and has become more statistically significant. Readers are reminded that the profit variables are now larger than what they were in Table 5.4, yet the coefficients have increased. All else equal, if profit excluding FVA gains were used to justify dividend changes then the coefficients should have decreased. The coefficients of the lagged profit variables are now all positive and significant as in Goncharov and Van Triest (2011:60). The coefficients of all three proxy variables are now rounded equal to zero and statistically insignificant. The change in dividends is much better explained by total profit

levels rather than profit levels before the proxy variables, one of which was the total of extraordinary gains included in profit. Thus, South African banks are using profit levels inclusive of FVA gains to justify increased dividend pay-outs.

The dividend results were presented to representatives of the banks involved in the study, their auditors and bank supervisors at a meeting of the Banking Project Group at the South African Institute of Chartered Accountants in Johannesburg on 21 July 2010. In reaction to the conclusion that banks ignore the unrealised and possibly transitory nature of some of their profits when they determine their dividend pay-outs, the bank representatives responded by agreeing with that conclusion but with the proviso that they believe the effect to be immaterial. The question whether FVA impacts bank profits materially is the topic of the profit analysis that follows.

6.2 *Profit analysis*

The following model was fitted to the data.

$$NP_t = \alpha_0 GDP_t + \alpha_1 DUMMY1_t + \alpha_2 DUMMY2_t + \alpha_3 DUMMY3_t + REPORTING_t + \varepsilon_t, \quad (8)$$

where t represents months and $REPORTING_t$ represents a dummy variable indicating financial yearend months.[7] In the next model $M2M1_t$ was added.

$$NP_t = \alpha_0 GDP_t + \alpha_1 DUMMY1_t + \alpha_2 DUMMY2_t + \alpha_3 DUMMY3_t + REPORTING_t + M2M1_t + \varepsilon_t, \quad (9)$$

[7] Three of the four largest banks, representing more than 80% of the industry, have December yearends with the remaining "big four" bank having a December interim reporting date. With the advent of the financial crisis and the downturn it is to be expected that banks will try and report as positive a result as possible. For the period before the advent of the financial crisis it can be argued that for remuneration and bonus considerations banks also wanted to report as positive a result as possible. This dummy was symmetrically applied around September 2008 for two periods before and two periods after.

	Not winsorised observations		95% winsorised observations	
Regressor	**Model (8) - excluding M2M1$_t$**	**Model (9) - including M2M1$_t$**	**Model (10) - excluding M2M1$_t$**	**Model (11) - including M2M1$_t$**
GDP $_t$	21.6578*** (6.07)	19.9274*** (6.14)	20.6331*** (6.76)	18.9418*** (6.12)
DUMMY1 $_t$	-1391651*** (-3.78)	-1270649*** (-3.53)	-1244439*** (-3.59)	-1104219*** (-3.22)
DUMMY2 $_t$	-1222375** (-2.21)	-1005551** (-2.09)	-1075174**(-2.30)	-871963* (-1.88)
DUMMY3 $_t$	-2184408*** (-2.89)	-1838761*** (-2.71)	-1988642*** (-3.08)	-1650989** (-2.55)
REPORTING $_t$	1645599*** (4.62)	1514520*** (9.60)	1431475*** (9.81)	1311466*** (12.61)
M2M1 $_t$	NA	0.4413** (2.05)	NA	0.4984*** (2.98)
N	120	120	120	120
R-sq	0.628	0.6867	0.6521	0.6948
adj. R-sq	0.6151	0.6729	0.6400	0.6815
% increase in *DUMMY1* $_t$		9%		11%
% increase in *DUMMY2* $_t$		18%		19%
% increase in *DUMMY3* $_t$		16%		17%
% decrease in *REPORTING* $_t$		8%		8%

Table 5.6 Reports the regression results for the total bank profits (NP_t) models (8) to (11).

Data sample represents 120 months of observations from January 2001 until December 2010. The regressand is NP_t - the monthly net profit after tax of all the banks in South Africa combined. GDP_t is the monthly nominal GDP figure of South Africa. $DUMMY1_t$ is a dummy variable for the period January 2001 until June 2004. $DUMMY2_t$ is a dummy variable for the period July 2004 until September 2008. $DUMMY3_t$ is a dummy variable for the period October 2008 until December 2010. $REPORTING_t$ represents a dummy variable indicating financial yearend months. $M2M1_t$ is the monthly mark-to-market/FVA entries through profit and loss from the banking book. Model (3) is model (1) with trimmed outliers. Model (4) is model (2) with trimmed outliers. Trimmed samples pulled in observations beyond the 2.5th and 97.5th percentiles. The percentage increase on the $DUMMY_t$ variables is the increase in the coefficient on the $DUMMY_t$ variables divided by the coefficient on the $DUMMY_t$ variables before $M2M1_t$ was added to model (1) or model (3).

,**,, significant at the threshold of 10%, 5% and 1%, respectively (t-test). T-values are shown in parentheses.**

The results from model (8) indicates that the dummy variables introduced in equation (8) for the period of overshooting/undershooting and for the upward adjustment of financial yearend profits around the financial crisis, were successful in capturing some of the variation in the relationship between bank sector net profit and nominal GDP. Results that relate to the first of the two research questions posed in the introduction (about profits) are obtained when $M2M1_t$ is added to the equation. Model fit improves materially and the coefficient on $M2M1_t$ is highly significant with the interpretation that $M2M1_t$ especially helps to explain the volatility evident in the NP_t series.

The introduction of mark-to-market/fair value entries from the banking book helps to explain the level of bank profit earned during the period; note that the coefficient is less than one as not all of the *before tax* $M2M1_t$ series ends up in the *after tax* NP_t series. The introduction of $M2M1_t$ also reduces the coefficient on GDP_t slightly and changes the dummy coefficients by various amounts. The percentage changes to the dummy coefficients are presented at the

bottom of Table 5.7 and can be interpreted as follows. Thus, the introduction of mark-to-market/fair value entries from the banking book to the model leads to an increase in average profit levels across all periods and the increase during the overshooting period just before the financial crisis ($DUMMY2_t$) is materially more than the increase during the preceding period. The impact on the undershooting period ($DUMMY3_t$) is to make the extent of the undershooting less extreme[8] and the impact on the financial yearend dummy variable ($REPORTING_t$) is to lessen the need to increase profits at yearend by other means. These results are consistent with the view that bankers use mark-to-market/fair value entries to increase average profit levels where possible and resist decreases in average profit levels where possible (this is similar to how Enron managers used mark-to-market (Gwilliam & Jackson, 2008:265)) Moreover, it is consistent with the view that bankers use mark-to-market/fair value entries to facilitate hitting the "right" profit level at yearend.

Winsorised samples were used in models (10) and (11) due to the presence of outliers in the data. The results were slightly stronger (better fit) and proved robust. The residuals from equation (11) were analysed for serial correlation and heteroskedasticity. The Breusch-Godfrey serial correlation LM test returned probabilities (0.4145; 0.3921) that implied the residuals were not serially correlated. The White heteroskedasticity test returned probabilities (0.0003; 0.0011; 0.0000) that implied the residuals were heteroskedastic. White heteroskedastic-consistant standard errors and covariance were thus used for all models in Table 5.7 as suggested in econometrics texts (Brooks, 2008:152; Gujarati, 2003: 418). The residuals of model (11) are available in the appendix.

A robustness check was done by using the alternative $M2M_t$ time-series, $M2M2_t$. As noted in section 4.3 above, the difference is that $M2M2_t$, for the period January 2001 to December 2007, contained the sum of mark-to-market entries from the trading book and mark-to-market entries from the banking book whereas during this period $M2M1_t$ only contained mark-to-market entries from the banking book. Model fit declined from model (11)'s adjusted R-squared of 0.6815 to 0.6483 and the coefficient on $M2M2_t$ was not significant (p-value of 0.1924). An interpretation is that the mark-to-market entries from the trading book add little to the volatility of total bank profit as these mostly hedge volatility found elsewhere in the

[8] Less extreme undershooting might seem counterintuitive. Empirical evidence shows that banks overvalued their financial assets during the crisis (Laux & Leuz, 2009:32; Huizinga & Laeven, 2009). Also see the discussion section to follow.

bank. Mark-to-market/fair value entries from the banking book add volatility to net profit and are not hedged away.

The findings indicate that mark-to-market/FVA entries from the banking book influence net profit of the South African banking sector materially. The resultant estimate of the transitory component of net profit after tax for the five largest South African banks for the years 2004 - 2008 is 0.19/0.9[9]=0.21.

Figure 5.2 shows that the large South African banks have been paying out increasing portions of profit after tax as dividends over the period 1994 to 2010. All else being equal, one might expect that during the boom years (2004 - 2008) a lesser portion of profits would be paid out as some of those profits were shown to be transitory in the profit analysis (21%).

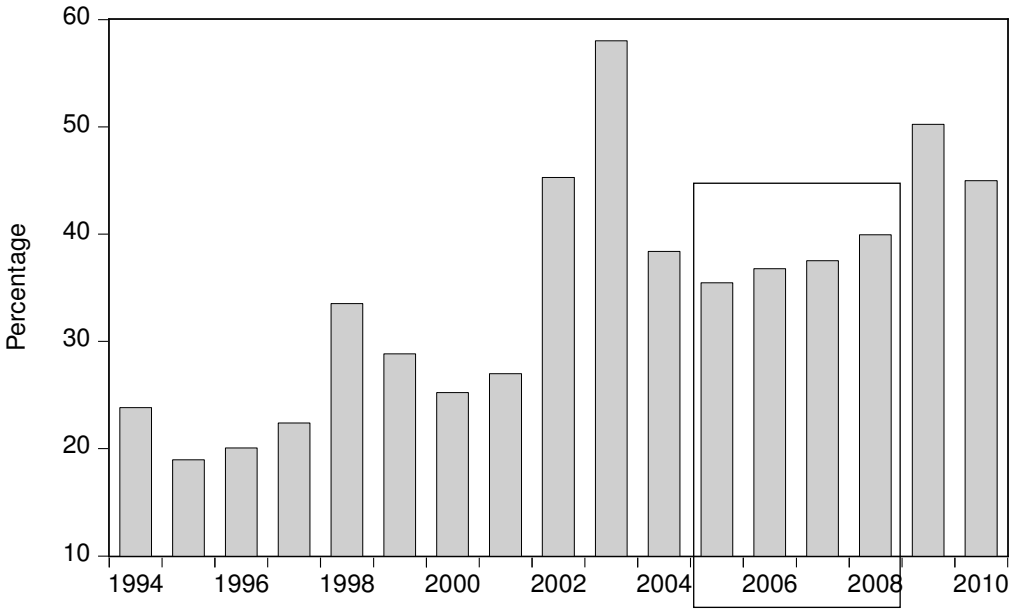

Figure 5.2 The percentage of total bank profit available for distribution paid out as a dividend (combined totals for the sample of 5 banks).

The period emphasised is the period covered by *DUMMY2*$_t$ in the profit regression that indicated that FVA entries from the banking book increased bank profit levels by 21%; all else being equal, a decreasing percentage of profit available for distribution paid out as a dividend would have been more appropriate.

6.3 *General discussion*

The dividend analysis showed that South African banks ignore transitory FVA gains when determining dividends but those gains might be immaterial. The profit analysis showed that FVA gains from the banking book, especially for the period 2004 to 2008 with an estimated

[9] The five largest South African banks represent about 90% of the South African bank market by assets and are the main users of FVA amongst the South African banks.

increase of 21%, materially raised profit levels. If the South African banks ignored these transitory elements of earnings when determining dividends then, all else equal, the proportion of profit paid out in the period 2004 until 2008 would have decreased. Figure 5.2 shows an increase.

An issue in the profit analysis that warrants discussion, the finding that FVA led to less extreme undershooting, (the impact on $DUMMY3_t$) is initially counterintuitive in the sense that FVA might be expected to amplify, more-or-less equally, both the upside and the downside of the cycle (procyclicality). Thus, these results warrant an explanation. First, the impact on the undershooting dummy is smaller than that on the overshooting dummy. Second, banks have "shock absorbers" available to them in the FVA rules to avoid these write-downs; they can argue that market prices are not correct and move to mark-to-model values and/or reclassify items held at "fair value" to "held at cost": this process was facilitated from October 2008, when accounting standards were changed to allow for the reclassification of financial instruments from "carried at fair value" to "carried at cost". Bischof, Brüggemann and Daske (2010) as well as Fiechter and Meyer (2011) found that banks made ample use of these opportunities. Third, realised FVA losses that would have materialised when banks sold FVA assets would not have been captured in the FVA income statement line.

Final models for both the profit analysis and the dividend analysis fitted the data well as indicated by high R^2 values and statistical significance. Results also proved robust during robustness tests. The reader is reminded of the link between the profit analysis and the dividend analysis. Thus, even though the profit analysis used total South African banking system data and not individual bank data, the link with bank specific dividend policy is that 90% of the South African banking system consists of the five banks covered by the dividend analysis. The finding that profit levels are increased by FVA during the business cycle upswing is thus directly relevant for the five banks in the dividend analysis where it was found that those banks did not seem to take into consideration, when setting their dividends, that FVA gains might possibly just be transitory.

Possible caveats include the fact that the banks in the study are all large universal banks. It is conceivable that the effects noted were due to the systemically important nature of these banks and that smaller banks might be less inclined to distribute unrealised profits. In

addition, most large South African firms have set up black empowerment schemes in which restricted shares were issued to previously disadvantaged individuals. The schemes usually involved payment over time for these shares, with payment made from the dividends earned. Thus the decision to pay a large dividend can be influenced by the need to ensure that black economic empowerment shareholders are adequately funded.

These caveats do fade slightly when the following changes in the annual financial report of one of the banks in the study are considered. The change confirms the conclusion that South African banks ignore transitory FVA gains in profit when determining dividends. The following paragraph first appeared in the 2010 financial statements of the particular bank and should be seen in the context of the drive for sustainability following the financial crisis. "The total capital plan includes a dividend policy, which is set in order to ensure sustainable dividend cover based on sustainable normalised earnings. This also takes into account volatile earnings brought on by FVA …" (Firstrand Limited, 2012:134). Whereas Goncharov and van Triest (2011:63) found that "… in all likelihood fair value adjustments lead to lower dividend pay-outs" the results in this paper indicate that in all likelihood fair value adjustments for banks lead to higher dividend pay-outs.

The payment of dividends from unrealised FVA profits during the upswing would have weakened the actual capital position of the South African banks. Capital represented by liquid assets left the system as dividends to be replaced by risky capital gains on less liquid assets; effectively reducing the quality of capital.

7. Conclusion

Previous researchers have attempted to establish a link between FVA and the financial crisis by looking at the crisis period itself but found little indication of a link. This paper argues that the link is rather to be found by looking at the period before the crisis.

What if transitory FVA gains increased profits during the boom and distributions were made from those transitory effects? That would imply a weaker financial system entering the crisis. A Russian study that investigated this question could test directly for the distributionary consequences of unrealised FVA gains because of a unique Russian disclosure requirement. This paper could not test directly whether unrealised FVA gains are relevant when setting

dividends because IFRS 7 does not require the disclosure of realised versus unrealised income statement items. As a result the conclusions of this study depend on three strands of evidence taken together.

A panel data regression of the change in dividends of the five largest South African banks shows that unrealised FVA gains were probably ignored when these banks made dividend decisions. This was also confirmed at a meeting of the Banking Project Group and from the financial statements of the banks following the crisis. The materiality of transitory FVA gains in profit was shown with a co-integrated regression of the monthly net profit of the total South African banking system; FVA entries from the banking book increased profits materially. The proportion of profits paid out as dividends showed that the banks did not decrease their dividends in response.

This example shows that when unrealised FVA gains are posted through profit and loss and end up in retained income, absent a specific regulatory requirement to track those risky gains, managers treat the new capital as risk free.

8. Link to next chapter

The next chapter of this study will develop a theoretical model through which to understand the role that banks, bank capital and as part of bank capital, FVA, play in the economy. The model provides an alternative perspective to the view that FVA only brings additional information into the accounting records. The argument that FVA is procyclical is shown within a formal model and nuanced with the argument that the role of FVA during a downturn is likely to be blunted by the flexibility allowed in FVA regulations. The chapter will start by reviewing the role of FVA in previous crises. Then it will suggest the use of a stock-flow consistent accounting model of the economy as the engine of the new model; this suggestion is made because of the inability of the standard economic models to capture the defining characteristics of the global financial crisis. Thereafter, the model will be developed and its implications considered. An empirical example will be given. The chapter will conclude with a consideration of the reasonableness and benefits of the new model.

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10. Appendix

10.1 *Additional evidence of statistical work done:*

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section and period fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.870575	(4,53)	0.1293
Cross-section Chi-square	10.564708	4	0.0319
Period F	1.945666	(15,53)	0.0388
Period Chi-square	35.094454	15	0.0024
Cross-Section/Period F	1.834715	(19,53)	0.0427
Cross-Section/Period Chi-square	40.435844	19	0.0029

Figure 5.3 Validity of fixed effects tests for model (2) of the dividend analysis.

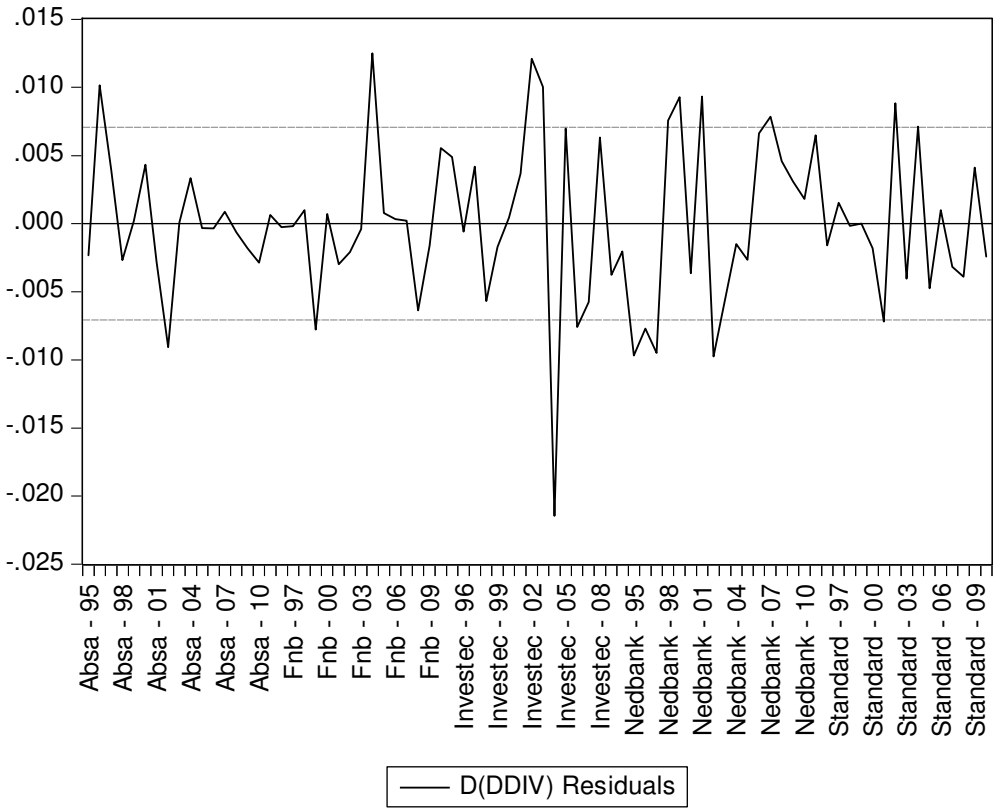

Figure 5.4 The residuals of model (3) of the dividend analysis.

Apart from the Investec (2004) outlier the residuals seems to be reasonably well behaved with no obvious patterns visible.

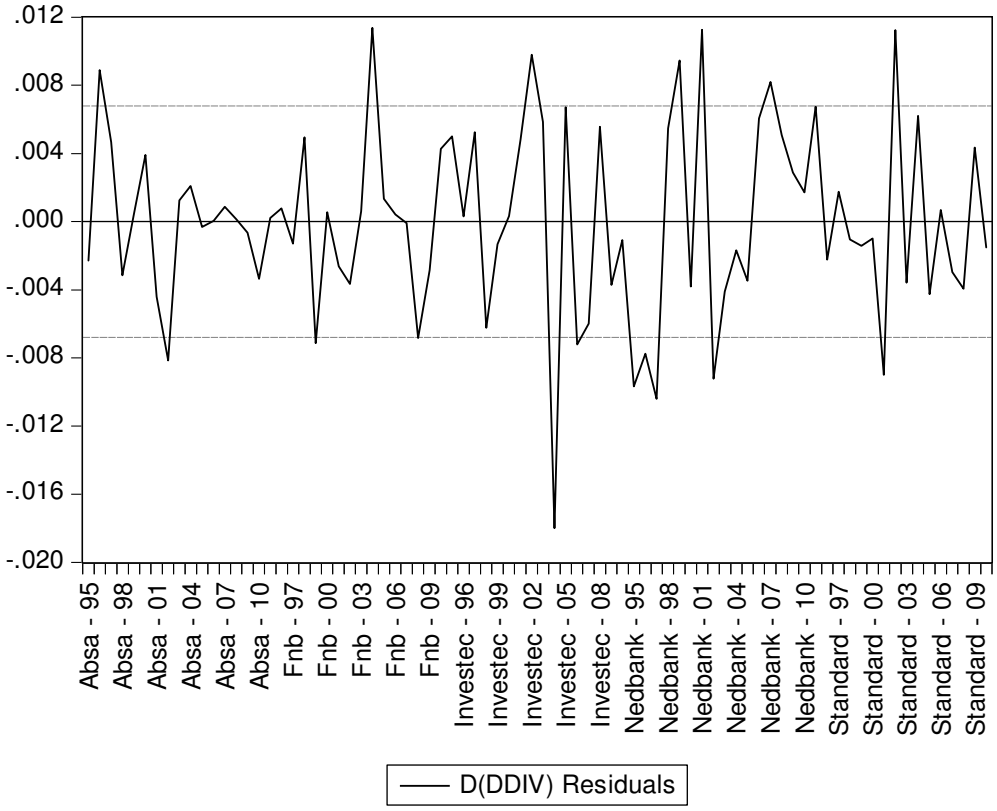

Figure 5.5 The residuals of model (6) of the dividend analysis.

Apart from a few outliers the residuals seems to be reasonably well behaved with no obvious patterns visible.

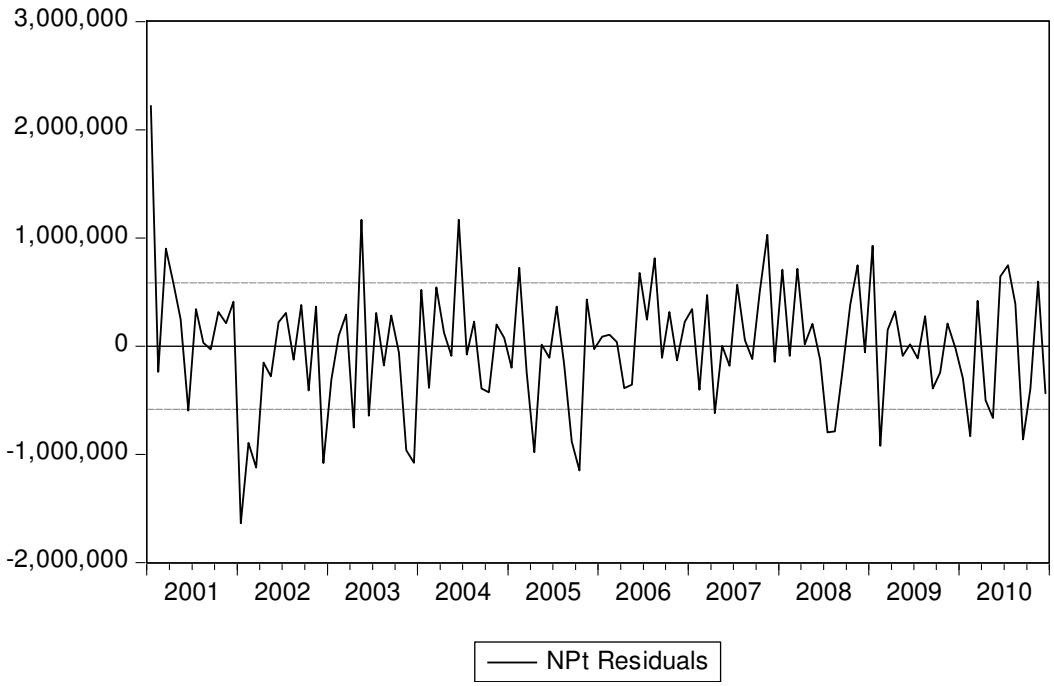

Figure 5.6 The residuals of model (11) of the profit analysis.

Apart from a few outliers the residuals seems to be reasonably well behaved with no obvious patterns visible.

CHAPTER SIX: FAIR VALUE ACCOUNTING, FRAGILE BANK BALANCE SHEETS AND CRISIS: A MODEL[1]

1. Synopsis[2]

The overall objective of the larger study is to investigate the role of FVA in the global financial crisis by gathering empirical evidence on the use of FVA by South African banks (with the focus on the time period before the crisis) and then to develop a theoretical perspective on the problem. Chapter two reviewed the global financial crisis and the role of FVA in the crisis. Chapter three, chapter four and chapter five combined are the South African case study. The findings showed how FVA was asymmetric in its application before and after the financial crisis and how FVA, bank asset expansion and pay-outs are possibly related. The main aim of this chapter is to develop a theoretical framework to understand how FVA (used by large banks) could have played a role in the global financial crisis with due consideration of the South African evidence.

This chapter does not focus on the research objective to investigate how banks practically applied FVA. Rather, the focus is on making theoretical sense of what was observed previously. The model demonstrates how FVA adjustments through profit and loss can set in motion feedback processes that lead to bank over indebtedness with a strong increase in debt financed assets. This focus on FVA adjustments through profit and loss (excluding FVA adjustments on AFS instruments) is an objective of the thesis. The example in the paper (appendix) shows how the fair valuation of a smaller portion of the asset book can lead to significant effects and fragility; thus contributing to the objective of the thesis to show that not all assets need be fair valued to be dangerous.

The published paper follows.

[1] Paper has been published in the journal *Accounting, organizations and society* (volume 39, issue 2 of 2014).
[2] The three main chapters are papers that have been published and are included in the thesis verbatim and are thus standalone papers. The *Guidelines for the inclusion of publications in a doctoral thesis* of the University of Cape Town require that each paper is prefaced by a synopsis of how the paper contributes to the thesis aims and objectives.

2. Abstract

A topic of recent interest in accounting research has been the investigation of the role of fair value accounting (FVA) in the global financial crisis. This research focused on finding a link during the crisis time-period and often states that "accounting is only a messenger". The model presented in this paper emphasises finding the link before the crisis and "accounting as money." Use is made of an accounting model of the economy due to the inability of standard models of monetary transmission to incorporate global financial crisis characteristics such as feedback effects, systemic risk and the centrality of the financial sector in the crisis. The model shows FVA in banks to be an accelerator that amplifies the financial cycle upswing. Feedback effects noted in the model include changes in the demand for financial instruments and changes in demand in the real economy. Minsky-like, crisis is shown to be endogenous to the model, working through the fragility of balance sheets in the real sector as well as in the financial sector. Bank balance sheet fragility is caused by bad capital driving out good capital, banks reaching for yield and the inversion of the yield curve. The model shows that the practice of not meeting rising credit demand with increasing credit supply is an essential control mechanism in the financial cycle.

3. Introduction

In 2012, more than four years after the Lehman Brothers failure, the aftermath of the global financial crisis was still felt, and stable, self-sustaining growth continued to elude the world economy (Bank for International Settlements, 2012: ix). Ryan (2008:1606) identified the global financial crisis as the "signal researchable-teachable moment of my two-decade-plus career as an accounting academic". Numerous authors have started to investigate the link between accounting (usually FVA) and the crisis (Badertscher, Burks & Easton, 2012; Ball, 2008; Barth & Landsman, 2010; Laux & Leuz, 2009; Laux & Leuz, 2010; Magnan, 2009; Plantin, Sapra & Shin, 2008; Pozen, 2009; Shaffer, 2010; United States Securities and Exchange Commission, 2008; Veron, 2008; Wallace, 2009). These studies tend to focus on establishing the link between FVA and the crisis during the time-period of the crisis.[3] It is the argument of this paper that the focus should rather be on the time-period before the crisis (the upswing); this corresponds with one of Pinnuck's (2012:5) conclusions in his review of the

[3] Readers are referred to section 3.4 in the literature review where the few arguments for FVA's role during the upswing are discussed.

role of financial reporting in the crisis that "the existing debate has focused on the role of FVA during the crisis, but has ignored the possibility that the illusory FV gains on subprime securities before the crisis may have masked some of the underlying problems". In addition, some of the studies (Ball, 2008; Wallace, 2009) argued that accounting was only a messenger and thus should not be linked to the crisis. A number of the remaining studies (Laux & Leuz, 2009:826; Magnan, 2009:191; Pozen, 2009:86; United States Securities and Exchange Commission, 2009:2) mention this pervasive argument; this paper argues against this view.

The primary objective of this paper is to provide a reasonable alternative perspective on the relationship between FVA and the global financial crisis; a perspective that focuses on finding the link before the crisis (during the upswing) and one that reminds accountants that in banking, accounting is more than just a messenger: when bank deposits are created by accounting entries, accounting is money. To this end, a model will be developed in this paper that demonstrates the link between accounting and bank capital regulations and helps to aid understanding of the global financial crisis. The paper answers the call by Arnold (2009:806) to "stimulate a revival of accounting scholarship aimed at understanding the relationship between accounting practice and the macro political and economic environment in which it operates".

The nexus of the model to be developed will be the impact of FVA on the regulatory capital of banks. Not all FVA entries impact banks' regulatory capital. The general principle in Basel II is that Tier 1 capital should be equity capital made up from permanent shareholders' equity and disclosed reserves that, importantly, must have been posted through profit and loss (Bank for International Settlements, 2006:245). Thus, only FVA entries related to trading instruments or instruments designated at fair value are relevant for the model when values increase. FVA increases in the value of available-for-sale instruments are not covered because those increases would be excluded from regulatory capital. When values decrease, other-than-temporary-impairments of available-for-sale instruments become relevant as these are posted through profit and loss. Shaffer (2010) investigated the role of FVA in the global financial crisis by looking only at FVA for available-for-sale instruments. He argued for the exclusion of FVA entries emanating from the trading book because "There are few who would argue that fair value is inappropriate for measuring investments held for trading purposes where deep and active markets exist" (Shaffer, 2010:10). However, if most instruments held for trading purposes were traded on deep and active markets, then they

would have been shown at level 1 (mark-to-market) on the fair value hierarchy. The United States Securities and Exchange Commission (2008:62) found that in the case of banks, most derivatives and trading assets were at level 2 and not at level 1; this was especially true for investment banks where almost all derivatives and trading assets were at level 2 and not level 1. The conclusion is thus that trading assets and derivatives were not traded on deep and active markets and that the exclusion of FVA adjustments on those instruments was not justified. In addition to the exclusion of FVA entries emanating from the trading book, Shaffer (2010:10) also argued for the exclusion of FVA entries emanating from "designated at fair value" instruments as this designation was "an explicit decision by management to value these assets this way and thus they are not included in the analysis". The implicit assumption that management will not abuse the fair value option is questionable. An example of the impact of the preceding arguments will help to illustrate this. Assume, therefore, that Bank X buys piecemeal $1 billion of AAA rated subprime securities yielding 5% whilst "normal" AAA securities yield 3%[4] with an assumed maturity of 10 years (monthly). The portfolio of securities is then designated at fair value and carried at level 2 of the fair value hierarchy. The financial result of the foregoing is an immediate gain of $98 million (payments on $1 billion at 5% interest for 10 years present valued at 3% less the cost of $1 billion) posted to net profit. Badertscher, Burks and Easton (2012) and Barth and Landsman (2010) continued this exclusive focus on FVA for available-for-sale instruments as the only possible avenue through which FVA could have played a role in the global financial crisis. In contrast, for the reasons explained above, the model in this study is based on the assumption that FVA materially impacts profit and regulatory capital; this is one of the contributions that this study makes to the accounting literature. Evidence for the significance of FVA entries that affect profit and loss can be found in the study by the United States Securities and Exchange Commission (2008:4) which observed that "fair value measurements did significantly affect financial institutions' reported income".

In addition, this study contributes to accounting literature in the following specific ways. Thus, several writers have argued that FVA is procyclical (Enria, Cappiello, Dierick, Grittini, Haralambous, Maddaloni, Molitor, Pires, & Poloni, 2004:45; Laux & Leuz, 2009:828); their views are repeated in this paper but this time within a formal framework and nuanced with

[4] Even though instruments derived from securitised subprime mortgages were often rated AAA (investment grade) by rating agencies prior to the crisis, those instruments continued to offer higher returns than "normal" AAA securities (Lo, 2012:152).

the argument that the role of FVA during a downturn is likely to be blunted by the flexibility allowed in FVA regulations. An implication of the foregoing is that the role of FVA in the global financial crisis should rather be sought before or after the crisis and not during the crisis. The model developed explains why McMahon (2011:54) is accurate when stating "Mark-to-market feedback loops are not exclusive to declining periods – feedback loops also occur during upswings, *although not quite as fast*" (this paper's emphasis). The model shows that the seeds for the coming downturn are sown during the upswing with the purest role for FVA being the replacement in bank capital of liquid assets with unrealised (and thus risky) FVA gains; bad capital driving out good capital. The simple running example used to demonstrate the model that follows shows how a small change in the value of fair valued assets can lead to a much larger effect (a factor of 16 in the example but 30 is not uncommon) on a bank's balance sheet; this contradicts the argument that the fair value measurement of financial instruments must be pervasive to be dangerous (Gebhardt, 2012:267&271; United States Securities and Exchange Commission, 2008:4).

The model also makes a potential contribution to monetary economics. Hyman Minsky's financial instability hypothesis benefited from the global financial crisis in the sense that many saw the crisis as confirming his predictions (see for example Krugman, 2009; Lahart, 2007; Wolf, 2008). Minsky's "notion of the firm as a balance sheet of assets and liabilities, as opposed to the [traditional] notion of the firm as an entrepreneur making production decisions" (Toporowski, 2008:730) can be linked to the type of model developed in this paper; a balance sheet centred model. The argument that fragility develops in the balance sheets of the real economy is repeated in the model described in this paper, and is similar to the way the "basic Minsky cycle concerns the evolution of patterns of financing arrangements and it captures the phenomenon of emerging financial fragility in business and household balance sheets" (Palley, 2010:30). The model described in this paper is different in the way the focus is not on this fragility of individuals' or businesses' balance sheets but rather on how fragility develops in the balance sheets of banks. This aligns with the "complete reversal of the traditional monetary circuit, where the banking system is assumed to finance business sector activity" and "it is the dynamics of the banks/financial markets axis […] which has taken center stage" (Bellofiore & Passarella, 2010:10).

A second area where a contribution to monetary economics is possible is in the presentation and exploration of the impact of FVA to an audience of economists. Godley and Lavoie

(2012: Preface xxxvii) write that by not understanding inflation accounting in the 1970s, economists underestimated "the extent to which stocks of financial assets would rise in nominal terms" resulting in "some bad projections". Similarly FVA can result in a significant increase in the nominal values of financial assets during an upswing. The model developed in this paper also has important links with a recent paper by Claudio Borio, the Deputy Head of the Monetary and Economic Department and Director of Research and Statistics at the Bank for International Settlements (Borio, 2012). He calls for the study of the "financial cycle" as part of macroeconomics (Borio, 2012:1) and adds that a "financial boom should not just precede the bust but cause it" (Borio, 2012:8); this call ties in with this paper's focus on the time-period before the crisis. He reminds us that "the financial system does not just allocate, but also generates, purchasing power" (Borio, 2012:2) which ties back to accounting as money.

Bezemer (2010:676) referred to the need for an alternative perspective on the link between accounting and the global financial crisis; in doing so, he pointed out that "'accounting' (or flow-of-funds) models of the economy are the shared mindset of those analysts who worried about a credit-cum-debt crisis followed by recession, before the policy and academic establishment did. They are 'accounting' models in the sense that they represent households', firms' and governments' balance sheets and their interrelations." Accounting models are also used in two other streams of literature related to this paper. Macroeconomic accounting (national accounting) is argued to be both a measure of macroeconomic reality and a constituent of that reality (Suzuki, 2003). Similarly in this paper accounting both measures the extent of bank balance sheets and indirectly impacts those balance sheets with its effect on the money supply. Andersson, Lee, Theodosopoulos, Yin and Haslam (2014:79), within the literature on the financialization of the economy, argue that "this process of financialization can best be understood within an augmented accounting framework …" Other reasons why a stock-flow consistent accounting framework of the economy[5] was chosen as a foundation for the model developed in this paper include the role of balance sheets in past crises and the need to incorporate global financial crisis characteristics such as feedback effects, systemic risk and the centrality of the financial sector in the model. This choice of model is in contrast to the more mainstream theories of the monetary transmission

[5] According to Bellofiore and Passarella (2010:7) these models are "dynamic, consider the effects of stock magnitudes on flow variables, and explicitly represent the role of the banking system". The model developed in this paper can be described similarly.

mechanism. A difference between the typical stock-flow consistent accounting model and the model described in this paper is that the supply of credit is not assumed simply to be a response to the demand for credit; instead, this paper starts with the supply of credit and its influence on the demand for it. In this way it aims to be aligned better with what was observed during the global financial crisis; that is, an oversupply of credit before the crisis and an undersupply afterwards.

The model developed in this paper describes and explains many of the characteristics of the global financial crisis as well as aspects of other past crises. It is shown how the change in banks' capital ratios that result from FVA can set in motion a procyclical process with the initial aim being the restoration of the earlier capital ratio. A debt-financed expansion of bank balance sheets and/or the payment of remuneration and dividends results from increases in fair value. The shrinkage of bank balance sheets can result from a decrease in fair value but, arguably, can be blunted by management action and the flexibility in FVA. Feedback effects in the model maintain the momentum in the system once in motion. The feedback effects are the result of the additional (or decreased) demand for financial assets generated as well as the additional (or decreased) spending power made available to the real economy. In the instance where the additional spending power (or decrease in spending power, as the case may be) is made available solely to the banking sector the feedback effects are strongest. The model also highlights the role of four processes that can result in a crisis/regime change. The first of these is the increased fragility of real economy balance sheets during an expansion. The second and third relate to two sources of bank balance sheet fragility; bad capital driving out good capital and the reach for yield. Lastly, interbank transactions lead to a yield curve inversion effect, depriving banks of the easy profits available from maturity transformation; causing more reach for yield. The crisis attributes explained by the model include the booms in predatory lending and also the payment of dividends and remuneration during the upswing, understanding the growth in the financial sector relative to the real sector, illuminating the temporary impact of the reprieve obtained from FVA during the downturn and explaining the occurrence of the Great Moderation. In the final discussion the benefit of the perspective offered by the model in this paper will briefly be illustrated by using it to understand the results of another study by Cabral (2012) on banks and the global financial crisis.

The paper proceeds as follows: section 4 sets the scene by presenting FVA and briefly discussing the role of FVA in previous crises; section 5 positions the model developed within

the monetary economics literature; section 6 develops and discusses the model proposed; section 7 provides an empirical example where the model is used to interpret the information; section 8 discusses the implications, shortcomings and opportunities for further research resulting from the model and section 9 provides the conclusion.

4. The historic role of FVA in crises

The purpose of this section is to overview the impact of FVA during past crises. The information obtained will be useful to benchmark the reasonableness of the model that will be developed later in this paper. The crises included in this overview are the Great Depression, the savings and loans (S&L) crisis, the Enron crisis and the global financial crisis. But, first it is necessary to define FVA, to differentiate it from mark-to-market accounting and to consider carefully how FVA impacts bank regulatory capital.

FVA is more complex than mark-to-market accounting. Fair value is the exchange value in an idealised market and can be determined in three ways, in order of preference[6] (the definitions that follow are based on the annual financial statements of Investec Bank Limited (Investec Bank Limited, 2012:148):

- Mark-to-market accounting (level 1): Quoted (unadjusted) prices in active markets for identical instruments.
- Mix of mark-to-market accounting and modelling (level 2): Model inputs other than quoted prices included within level 1 that are observable for the instruments, either directly (i.e. as prices) or indirectly (i.e. derived from prices). This paper interprets this to mean the modelling of inputs that are publically observable.
- Mark-to-model (level 3): Significant model inputs are not based on observable market data.

FVA is thus more complicated than mark-to-market accounting, but the two are closely related. For brevity this paper will treat the two as equivalent.

[6] A formal order of preference only entered accounting standards under the International Accounting Standards Board (IASB) in October 2008 with an amendment to International Accounting Standard (IAS) 39 which adopted the American tiered system of fair value determination.

4.1 *The Great Depression*

According to Scott (2009:3) the frequent upwards revaluation of capital assets was one of the practices of the 1920s to receive criticism after the crisis. This advanced the case for historical cost accounting. Zeff (2007) concurs and writes that the United States of America was a bastion of predominantly historical cost accounting for inventories and fixed assets from 1934 to the 1970s. Pressure from the Securities and Exchange Commission was a driving force behind this insistence on historical cost accounting.

The use of mark-to-market accounting in banks during the Great Depression can be found in the work of Milton Friedman and Anna Schwartz (1971: Chpt. 7, 100-102). They describe and provide evidence of how the fall in the market value of bond portfolios was the most important source of bank capital impairment during the Great Depression. They also point out that, paradoxically, the most liquid assets were the most serious threat to bank solvency due to the mark-to-market regime for liquid assets rather than bonds for "which there was no good market and few quotations" carried at cost. The United States Securities and Exchange Commission (2008:34) wrote that mark-to-market accounting for banks was changed in 1938 for reasons that included the impact of mark-to-market accounting on bank behaviour: "Further, prior to 1938, banking organizations were required for supervisory purposes to use market value accounting for their investment securities portfolios. Serious concerns on the part of the U.S. Treasury and the bank regulators over how this affected the banks' financial performance and investment decisions led the agencies to abandon in that year the use of this accounting concept for supervisory purposes".

Financial economist Irving Fisher (1933) wrote that over-indebtedness and deflation were the two dominant factors in all the great booms and depressions. He then proceeded to describe a chain of consequences in a depression with numerous feedback mechanisms driving distressed selling of assets.

The findings from the Great Depression indicate a role for mark-to-market accounting in banks before and during the crisis. The upward valuation of selected financial instruments during the upswing could have made banks appear healthier, contributing to the over indebtedness of banks and individuals. Moreover, the mark-to-market accounting of liquid bond portfolios was clearly shown by Milton Friedman and Anna Schwartz (1971) to have a

negative effect on bank lending during the downturn. Both of these effects involve feedback processes.

4.2 *The savings and loans crisis*

The savings and loans (S&L) crisis of the 1980s and 1990s was caused by the failure of a significant proportion of the savings and loan associations in the United States of America. A savings and loan association or "thrift" is a financial institution that accepts deposits and makes mortgage, car and other personal loans to individual members.

According to Black (2005:xiii) "a wave of control fraud ravaged the S&L industry". In a later publication he writes: "Control fraud occurs when the executives at a seemingly legitimate firm use their control to loot the firm and its shareholders and creditors" (Black, 2011). Accounting is strongly linked by Black to control fraud: "Control frauds, using accounting fraud as their primary weapon and shield, typically report sensational profits, followed by catastrophic failure. These fictitious profits provide the means for sophisticated, fraudulent CEOs to use common corporate mechanisms such as stock bonuses to convert firm assets to their personal benefit" (Black, 2005:xiv). Akerlof and Romer (1993:2) ascribe what happened to looting; "to go broke for profit at society's expense". They continue: "Bankruptcy for profit will occur if poor accounting, lax regulation, or low penalties for abuse give owners an incentive to pay themselves more than their firms are worth and then default…" It is clear that accounting is important in both instances to justify high corporate pay-outs.

The accounting profession focused attention on another aspect of the crisis. Most thrifts extended loans on a fixed cost basis and obtained capital on a variable cost basis. When interest rates rose in the 1980s, the industry found itself in a difficult position: assets were generating less return than the cost of financing them. Accountants argued that historical cost accounting was hiding the bankruptcy of the thrifts and that the fair valuation of the thrifts' assets would have revealed these problems (Young, 1995:72-75).

The findings from the S&L crisis indicate a role for accounting in thrifts before and during the crisis. Fictitious profits can be used to make an institution seem healthier and to justify unreasonable pay-outs. During the downturn FVA could have contributed towards revealing the bankruptcy of the thrifts.

4.3 *The Enron crisis*

The Enron crisis was not nearly as systemic or important as the other crises. Nevertheless, it does deserve a mention in relation to the role of FVA in that crisis. Benston (2006:465) finds that FVA was "substantially responsible" for the demise of Enron. FVA in Enron was used "opportunistically to inflate reported net income" and rationalise excessive remuneration (Benston, 2006:466). FVA rarely reduced income as "contrary to the way fair-value accounting should be used, reductions in value rarely were recognized and recorded because they either were ignored or were assumed to be temporary." (Benston, 2006:466). FVA is also mentioned in another American scandal during the same time period. Einhorn (2010:398) writes "…as the crisis unfolded (it became apparent) that Allied's abuse of fair-value accounting was more prevalent in corporate America than I had realized" in his telling of the Allied scandal that he was involved in during the 2000s.

4.4 *The global financial crisis*

The global financial crisis was triggered by a sharp fall in house prices in the United States of America (Posner, 2009:vii). It grew from the subprime crisis, into the credit crisis, then into a financial crisis and finally into a global financial crisis. There are opinions that accounting, especially FVA, played a key role in causing or at least in worsening the crisis. At the extreme end of this viewpoint is the opinion held by Steve Forbes, chairman of Forbes Media, that mark-to-market accounting was the "principal reason" that the financial system melted down in 2008 (Pozen, 2009:85). It was mentioned in the introduction that most accounting research focused on the role of FVA during the crisis and found limited evidence of a significant role at that time. This is to be expected as FVA contains at least two built-in mechanisms by which banks can avoid recognising losses; see section 5.2 for a detailed description.

Theoretical models by Allen and Carletti (2008) and by Plantin, Sapra and Shin (2008) examined the impact of mark-to-market accounting on capital markets and show that mark-to-market accounting worsens a downturn. Their studies have a shortcoming when attempting to explain the global financial crisis; mark-to-market accounting is not the same as FVA and thus managers can use the flexibility inherent in fair value accounting to not accept market values that they believe are incorrect. This is argued by Laux and Leuz (2009:827) who also acknowledge that FVA can be procyclical both during the boom and the bust and that behavioural issues can make implementation of FVA difficult. They argue that the increase in

profit and capital from asset value increases under FVA is also available as "gains trading" under historical cost accounting and thus that the two types of accounting are similar during the upswing, but this argument is not exactly correct. FVA is a much faster process than gains trading that is inherently lumpy. Bonuses and dividends paid from gains trading are paid from increased cash resources whilst bonuses and dividends from FVA gains only decrease cash resources. The implication is that FVA is more able than gains trading to be at the centre of a feedback process and that FVA during a boom can leave the banking system with reduced cash resources.

A role for FVA during the upswing is less clear from accounting research but evidence from before the crisis is starting to appear. Livne, Markarian and Milne (2011) find that FVA gains are remuneration relevant. In the popular press it seems to be common knowledge that FVA allowed the payment of remuneration and dividends from imaginary[7] profits during the boom (Haldane, 2011; Kay, 2009; Kay, 2012; Mundy, 2012; Taylor, 2009; Wood, 2010). The effect of such payments would be to weaken the banking system as risk-free capital in the form of liquid assets left the banks to be replaced by risky capital (potentially temporary value increases). McMahon (2011) proposes that FVA plays an integral role in feedback loops behind excessive lending (and remuneration) during the boom and a lack of lending during the bust. Magnan (2009:207) argues that a feedback loop exists between FVA and market prices working through the information channel. Khan (2010:5) does not find support that the information channel is behind "the increased bank contagion during crises associated with a more fair value-oriented reporting regime". The focus of this paper is on the money channel.

4.5 *Conclusion from review of crises*

One factor common to all of the four crises reviewed was the role of firm (including banks) balance sheets. The crises have indicated a role for FVA both before and after each crisis. Before a crisis, FVA can lead to firms or banks appearing healthier than they are (Enron is a prime example) and can thus facilitate further asset expansion financed by debt (a feedback process). Based on what happened during the S&L crisis it could be expected that FVA would reveal problems faster than historical cost accounting. But this revelation by FVA during the downturn can lead to a downward spiral with forced sales of assets and shrinking

[7] Terms used include "imaginary profits", "spurious profits" and "unreliable gains".

balance sheets (another feedback process); alternatively this might not happen at all, as argued in sections 3.4 and 5.2.

5. Monetary transmission mechanism

The model to be developed *inter alia* describes the interaction between the real and the financial economy. This section starts by describing the mainstream explanations for how money affects the real economy. Thereafter, arguments are presented for a natural progression to Post-Keynesian stock-flow consistent accounting models of the economy. Similarities and differences between the model developed in this paper and the standard stock-flow consistent accounting framework will round off this section.

According to Mankiw (2007:83) the quantity theory of money provides the leading explanation of how money affects the economy in the long run. According to this theory the money supply has a direct, proportional relationship to the price level. In the long run "monetary neutrality is approximately correct" (Mankiw, 2007:109). The main difficulty with this approach is that central banks cannot and do not attempt directly to control the rate of growth of the money supply (Howelss & Bain, 2008:273). A more realistic approach should start with short-term interest rates as a policy instrument. Howless and Bain (2008:273) refer to the interest rate control approach as an example of endogenous money and explain that money supply, via bank actions, adjusts to credit demand. The latter approach is more realistic and, importantly, places commercial banks in the middle of the money supply process, but the neutrality of money assumption is maintained.

The neutrality of money argument is difficult to sustain in the short run (Mankiw, 2007:536) and arguably even in the long run when one considers that both the Great Depression and the global financial crisis started in the financial sector and thereafter engulfed the real economy for several years. In addition, accounting-orientated academic papers were published, after the global financial crisis, which encouraged researchers to find links between accounting and macroeconomic outcomes (Arnold, 2009; Bezemer, 2010). The paper by Bezemer, amongst other things, introduced accounting (or stock-flow consistent) macroeconomic models.

Authors such as Keen (2011), and Godley and Lavoie (2012) present explicit accounting models of the economy where accounting identities (not the equilibrium concept) are the determinants of model outcomes in response to shocks in the environment or in policy (Bezemer, 2010:679). In addition to this obvious link to accounting, there are other reasons why this type of model forms a firm foundation for the development of a model of bank behaviour, described in this paper, that links FVA, bank capital regulation, management behaviour and real economic outcomes. These models are not static or based on equilibrium and can thus accommodate certain defining characteristics of the global financial crisis, feedback effects (Bank for International Settlements, 2012; McMahon, 2011; Soros, 2012) and the related concept of too-big-to-fail banks (Haldane, 2011). The models are also not built up from individual behaviour and summated to systemic behaviour (microfoundations); they can therefore incorporate, easily, emergent properties such as systemic risk. Finally, the models emphasise banks (and the provision of credit) (Godley & Lavoie, 2012:17; Keen, 2011) which is the sector most impacted by FVA.

Another author who emphasised the role of banks in the economy and who rapidly gained prominence after the global financial crisis was Hyman Minsky (Bellofiore & Passarella, 2010; Keen, 2011). Minsky's Financial Instability Hypothesis is based on the idea that in times of financial stability the actors in the system and the system itself move towards financial fragility. His focus on balance sheets and the idea that the key to the downturn is to be found during the preceding upswing will be incorporated into the suggested model. A typical schematic overview of a stock-flow consistent model is shown in Figure 6.1 below:

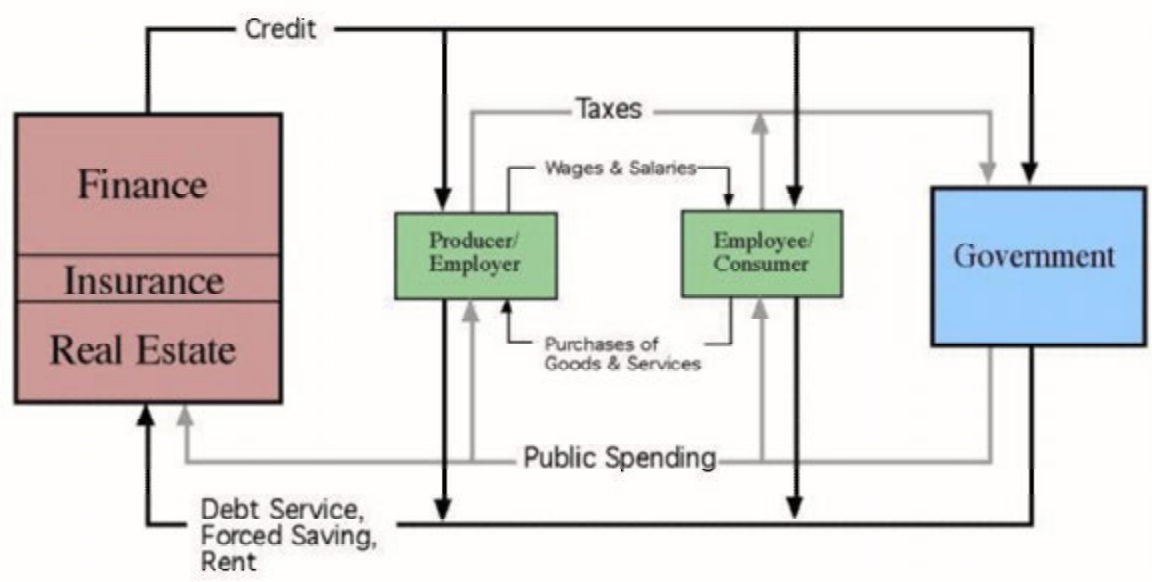

Figure 6.1 Typical stock-flow consistent model of the economy. Source: Bezemer (2010:683).

The model to be presented in this paper is much simpler and its advantage is that the concepts under investigation are emphasised. An arguably negative impact is that the model is a partial one in the sense that it does not describe everything about a modern economy. However, this partial perspective does meet the Friedman significance level of "explain much by little" (Friedman, 1953:14). In the model the real economy including consumers, producers and government, is collapsed into one and the financial sector consists of a combination of two banks (see Figure 6.2).

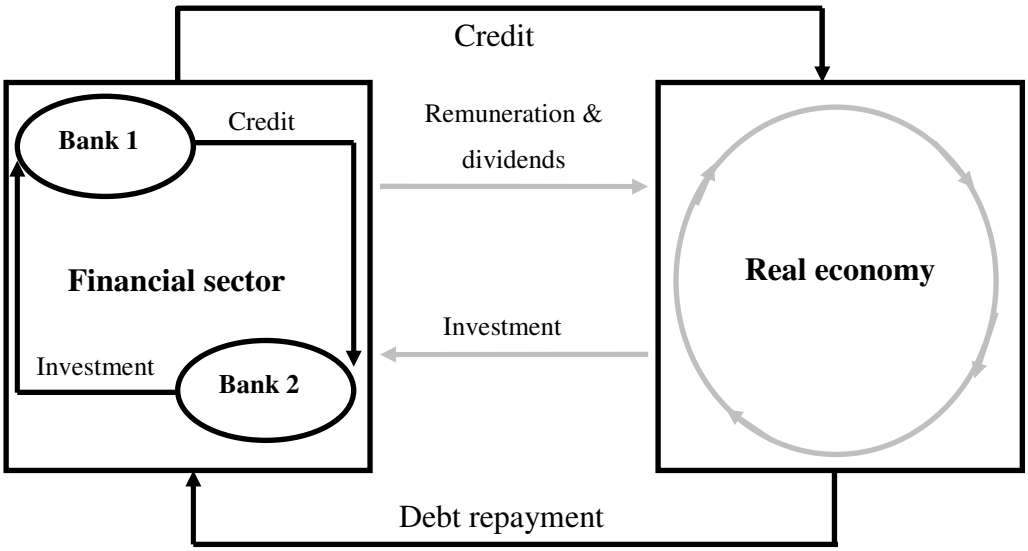

Figure 6.2 Schematic representation of the model developed in this paper (this is the final completed model; the schematic representations depicting the development of the model are included in the Appendix and numbered Figures A – E).

The model developed and described below is Post-Keynesian in the sense that the principle of effective demand is assumed to hold in the real markets; that is, markets do not automatically clear. An important difference from the typical flow-of-funds model is that credit supply is not assumed just to be a response to credit demand (endogenous money supply) (Godley & Lavoie, 2012:127-128). On the contrary, bank behaviour is assumed to influence credit supply. This assumption is consistent with what was found during and after the global financial crisis; an oversupply of credit before the crisis and an undersupply after the crisis (Bank of England, 2009:43; Bank for International Settlements, 2012:ix & 1; International Monetary Fund, 2012:xi & 12; The Independent Commission on Banking, 2011:8 & 16). This primacy of credit supply is also supported by a letter from Dr John Whiteman in the *Financial Times* (Whiteman, 2012) where he states that "…borrowing is not driven by the price of credit (as common sense might assume), but rather by the sheer availability of credit in the first place". The argument is perhaps best made with a quote from the CEO of a micro-lender (African Bank Limited) in South Africa: "A credit cycle is always going to be driven from a supply dynamic, not a demand dynamic and markets overheat because suppliers push too much credit into the system" (Rees, 2013).

6. Model Development

6.1 *Basic model*

The initial model is based on the work of Masaki Kusano (Kusano, 2011). The familiar accounting equation of *Assets (A) – Liabilities (L) = Equity (E)* is the starting point in the development of his model that links accounting capital with bank capital regulation and bank asset expansion. This section will then add the payment of remuneration and dividends from FVA gains to his model as well as consider the results of the model when FVA generates losses.

Bank management are incentivised to minimise the capital ratio ($C_0 = \frac{A-L}{A}$) as this will maximise return on equity, arguably the most popular bank performance metric as it is a measure of the rate of return flowing to shareholders (Rose & Hudgins, 2008:167). Of course, bank regulators do not allow banks to leverage to infinity and they demand that banks keep a minimum capital buffer to protect depositors in the case of default. The calculation of $\frac{\partial C_0}{\partial A}$ shows that the capital ratio defined above is directly related to the value of assets:

$$\frac{\partial C_0}{\partial A} = \frac{L}{A^2} > 0. \quad (1)$$

The implication is that an increase in asset values will increase the capital ratio (which is bad for return on equity); management will want somehow to manage or neutralise this increase in the capital ratio. The capital ratios[8] of the five largest South African universal banks for the period before the global financial crisis illustrate this point (based on data provided by the South African Reserve Bank). The period was one of high bank profits (by fair value accounting and other means) and yet capital ratios stayed steady or declined; high profits, *ceteris paribus*, should have increased the capital ratio.

[8] This is the capital ratio as defined immediately above ($C_0 = \frac{A-L}{A}$) and not the Basel "risk-weighted" capital ratio. In effect this method risk-weights all assets at 100%.

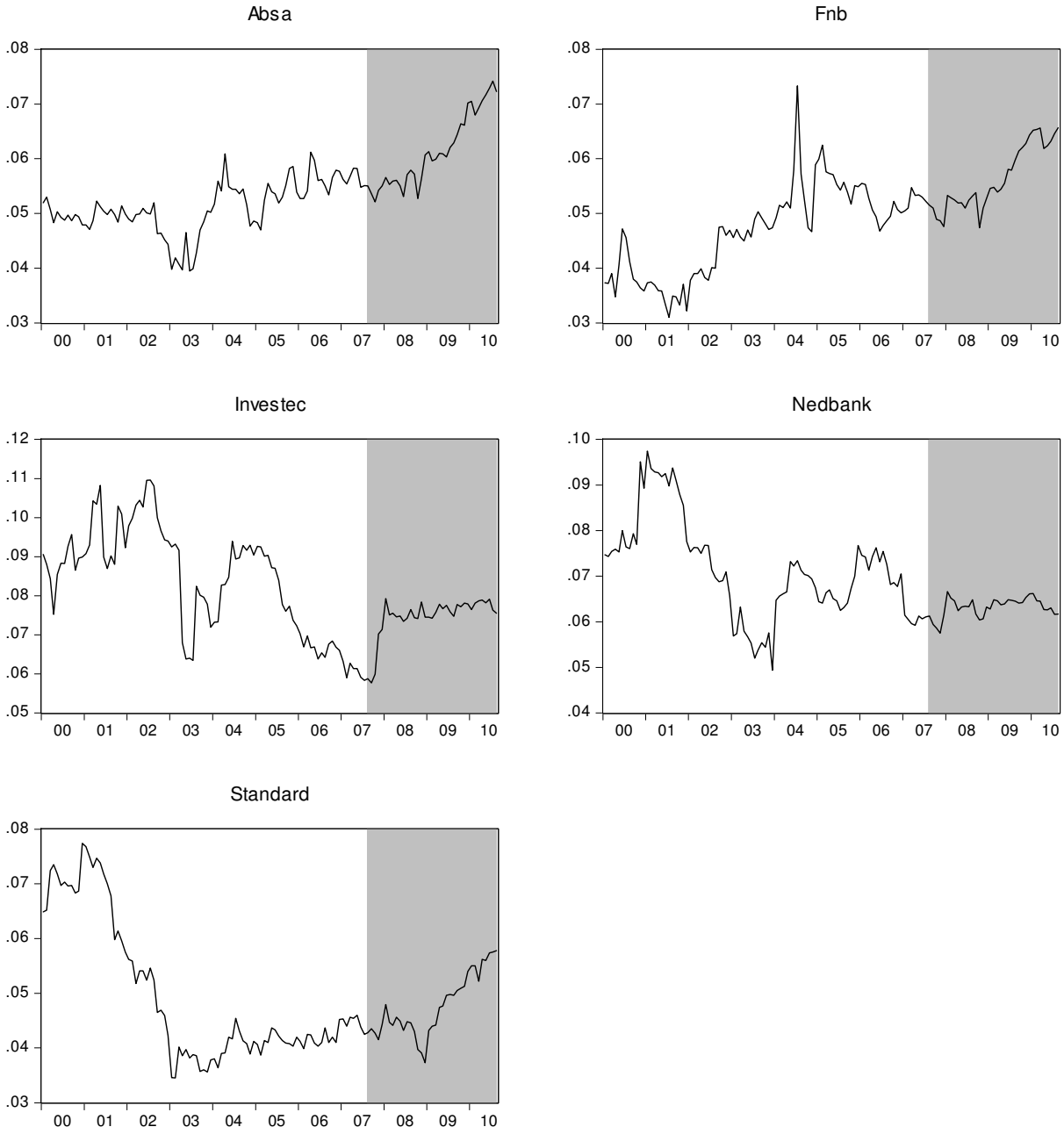

Figure 6.3 Monthly capital ratio per bank January 2000 – August 2010 (shaded areas indicate post crisis time period).

The Basel capital accords define their own version of the capital ratio, where accounting capital is expressed as a ratio of risk-weighted assets:

$$C_1 = \frac{A-L}{\sum r_i a_i}, \tag{2}$$

where $A = \sum a_i$ or the total asset value of the bank is the sum of the individual assets, L is the total value of the liabilities of the bank and r_i is the risk-weight applicable to each asset a_i according to the Basel Accords.

Suppose that the market value of all assets[9] increases by a constant λ, where $\lambda = \lambda(t)$ and $\lambda > 0$.[10] The total asset value A is now equal to $(1 + \lambda)A$. If assets are measured at fair value then during an upswing the capital ratio can be written as:

$$C_2 = \frac{(1+\lambda)A - L}{(1+\mu)\sum r_i a_i}, \tag{3}$$

where μ is the increase in the total of risk-weighted assets. As the risk-weights under the Basel Accords[11] in general meets $0 \leq r_i \leq 1$ the following can be assumed: $0 < \mu \leq \lambda$.[12]

Assuming that management is planning to neutralise the increase in the capital ratio by investing in additional assets denoted by B and fully financed by debt[13] the following equation is obtained:

$$C_2 = \frac{(1+\lambda)A + B - (L+B)}{(1+\mu)\sum r_i a_i + r_j B} = \frac{A - L}{\sum r_i a_i} = C_1, \tag{4}$$

where r_j is the risk-weight of the originated/purchased, debt-financed assets. It should be noted that although the B added to the asset base and the B added to liabilities are of the same value, the Bs are not different sides of the same financial instrument.[14] The increase in deposits increases the money supply or the spending power available in the economy. Solving for B:

[9] All the assets of a bank are not normally fair valued but the complexity of modelling different types of assets is not necessary. Refer to the example in the appendix where a bank is assumed to have \$30 of fair valued assets (through profit and loss) and \$70 of historical cost assets. If the market value of the fair valued assets increases by 10% and the tax rate is 30% then the value of λ is (30*(10%*(1-30%)))/(30+70) = 2.1%.

[10] It may seem as if the possibility that liabilities can also experience an increase in market value when assets increase in market value is ignored. Given that banks mostly own interest-rate sensitive assets of longer maturity than their interest-rate sensitive liabilities, it is to be expected that $\Delta A \geq \Delta L$ when interest rates decrease. This state of affairs can be just as effectively modelled with ΔA and L kept constant.

[11] Under Basel I the risk-weightings for most categories of assets were below 100%. Basel II and III moved away from rougher asset categories to risk-weightings for individual assets or portfolios of assets, based on individual bank history, that reflect the "expected unexpected" loss (not routine, high frequency events) (Gebhardt & Novotny-Farkas, 2011:295) on that asset or portfolio. The planned-for unexpected losses on bank assets should be less than 100% as banks are profit seeking organisations.

[12] An anonymous reviewer pointed out that over time (not currently in the model) there is the tendency for μ to increase asymptotically to λ. This aspect is not explored further in the model.

[13] The goal of the exercise is to bring the capital ratio down again after the increase in equity caused by the increase in asset values and thus an increase in debt is required.

[14] It is often argued that the financial sector can be ignored in models as any loan is owned by somebody else and thus the debit and credit can be collapsed without mishap. This argument ignores the fact that bank deposits are money and bank loans are not.

$$B_1 = \frac{(\lambda - \mu)A + \mu L}{r_j C_1}. \quad (5)$$

Figure A in the Appendix provides a schematic representation followed by a narrative description of the model up to this point. Management neutralised the increase in the capital ratio by investing in additional financial assets fully financed by debt; this increases the demand for financial assets in the financial sector. Bank deposits created are money in the banking system and so this increases demand in the real economy. If time were already part of the model then a few comments regarding feedback processes would be possible at this stage. However, time will only be included in the model at a later stage of its development.

The increase in the market value of financial assets contributes to λ (an increase in the market value of all bank assets) and thus provides an impulse for the asset expansion cycle to start again. The additional demand for financial assets, *ceteris paribus*, increases the market value of financial assets and thus reduces the return on those assets. To keep returns constant, bank management is incentivised to take on more risk; for example, to invest in riskier assets or originate riskier loans. The other side to additional demand for financial assets is the provision of additional spending power (credit) to the real economy. Over the longer term, the extension of credit to the real economy can only be sustained if the additional capital is invested in productivity enhancing real assets. With increased productivity the real economy might be in a position to pay back the capital and interest. If not, the only way for the real economy to keep a constant level of demand is to receive more and more credit from the financial sector. In a world of decreasing marginal returns it is safe to conclude that over the longer term, the increased demand in the real economy due to advancement of more credit is likely to be followed by a period of decreased demand when loans are being repaid; in other words, less spending in the real economy.

This simple model only allows for banks to expand their asset base and debt in reaction to an increase in the market values of all assets within the boundary of the original capital ratio. The model will now be extended to include the possibility of remuneration and dividend

payments from the increase in asset values.[15] The new capital ratio that results after an increase in the market values of all assets is:

$$C_3 = \frac{(1+\Omega\lambda)A-L}{(1+\Omega\mu)\sum r_i a_i}, \tag{6}$$

where Ω is the portion of the increase in asset values retained by the bank (after appropriation of the increase by management and shareholders via remuneration and/or dividends) ($0 < \Omega \leq 1$).

Again, if one assumes that management is planning to neutralise the increase in the capital ratio by investing in additional assets denoted by B and fully financed by debt, then the following equation is obtained:

$$C_3 = \frac{(1+\Omega\lambda)A+B-(L+B)}{(1+\Omega\mu)\sum r_i a_i + r_j B} = \frac{A-L}{\sum r_i a_i} = C_1. \tag{7}$$

Solving for B:

$$B_2 = \frac{\Omega(\lambda-\mu)A + \Omega\mu L}{r_j C_1}. \tag{8}$$

If all of the increase is retained (Ω = 1) the result simplifies to the previous solution B_1.

Comparing the solution of B_2 with that of B_1 it is apparent that B_2 must always smaller than B_1 because the two terms in the numerator are both a portion of the numerator terms in B_1 and the denominator in both instances is the same. The implication is that the need to increase assets and debt to restore the previous capital ratio, after an increase in the market values of all assets, is reduced when a portion of the value increase is paid out.

A similar logic applies when calculating $\frac{\partial B}{\partial \Omega}$:

$$\frac{\partial B}{\partial \Omega} = \frac{(\lambda-\mu)A+\mu L}{r_j C_1} > 0. \tag{9}$$

[15] Both management and shareholders have a strong incentive to reward themselves during the business cycle upswing despite the possibility of future losses during the downturn as elucidated by Taylor (2009) and Haldane (2011).

As the retention ratio (Ω) increases, the need to expand the asset base and debt also increases. The more of the increase in asset values is paid out (smaller Ω) the less the need for an expansion in assets and debt.

Figure B in the Appendix provides a schematic representation followed by a narrative description of the model up to this point. Thus, the inclusion in the model of the payment of remuneration and dividends (1 - Ω) (for positive λ) significantly changes the effects previously noted. The need to increase assets and debt to restore the previous capital ratio is reduced when a portion of the value increase is paid out. It is implied that the additional demand for financial assets will be less with a smaller price effect and the increased spending power transferred to the real economy will be less. The money paid to the real economy as remuneration and dividends, *ceteris paribus*, does increase demand in the real economy. This increase in demand will be less, however, than the increase in demand that would have resulted if the remuneration and dividends were not paid out, with the capital ratio being restored solely by the debt-financed expansion of the bank balance sheet. This is due to the leverage that is applied to the capital on the bank's balance sheet. Of course, not all of the remuneration and dividends paid to the real economy will be consumed; a portion of these will return to the financial sector in the form of additional demand for financial assets, which will increase their market values and decrease their returns. If time were already part of the model (note previous comment that time will only be formally included in the model at a later stage) then a new comment regarding feedback processes would be possible at this stage.

The investment demand for financial assets increases their market values and contributes to an increase in the average market value of all assets. This provides an impulse for the assets expansion cycle to start again. Here, one should also note the replacement effect that took place in capital; liquid assets were paid out as remuneration and dividends and were replaced by unrealised and riskier capital gains on financial instruments. This is bad capital driving out good capital; this is explained in more detail in section 5.3 below.

The described model does not allow for a general reduction in asset values ($0 < \mu \leq \lambda$ was assumed). However, such a general reduction in asset values would almost certainly be experienced during a recession. If the above assumption is relaxed and negative growth is allowed with the only proviso that μ should always represent a portion of λ, then banks will

reduce their asset base and pay off debt in response to a general negative value adjustment. The solution for *B* remains:

$$B = \frac{(\lambda - \mu)A + \mu L}{r_j C_1}. \tag{10}$$

Figure C in the Appendix provides a schematic representation followed by a narrative description of the model up to this point. In the case of a general reduction in asset values, **Ω** is not added to the model as management and shareholders will not pay in any money.

In summary, the solution for *B*:

$$B = \begin{cases} \frac{\Omega(\lambda - \mu)A + \Omega\mu L}{r_j C_1}, \ if\ \lambda > 0. \\ 0, \ if\ \lambda = 0. \\ \frac{(\lambda - \mu)A + \mu L}{r_j C_1}, if\ \lambda < 0. \end{cases}$$

6.2 *Implications of the basic model*

The basic model described above shows how the interaction of FVA gains and bank capital regulation motivates banks to expand their asset base. In the context of that basic model this expansion was financed by debt. Such a feedback process can help to explain why credit advances in the United States grew at such a high rate (from $3 trillion total debt to $36 trillion total debt in 2007 (NCCFEC, 2011:xvii)). The following Figure 6.4 provides data from the United Kingdom's Independent Commission on Banking (2011) and illustrates how credit extension in the years preceding the global financial crisis exceeded GDP and typifies a debt-financed boom.

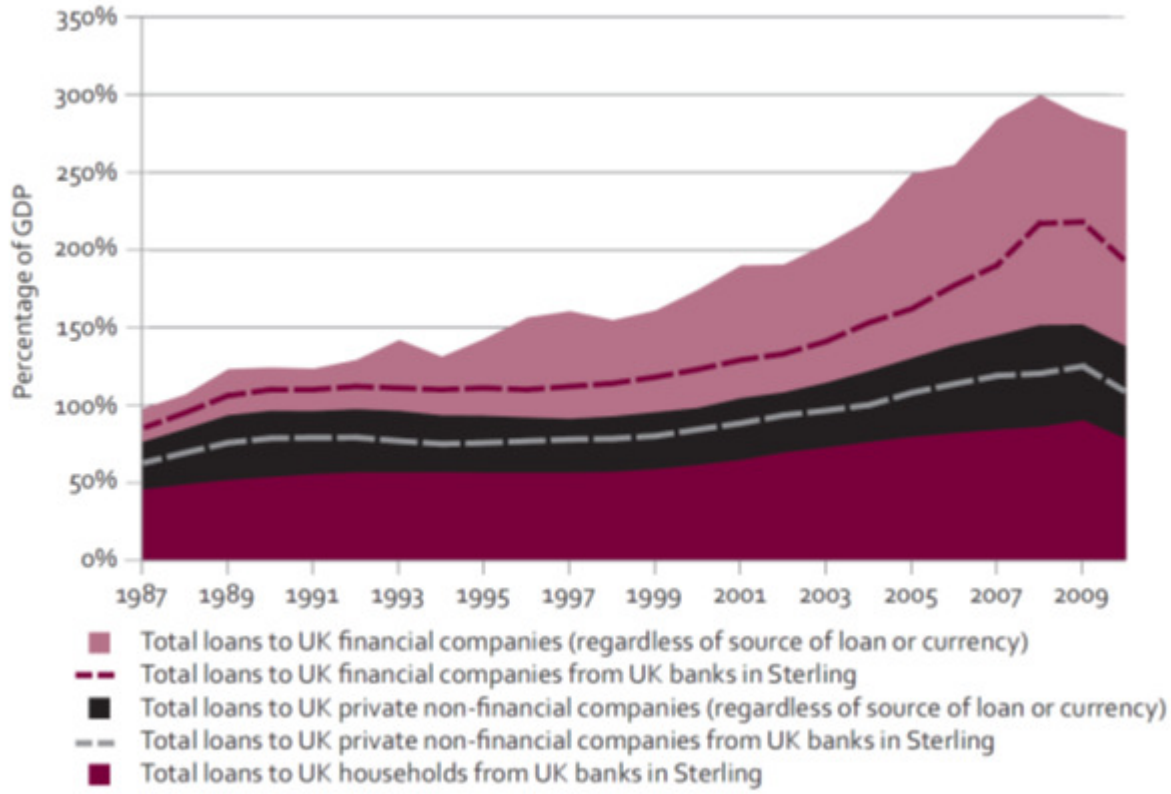

Figure 6.4 Total loans to different sectors of the economy as a percentage of GDP. Source: Vickers Report (2011:51).

The basic model also illustrates how this incentive to expand the asset base is tempered by the payment of dividends and remuneration. These dividend and remuneration payments would not have been necessary if FVA did not increase accounting equity (the argument can be found in Kay, 2009; Taylor, 2009; Turner, 2010; Wood, 2010).

The model shows that when allowance is made for a negative valuation shock to asset values then the asset base decrease required, to restore the capital ratio, must be greater than the asset base increase required for a positive valuation shock of the same size. It is here that a simple model that assumes all price changes are passed into bank equity by FVA is not descriptive of reality; at least, not over the short-term. Banks have "shock absorbers" available to them in the FVA rules to avoid these write-downs; they can argue that market prices are not correct and then move to mark-to-model values and/or reclassify items held at "fair value" to "held at cost": in October 2008, accounting standards were changed to allow for the reclassification of financial instruments from "carried at fair value" to "carried at cost". Bischof, Brüggemann and Daske (2010) as well as Fiechter and Meyer (2011) found that banks made ample use of these opportunities. In view of this, it is not surprising that empirical studies by Shaffer (2010) and by Badertscher, Burks and Easton (2012) found little

evidence of bank capital being depleted by FVA losses. The possibility of long-term FVA losses impacting bank capital cannot be ascertained from these writers' evidence as they only considered data up to the year 2008. Over the longer term, it is unlikely that banks will be able to avoid recognising actual losses, permanently, because the instruments will mature and a fundamental loss in value will then realise. This postponement of FVA losses by banks possibly explains why banks have been unwilling to lend following the global financial crisis even though they have enough capital according to their official regulatory figures; bank management know that the capital on the books is not high quality (risky) and they act accordingly; thus, they act as if they have less capital than stated in the official numbers. Japanese banks in the 1990s had a similar problem where the banks officially had enough capital and despite the official numbers, were not writing down non-performing assets and neglected to advance the necessary credit to the economy.

It can also be argued that the increase in bank capital that was called for under Basel III (Bank for International Settlements, 2011:2), in reaction to the global financial crisis, works to counter this benefit of the "shock absorbers" and that the net effect would be a need to shrink bank balance sheets. Reducing the size of bank balance sheets is a current global occurrence.

The main shortcomings of the basic model can be summarised as follows: firstly, it depends on external valuation shocks for regime change between bank balance sheet expansion and shrinkage; secondly, feedback effects are implied but not expressly modelled and thirdly, it does not explain the faster growth in loans to financial companies compared to loans to non-financial companies; the latter is shown in Figure 6.4 which indicates information provided by the Independent Commission on Banking.

6.3 *Further development of the basic model*

The increase in the general market value of bank assets (a positive λ) during the upswing that preceded the global financial crisis was the product of complex interconnected developments in the financial system. These developments included progressively lower interest rates globally that, all else equal, increased the value of especially fixed rate financial instruments. A portfolio of fixed rate loans designated at fair value through profit and loss would have increased in value and the increase would have increased regulatory capital. Financial instruments exposed to credit risk would also have increased in value during the upswing as

default data improved and confidence increased. Another possible source of value increase was the increase in financial instrument trading within the financial sector. This increase in trading within the financial sector resulted from a combination of financial innovation, deregulation and a search for yield in a low interest rate environment. Increased demand for financial instruments led to price rises.

Given an initial increase in the general market value of bank assets, it is relatively simple to expand the basic model to incorporate feedback effects that will maintain bank balance sheet expansion once started; this is done by formally incorporating time into the model. The following intellectual device is useful for the discussion that follows; to see equations *C* as reflecting the capital ratio of the banking system as a whole in the one instance and as reflecting the capital ratio of an individual bank in the other instance.

In the instance when equations *C* reflect the capital ratio of the banking system as a whole it is important to realise that the expansion of the bank sector balance sheet is only possible by advancing further credit to the real economy (external to banking system). The expansion of the balance sheet simultaneously increases the money supply with the concurrent increase in bank deposits. Real economic actors will spend a portion of this increased money supply on the purchase of financial assets, with the additional demand causing the values of those assets to increase. At the same time the money paid out by the banking system as remuneration or dividends (*1* - Ω) will not all be consumed and will, at least to some extent, be used to purchase financial assets, increasing their market values.

In basic model mathematical terms this can be represented as follows:

$$\frac{\partial \lambda(t)}{\partial t} = f(B(\lambda), \Omega(\lambda), \Phi), \tag{11}$$

where Φ represents exogenous factors that might impact on λ. The implication is that an initial value shock can initiate a feedback loop; this can arise through the demand for financial instruments from the financial sector (B) or from the demand for financial instruments from the real sector ($\text{portion of } B + \text{ portion of } \Omega$) driving continuous bank balance sheet expansion or shrinkage. Figure D in the Appendix provides a schematic representation followed by a narrative description of the model up to this point.

The question that arises is why input to the model will change from a positive λ to a negative λ. Events external to the model are obviously one answer, but the model up to this point holds three endogenous answers to this question; wealth effects, bad capital driving out good capital and reaching for yield. Note that the first of these answers, the "wealth effect" is related to the balance sheets of individuals becoming more fragile while the two latter answers are related to increasingly fragile bank balance sheets.

Individuals in the real economy have more credit available to them during the upswing. This credit availability is driven by individuals becoming seemingly more credit worthy as the upswing advances; the market value of their security increases and default rates improve. In other words, as the asset side of individuals' balance sheets increased (improved), the liability side of their balance sheets also increased as they took on more debt. In this manner the individuals' leverage ratio might stay constant but, relative to their income, their balance sheets are more and more fragile as the upswing continues.

The payment of remuneration and or dividends (1 - Ω) from FVA profits leads to a replacement effect where the most liquid asset (money) leaves the financial sector as payment and is replaced in bank capital by FVA-derived value increases in less liquid assets. This can be called a special case of Gresham's law[16] where "bad capital drives out good capital". The result is a banking system much more sensitive to external disturbances (or Φ).

The additional demand for risky assets during the balance sheet expansion process drives down the returns to be earned on those risky assets and thus incentivises bank managers to take more risk in the search for returns.[17] The implication for bank balance sheets is, even just to show constant returns, to become riskier. The result is a banking system much more sensitive to external disturbances (or Φ). This reach for yield can explain the decline in underwriting standards in the U.S. (NCCFEC, 2011:4) as well as the observation that financial firms changed from staid to risk seeking during the boom (NCCFEC, 2011:xvii). Evidence of predatory lending highlighted by the Commission (NCCFEC, 2011:10) calls into

[16] Gresham's law is commonly stated as: "Bad money drives out good", but is more accurately stated: "Bad money drives out good if their exchange rate is set by law" (Rolnick & Weber, 1986:185).

[17] A more subtle possibility should also be noted; that this process of riskier asset accumulation is possible even without an actual decision to invest in higher risk assets. During the upswing default data as well as loan to value ratios (the market value of security tends to increase) improves and this provides the rationale for further credit extension. In such a process, risk increases as more credit is now backed by the same cash flows.

question the dissenting report's conclusion that credit demand emanating from the U.S. Government's housing policies was to blame for the overexpansion in U.S. housing. Predatory lending points to the role of credit supply in the process that ties back to the reach for yield argument from the model.

A further argument for regime change is possible in the instance when equations *C* reflect the capital ratio of an individual bank rather than that of the total banking system. In addition, one of the shortcomings of the basic model highlighted earlier in this paper was that it did not explain the growth in loans between financial companies. By adding more features to the basic model and by seeing equations *C* as reflecting the capital ratio of an individual bank, endogenous regime change as well as the growth in loans between financial companies can be explained.

If we recall from previous discussion that:

$$C_2 = \frac{(1+\lambda)A+B-(L+B)}{(1+\mu)\sum r_i a_i + r_j B}, \tag{12}$$

and that was used to determine the balance sheet expansion *B* required for a given positive value shock, it is now necessary to emphasise that a bank will only expand its asset base, financed by debt, if the following condition is met:

$$(R_{asset} - R_{liability}) > 0, \tag{13}$$

where *R* represents the return on the financial instrument. Bank debtors want to spend their newly raised debt and thus the asset side of the transaction will tend to be of longer maturity than the liability side of the transaction due to the required ability to spend. When the banking system experiences a positive value shock and banks are simultaneously expanding their asset bases, then two effects can be noted. First, the supply of credit can overwhelm the real economy's demand for credit and lead to increased inter-bank lending that will lead to a stronger (compared to the additional demand emanating from the real economy described previously) positive feedback loop. This is because banks will invest all of the new bank deposits created in financial instruments, increasing λ. Second, arbitrage will drive down $(R_{asset} - R_{liability})$ until, at the limit and ignoring other factors, no more margin is available

and the positive feedback loop will come to an end. This helps to explain the "exponential growth" in trading activities observed by the NCCFEC (2011:xvii)) as well as the growth of the financial sector from 5% of gross domestic product to 8% (NCCFEC, 2011:64). Finally, the feedback process described in the model between the financial system and the real economy explains why, parallel to the rapid expansion of credit in the U.S. economy, the Commission observed overdone real economic activity (NCCFEC, 2011:5).

The margin effect noted above should be related to the literature on the ability of an inverted yield curve to predict recessions (see for example Ang, Piazzesi & Wei, 2006; Wright, 2006). Banks, generally speaking, invest in financial instruments with longer maturity financed by financial instruments of shorter maturity and realise a return spread as elucidated above when the yield curve is normal and upward sloping. If this investment in longer maturity instruments financed by shorter maturity instruments became systemic, it will drive down the returns on longer maturity instruments: greater demand drives up prices leading to lower returns. At the same time it will drive up returns on shorter maturity instruments: greater supply drives down prices leading to higher returns.

Table 6.1, below, summarises the feedback effects:

Feedback process	**Description**	**Relative strength**
Bank balance sheet expansion	Additional demand for financial instruments impacting λ	Medium (leverage amplifies effect but leakage to real economy)
Real economy investment in financial instruments	Additional spending power not all consumed	Weak (no leverage effect)
Intra bank lending and investment	Balance sheet expansion creates additional demand for financial instruments impacting λ. Spending power created is within the banking system and not in the real economy	Strong (additional spending power created within financial sector and subject to leverage)

Table 6.1 Summary of feedback effects in the model.

These feedback effects, without inhibitors (designated "regime change processes" below), will lead to continuous expansion or continuous contraction. Table 6.2 below summarises the endogenous regime change processes identified in the model:

Regime change process	**Description**
Balance sheet fragility – real economy	Real economy has more assets with more debt but the same income
Balance sheet fragility - banks	Bad capital driving out good capital: Liquid assets in capital replaced by illiquid capital gains
Balance sheet fragility - banks	Reach for yield: Riskier assets originated to keep income constant; the other side of the fragile real economy balance sheet
Yield curve inversion	Arbitrage drives down yield on longer term financial instruments and drives up yield on shorter term instruments

Table 6.2 Summary of endogenous regime change processes in the model.

7. Empirical example

It is not possible to directly observe the macro economy and thus the economic data that we do have are selected and made sense of by theory (Suzuki, 2003:484). Accordingly, no attempt will be made to demonstrate the model proposed in this paper in totality. Rather, data from two international and systemic universal banks will be used to demonstrate the following: the slow (controlled) recognition of FVA losses; the materiality of fair value accounting entries that impact profit and loss and the crowding out of risk-free capital with risky unrealised FVA gains. The model developed in this paper can then be used to make sense of the information.

The two banks that data will be gathered from are one of the largest banks in the Netherlands, ING Bank N.V., and the largest bank in South Africa, the Standard Bank of South Africa Limited. Apart from size and systemic importance further similarities between the two banks are that they both report under International Financial Reporting Standards (IFRS) and are supervised from countries where Basel II was implemented in 2008. Both banks are large

(globally important) according to Shaffer's (2010:9) definition (>$100 billion of assets) with ING Bank. N.V. about ten times larger than the Standard Bank of South Africa Limited in 2012. Very important for this paper is that both banks operate in an income tax regime where financial instruments are taxed on realisation and not on a mark-to-market basis; this makes it possible to identify the unrealised portion of fair value accounting gains and losses through profit and loss and will be explained further below.

IFRS 7 (IASB, 2005) does not require disclosure of the realised and unrealised portions of items of income, expense, gains, and losses related to financial instruments; only the combined total is required. The deferred tax notes to the financial statements of both ING Bank N.V and the Standard Bank of South Africa Limited contain information that makes possible the derivation of the portion of net profit that is due to unrealised fair value adjustments on financial instruments. Deferred tax arises when a difference exists between accounting net profit and taxable income. Accounting net profit contains realised and unrealised items related to financial instruments whereas current Dutch and South African taxable income contains only realised items. An increase in the deferred tax liability due to financial instruments thus reflects the tax portion of an unrealised gain on financial instruments. What follows are excerpts from the banks' 2012 annual financial statements where the red ovals indicate the relevant movements in the deferred tax liability due to financial instruments for that year:

Changes in deferred tax

	Net liability 2011	Change through equity	Change through net result	Changes in the composi-tion of the group	Exchange rate differences	Other	Net liability 2012
Investments	–146	774	180	–166	2		644
Real estate investments	2						2
Financial assets and liabilities at fair value through profit and loss	–707		–366		10		–1,063
Depreciation	40		5	–1	–1		43
Other provisions	–95		29	5	4		–57
Receivables	–43		–8	2	1		–48
Loans and advances to customers	870	–82	157		2		947
Cash flow hedges	–282	–9		4	1		–286
Pension and post-employment benefits	468		169		1		638
Unused tax losses carried forward	–623		–138	1	–11		–771
Other	–186	74	26	65	–4		–25
	–702	757	54	–90	5		24

Figure 6.5 Changes in deferred tax for ING Bank N.V. due to FVA on financial instruments through profit and loss. Source ING Bank N.V Annual Report (2012:64).

		Group	
		2012 Rm	2011 Rm
10.	**Current and deferred tax assets** continued		
10.2	**Deferred tax reconciliation**		
	Deferred tax balance at the beginning of the year	**(564)**	290
	Originating/(reversing) temporary differences for the year:	**137**	(854)
	Assessed losses	**20**	2
	Assets on lease	**115**	(24)
	Depreciation	**(393)**	(6)
	Derivatives	**(125)**	(370)
	Fair value adjustments of financial instruments[1]	**116**	(144)
	Impairment charges on loans and advances	**109**	(203)
	Deferred income[2]	**258**	575
	Share-based payments	**166**	(36)
	Other differences[2]	**(129)**	(648)
	Deferred tax balance at the end of the year	**(427)**	(564)

Figure 6.6 Changes in deferred tax for the Standard Bank of South Africa Limited due to FVA on financial instruments (including derivatives). Source the Standard Bank of South Africa (2012:153).

Table 6.3 that follows summarises the available information on deferred tax movements. To gain an understanding of the significance of these movements it is important to note that what is observed on the deferred tax line is only the income tax effect of the transactions. For example, the current corporate income tax rate for the Netherlands is 25% and thus 25% is the movement on deferred tax and 75% is the impact on profit. It is the 75% that we are interested in. In table three a few simplifying assumptions have been made: that the current corporate income tax rates in the Netherlands of 25% and in South Africa of 28% was constant over the whole period; that the debit entries against deferred tax for ING from 2008 onwards reversed previous credit entries and that retained income is a suitable proxy for bank capital.

	2004	2005	2006	2007	2008	2009	2010	2011	2012
Movement in deferred tax due to financial instruments - ING (Euro million)	NA	NA	NA	72	-301	-325	-192	-162	-366
Movement in deferred tax due to financial instruments - Standard (rand million)	83	486	903	700	1132	-1837	-1747	514	9
Unrealised portion of net profit after tax - ING	NA	NA	NA	6%	-128%	-180%	-13%	-12%	-34%
Unrealised portion of net profit after tax - Standard	4%	19%	29%	19%	33%	-58%	-57%	14%	0%
Unrealised portion of retained income - ING	NA	NA	NA	30%	32%	21%	11%	7%	0%
Unrealised portion of retained income - Standard	43%	54%	81%	88%	83%	41%	14%	17%	19%

Table 6.3 Summary of deferred tax movements on financial instruments (credit entries are positive and debit entries negative).

When looking at the movement in the deferred tax line in table one it is important to note that for ING Bank N.V. the reversal from credit entries to debit entries (debit entries imply unrealised losses on financial instruments) against deferred tax happened in 2008 as would be expected with a global financial crisis that reached its peak in September 2008 with the failure of Lehman Brothers. Strangely, the reversal for the Standard Bank of South Africa Limited only takes place in 2009. For ING Bank N.V. the reversal that started in 2008 continued until 2012, whereas for the Standard Bank of South Africa Limited the reversal only lasted two years and then turned again. What the information shows is possibly the use of accounting discretion to avoid/manage FVA losses: The Standard Bank of South Africa Limited only shows losses for the first time in 2009 whilst the crisis started in 2008 and for both banks the FVA losses did not come through as one "hit" but took time.

The rows that relate the movements on deferred tax to profit show just how material these FVA entries (that impact profit and loss and thus bank capital) are. For ING Bank N.V few entries are available when FVA generated unrealised gains, but unrealised losses against profit between -180% and -34% show how large these entries can be. The entries for the Standard Bank of South Africa Limited peak at an unrealised FVA gain portion of net income of 33% in 2008 with the largest reversal of -58% the next year.

Arguably the most important part of Tier 1 bank capital is retained income. The idea is that this capital should always be available to absorb unexpected bank losses. Table 6.3 shows that the unrealised FVA gain portions of retained income are not as stable as would be expected. For both banks the peak is during the financial crisis with a sharp reduction thereafter. This is indicative of unrealised FVA gains in bank capital being risky and during the upturn displacing less risky bank capital as predicted by the model. Back in South Africa, the CEO of one of the four large banks, Nedbank Limited, admitted during an interview on his bank's financial performance in 2013 that FVA gains through profit and loss are risky: "We did benefit during the first six months from some fair value gains, *which are lower quality income and harder to forecast*…" (Tarrant, 2013).

8. Implications, shortcomings and opportunities for further research

The model demonstrates the expansionary impulse generated when FVA increases bank regulatory capital. It can be argued that the same expansionary impulse will result from other

accounting entries that also increase regulatory capital. These entries could include realised profits from the selective selling-off of investments (gains trading) or incurred loan loss provisioning that "enables banks to present higher earnings and (regulatory) equity capital, which allow the bank to extend more credit" (Gebhardt & Novotny-Farkas, 2011:302). FVA's impact differs in two important aspects. First, FVA impacts regulatory capital much faster and more materially than other accounting entries that need time to impact retained earnings. It is the speed of the feedback process that matters. The second way in which the capital increase from FVA differs from increases caused by other accounting entries is that these alternatives will not result in the replacement of liquid assets in bank capital with riskier FVA gains (bad capital driving out good capital); FVA profits do not provide liquidity that can fund dividends and remuneration payments.

Another characteristic of the model is that it is incomplete. Banks do not just lend money due to the interaction between FVA and their capital ratios. The real economy has a need for credit before the supply of credit is considered. In the same way it is certainly not argued here that FVA is the primary or sole reason behind the cyclicality of financial capitalism. The business and financial cycles existed before the adoption of FVA and booms and busts were even evident during the heyday of historical cost accounting in the period after the Great Depression. The caveat is that those booms and busts were less damaging in their impact; they were less extreme than either the Great Depression or the global financial crisis.

Toporowski (2010:224) argues that those who view the capitalist system as being prone to crisis have difficulty in explaining the relative stability of financial capitalism in the decades before the global financial crisis. This paper argues that the absence of FVA from the banking system during that time can explain the relative calm. A system needs control mechanisms in the presence of feedback loops to keep the process from running away. One such financial feedback loop was highlighted by Minsky and describes how stable economic periods improve the balance sheets of individuals by increasing the values of their assets and enabling them to borrow more because they now have more security; this in turn increases systemic fragility as more debt is now supported by the same cash flows. This situation can be summarised by stating that the individual's (borrower's) balance sheet was "fair valued" in the credit evaluation process. A control mechanism that will inhibit this expansionary impulse is not to fair value the balance sheets of banks as well; in other words do not meet rising credit demand with increasing credit supply. These checks and balances prevailed in

the relatively stable economic period that preceded the global financial crisis; as a result, the feedback loop was not allowed to run away due to the presence of a control mechanism. However, with the introduction of formal FVA into accounting standards this control mechanism was removed, leading to the over-indebtedness of individuals and financial businesses. FVA did not cause the crisis but amplified it.

The model explains the conclusion of the NCCFEC (2011:xix) that "a combination of excessive borrowing, risky investments, and lack of transparency put the financial system on a collision course with crisis". Banks and individuals borrowed excessively as explained in the paragraph above and risky investments were made in the process as there was a search for yield. The benefit of the perspective offered by the model will briefly be illustrated by using it to understand the results of the study by Cabral (2012). Cabral introduced a novel model of individual bank profitability and used the model to explain paradoxes such as high bank profitability immediately prior to the crisis even though intermediation margins were low (the return to banking activities was low). It is argued that balance sheet growth and the taking on of additional risk prior to the crisis explains this paradox. In addition it is argued that low levels of liquidity prior to the crisis played an important role in the crisis. First, bank profits immediately prior to the crisis were high, possibly due to the effect of FVA. Second, the returns to banking activities were low prior to the crisis because of the search for yield necessitated by the bank balance sheet expansion that simultaneously increased the money supply. Cabral's (2012:114) explanation for the low returns is to argue that it is the result of increased competition. The model in this paper explains why there was an increase in competition. Cabral's model does not explain where the additional credit demand comes from when banks, according to his model, expand their balance sheets to protect profitability; the model in this chapter does explain. Finally, Cabral uses the exogenous impact of bank regulations to explain the low levels of liquidity prior to the crisis. In contrast the model in this chapter explains the low levels of liquidity endogenously.

Controls unrelated to FVA can be imagined, to counteract this amplification process. One such alternative control is the introduction of a countercyclical capital buffer as part of the changes made to the global bank regulatory infrastructure following the global financial crisis; thus, during the upswing, banks might be required to increase their capital ratios as described in the following quote from Basel III: "It will be deployed by national jurisdictions when excess aggregate credit growth is judged to be associated with a build-up of system-

wide risk to ensure the banking system has a buffer of capital to protect it against future potential losses" (Bank for International Settlements, 2011:57). In terms of the model this increase in the minimum capital required, if of the exact size necessary, will eliminate the impulse for balance sheet expansion resulting from λ, halting the feedback process. However, there are reasons why this might not be an ideal hedge for the expansionary impulse created by FVA. First, it will require central bank decision makers to get the timing and extent of any increase exactly right. Second, banks as a body have become effective lobbyists in some countries and can be expected to try and influence the setting of an increased capital ratio. Lastly and perhaps most important is the argument that a control mechanism implemented on a regulatory level cannot take into account the unique circumstances of each individual bank.

Numerous opportunities for future research can be identified:

- More and better descriptive evidence of the co-movement of FVA in banks, with the business cycle.
- Do bank managers pay dividends out of unrealised FVA profits, rewarding shareholders as well, for managers' excessive risk-taking and by doing so, weakening the financial system?
- Augmentation of standard stock-flow consistent accounting models of the economy with this credit supply model.
- Do bank management pay out remuneration from FVA gains?
- Was the avoidance of FVA write-downs during the global financial crisis temporary or permanent?
- Causality studies on the relationship between credit demand and credit supply from a real economic perspective and from a financial perspective; and
- Studies of the class struggle that determines the split of the economic pie between wages, profits and, in addition to the standard production view of capitalism, interest.

9. Conclusion

The focus by accounting researchers on the role of accounting and FVA *during* the global financial crisis and not on a role *before* the crisis, as well as the claim that accounting is only a messenger are two factors that motivate the need for the development of the model described in this paper, that links FVA, bank regulatory capital, money supply, remuneration,

dividends and economic activity. The requirement to incorporate global financial crisis characteristics (such as feedback effects, systemic risk and the primacy of banks in the crisis) into that model rationalised the use of a stock-flow consistent accounting type model of the economy rather than standard economic models. In contrast to the usual stock-flow consistent accounting model of the economy, the model developed in this paper reverses the causality between credit demand and credit supply; in other words, the starting point is credit supply, not credit demand, which gives banks the centre stage in the account.

The model developed in this paper describes and then links together many of the characteristics of the global financial crisis and previous crises. The procyclical expansion of bank balance sheets during the upswing followed by a contraction (over the long-term because during the short-term, banks can avoid some FVA write-downs) during the downturn is explained by the need to maintain regulatory capital ratios and/or feedback effects both within the financial sector and between the financial and real sectors. In accordance with the doctrine of Minsky, a state of crisis is shown to be endogenous to the model's operation, because of systemic fragility. The focus is on bank balance sheet fragility that is caused by bad capital driving out good capital, banks reaching for yield and the inversion of the yield curve. It is argued that not having FVA profits in bank capital during booms is an essential control mechanism that inhibits the feedback effects emanating from the real sector.

An empirical example is given where the evolution of the unrealised FVA gains through profit and loss of two universal and systemic banks (ING Bank N.V & the Standard Bank of South Africa) can be better understood using the model in this paper.

In conclusion, the model offers a simple explanation of why the world, for so long after the height of the global financial crisis, is still mired in slow growth. During a prolonged and excessive boom bank profits and capital were materially increased by unrealised FVA profits. These profits justified the pay-out of liquid assets weakening the financial system. The additional capital further justified more debt financed asset expansion. With the crisis bank management realised that these unrealised capital items were not permanent. Management was able to postpone the recognition of FVA losses by using the flexibility inherent in FVA regulations, but lending was slowed to a point reflective of "safe" (capital excluding unrealised items) capital levels. Lending activity will stay subdued until all of these marked-up items have been worked off banks' balance sheets.

10. Additional work and link to next chapter

Additional work on this chapter, that is not part of the published paper, will now follow. The next section will briefly discuss the international applicability of the empirical evidence from South Africa and the model.

10.1 *International applicability of papers*

Paper one: Liberal fair value accounting in banks: A South African case study

In terms of the percentage of total assets at fair value (see Table 4.4 for IBL and Table 4.7 for SBoSA) the two South African banks are similar to American banks according to the study by the United States Securities and Exchange Commission (2008). The American study looked at fair values at the end of the first quarter in 2008 and for comparability reasons the 2008 percentages for IBL should be used (financial yearend is 31 March) and the 2007 percentages for SBoSA should be used (financial yearend is 31 December). IBL fair valued 26% of total assets and SBoSA fair valued 27% of total assets. This compares to 31% of total assets for banks and 50% of total assets for the American broker-dealers according to the U.S.A's Securities and Exchange Commission study. As both South African banks are universal banks they can be expected to fall somewhere between the banks category and the broker-dealer category. Compared to American banks, the two South African banks look similar but compared to broker-dealers they have significantly fewer assets at fair value. This implies that the finding that a significant portion of the South African banks' regulatory capital in 2008 was made up out of unrealised FVA gains, is likely to be even more valid in the U.S. Of the 31% of total assets at fair value for American banks 22% was for assets fair valued through profit and loss. Of the 50% of total assets at fair value for American broker-dealers, almost all was for assets fair valued through profit and loss; this should be contrasted against the argument by Shaffer (2010:10) that FVA entries that impact the income statement from the trading book or the fair value option can be ignored. IBL fair valued 20% of total liabilities and SBoSA fair valued 19% of total liabilities. This compares to 11% of total liabilities for the American banks and 35% of total liabilities for the American broker-dealers according to the Securities and Exchange Commission study. In the case of liabilities the South African banks are more comparable to the broker-dealers as one might expect. The Securities and Exchange Commission study (2008:69) did note that one bank in their sample reported 23% of liabilities at fair value and "reported liabilities fair value similar to those of the broker-dealers". In terms of the fair value hierarchy only IBL disclosed the percentages

for 2008 and when compared to the American banks, carried more assets at level 1 (38% versus 11%), fewer assets at level 2 (62% versus 82%) and fewer assets at level 3 (0% versus 7%). IBL carried the same percentage of liabilities at level 1 (6%), more liabilities at level 2 (94% versus 90%) and fewer liabilities at level 3 (0% versus 5%). Taking all this into account, the South African and American banks do not seem dissimilar.

In terms of movements in FVA, especially over the global financial crisis period, the evidence for the South African banks clearly demonstrated that bank management accepted the results of FVA when profit increased but actively resisted decreases in profit emanating from FVA. The Securities and Exchange Commission study ended in 2008 and so it was not possible to observe the same effect for the American banks. Nevertheless, there are indicators in the study that point in the same direction. First, the Securities and Exchange Commission study observed that most of the increase in liabilities at fair value from 2006 to 2008 for the total sample (8% to 15% increase) came from the fair value option being exercised in broker-dealers; by moving more liabilities into fair value all (else being equal) in the midst of a crisis profits are increased (2008:72-73). Second:, "There was a significant increase in the amount of deferred losses in accumulated OCI for the first three quarters of 2008" (2008:85) yet in contrast, for items that impact the income statement, an increase in profits was recorded. Thus, the Commission reports that "The impact on equity was 3% and 4% increase (on a comparable nine-month basis) for the first quarter and the first three quarters of 2008, respectively, when the gains and losses of items reported at fair value on a recurring basis were netted together for all issuers in the sample" (2008:88).

Table 4.2 shows the percentages of net income and the percentage of equity attributable to FVA gains, for IBL and the SBoSA. Those percentages are large and tend to peak around the financial crisis. Afterwards they fall off significantly. There was evidence in the Securities and Exchange Commission study (2008:89) that U.S. banks' equity capital was also significantly influenced by FVA gains: "For the first three quarters of 2008, six issuers reported a percentage impact of recurring fair value measurements of greater than 15% of equity, and two issuers reported a percentage impact ranging from 5% to 15% of equity. The percentage impact on equity ranged from a decrease of 41% to an increase of 29%. Seventeen issuers reported increases in stockholders' equity. For all except five issuers, this increase was less than 5% of equity. Nine issuers reported decreases in equity. For all except three issuers, this decrease was less than 5% of equity. Generally, for the first three quarters of

2008, credit institutions were impacted the least by recurring fair value measurements, whereas banks had the greatest impact in dollars and broker-dealers had the greatest impact as a percentage of overall equity." Any decrease of 41% in equity from FVA within nine months is material and illustrates how FVA gains in equity constitute risky capital.

In Chapter three it was noted that that South African banks are governed by international banking and accounting regulations and this is one reason to support the proposition that the behaviour of those banks can be generalised to large international banks. Another reason supporting generalisation is the size of the Standard Bank Group. Shaffer (2010:9) defines a "largest banking institution" as one with total assets of more than $100 billion. In 2009 the total assets of the Standard Bank Group were approximately $133 billion and thus the size of this South African banking Group places it within Shaffer's criteria for "largest banking institutions".

One conclusion from this comparison between American banks and what was found for the South African banks in Paper I is that the overall result of that paper, that bankers accept FVA gains but resist losses, is likely to hold outside South Africa. Moreover the tools used by the management of South African banks, such as strategically altering the ratio between assets at fair value and liabilities at fair value and moving items along the fair value hierarchy, also seem to be used by U.S. banks and broker-dealers.

Paper two: For banks fair value adjustments do influence dividend policy

A similar argument is also being made internationally that dividend and remuneration payments would not have been necessary if FVA did not increase accounting equity, either within a United Kingdom or an American context (Kay, 2009; Taylor, 2009; Turner, 2010; Wood, 2010).

Paper three: Fair value accounting, fragile bank balance sheets and crisis: A model

The U.S financial sector earned record profits in 2006 and these constituted 27% of all corporate profits in the United States in that year versus 15% in 1980 (NCCFEC, 2011:xvii)) Despite this, the level of capital held by large American investment banks prior to the crisis, which was similar to that of the South African banks shown in Figure 6.5 of this chapter, did not increase and in most cases even decreased. The implication is that the U.S. banks either distributed the extra profit/capital as dividends or remuneration or expanded their asset base

by using debt to such an extent that capital did not increase in a relative sense. This can be seen in the following Figure 6.7, which is the inverse of Figure 6.3. Note that Figure 6.7 shows total assets relative to equity whilst Figure 6.3 shows equity relative to total assets; an increase in gearing on this figure implies a reduction in capital on Figure 6.3.

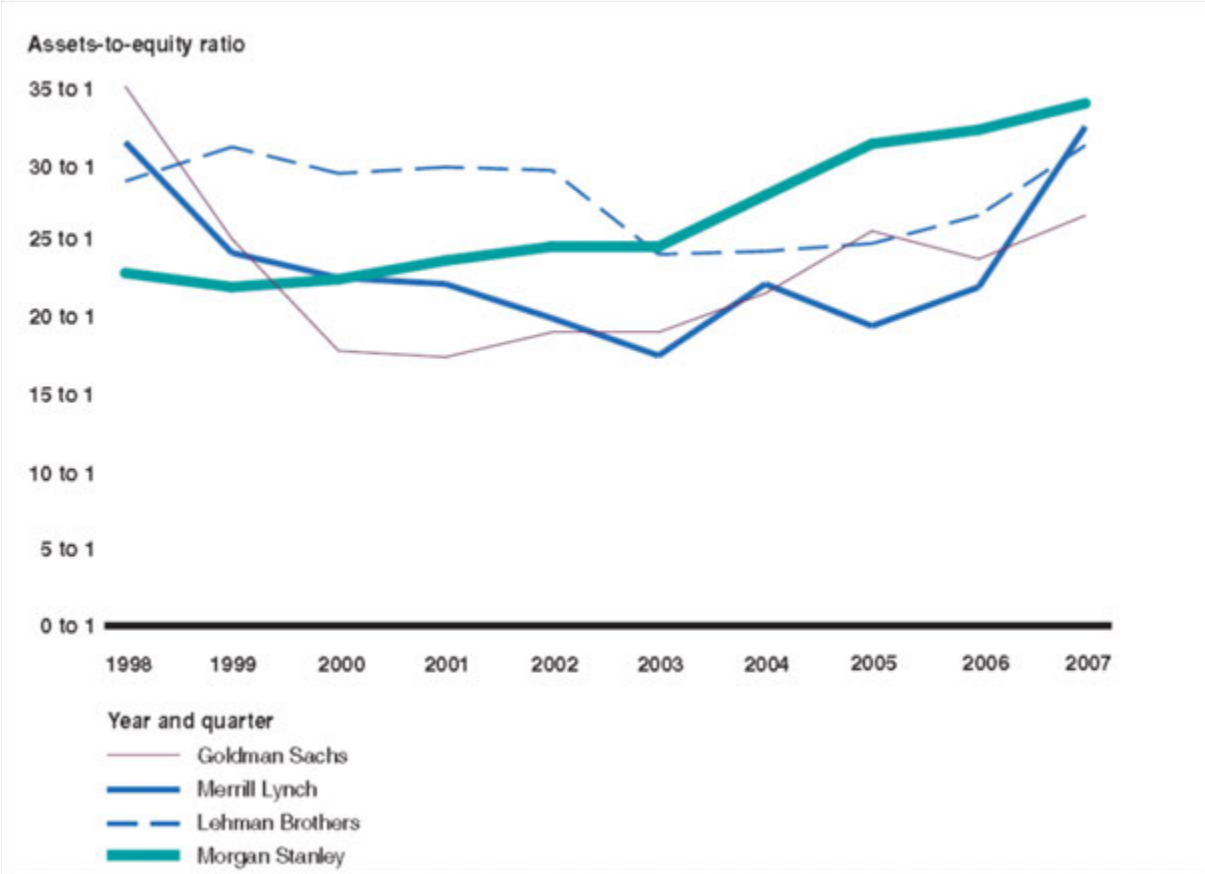

Figure 6.7 Ratio of total assets to equity for four broker-dealer holding companies from 1998. Source: U.S. Government Accountability Office Report GAO–09–739 (2009, Figure 6).

The nexus of the model developed in this chapter is regulatory capital within a bank and within the banking system. A feedback process is demonstrated where rising prices can lead to increased credit supply which then stimulates increased credit demand, which encourages increased credit supply. This whole process will continue expanding until the build-up of systemic fragility reverses it. Such a feedback process can help to explain why credit advances in the United States grew at such a high rate, from $3 trillion total debt to $36 trillion total debt in 2007 (NCCFEC, 2011:xvii). It was also shown that the feedback process described above was likely to overwhelm the ability of the real economy to absorb the credit generated; this was done by viewing the model as describing the actions of an individual bank. Greatly increased interbank lending was thus likely to result, according to the model.

This explains the "exponential growth" in trading activities (NCCFEC, 2011:xvii) as well as the growth of the financial sector from 5% of gross domestic product (GDP) to 8% of GDP (NCCFEC, 2011:64) observed by the Commission. Finally, the feedback process between the financial system and the real economy, as described in the model, explains why, parallel to the rapid expansion of credit in the economy, the Commission observed overdone real economic activity (NCCFEC, 2011:5).

One of the sources of fragility identified in the model was the reach for yield by banks, induced by the feedback process. This can explain the decline in underwriting standards in the U.S. (NCCFEC, 2011:4) as well as the observation that the culture of financial firms changed from conservative to risk seeking during the boom (NCCFEC, 2011:xvii). Evidence of predatory lending was highlighted by the Commission (NCCFEC, 2011:10), which calls into question the dissenting report's conclusion that credit demand emanating from the U.S. Government's housing policies was to blame for the overexpansion in U.S. housing. Predatory lending rather points to the role of credit supply in the process that tie back to the reach for yield argument from the model.

One of the predictions of the model is that FVA profits create a need for banks to distribute cash in the form of dividends or remuneration. Section 3.4 of this chapter cited numerous British commentators who are convinced of this. In the U.S.A., financial sector remuneration grew enormously during the boom before the global financial crisis; the Commission observed (NCCFEC, 2011:61) that remuneration outside the financial sector versus remuneration within the financial sector went from parity in 1980 to financial sector compensation being 80% greater in 2007. It was observed, also, that this increase was driven by bonus payments and not base-pay payments (NCCFEC, 2011:63). The observation that "formula-driven compensation allows high short-term profits to be translated into generous bonus payments, without regard to any longer-term risks" (NCCFEC, 2011:64) ties in perfectly with the model's "bad capital driving out good capital" argument. The payment of remuneration and dividends by banks from unrealised profits can also explain the observation by Cabral that whilst banking systems in the Western world entered the crisis with apparently enough capital (Cabral, 2012:103) they had too little liquidity (Cabral, 2012:104). The model developed in this chapter shows how these two observations can be plausibly related.

In conclusion, the model in this chapter offers a simple explanation for why the world, long after the height of the global financial crisis, is still stuck in slow growth (NCCFEC, 2011:417; BIS, 2012: ix). During a prolonged and excessive boom, bank profits and capital were materially increased by unrealised FVA profits. The additional capital justified more debt financed asset expansion and for a time, more FVA profits. These profits also justified the pay-out of liquid assets weakening the financial system.

The iron law of earnings management predicts lower future profitability, even if the value increases that led to the FVA profits were permanent. The iron law of earnings management is based on the observation that all accruals eventually reverse; thus if earnings were high due to FVA gains this period then, *ceteris paribus*, earnings would be lower in the future when the value increase is realised. FVA sucked profitability from the future.

Lower future profitability would result even if the value increases were permanent due to the reversal of the accruals. If the value increase were not permanent then future profitability would be even worse due to the need to recognise losses. Bank management were often able to postpone the recognition of FVA losses by using the flexibility inherent in FVA regulations, but lending was slowed to a point reflective of "safe" (capital excluding unrealised items) capital levels. Lending activity will stay subdued until all of these marked-up items have been worked off the banks' balance sheets.

The next chapter is about whether the South African results are due to implementation issues (inexperience or earnings management) with FVA or due to FVA itself.

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12. Appendix

12.1 *Derivation of mathematical results:*

If $C_0 = \frac{A-L}{A}$ then:

Let $u = A - L$ and $v = A$; then

$\frac{du}{dA} = 1$ and $\frac{dv}{dA} = 1$

$\frac{\partial C_0}{\partial A} = \frac{v\frac{du}{dA} - u\frac{dv}{dA}}{v^2} = \frac{A.1-(A-L).1}{A^2} = \frac{L}{A^2}$

If $C_2 = \frac{(1+\lambda)A+B-(L+B)}{(1+\mu)\sum r_i a_i + r_j B} = \frac{A-L}{\sum r_i a_i} = C_1$ then:

$A\sum r_i a_i + \lambda A\sum r_i a_i + B\sum r_i a_i - L\sum r_i a_i - B\sum r_i a_i = A\sum r_i a_i + \mu A\sum r_i a_i + ABr_j - L\sum r_i a_i - \mu L\sum r_i a_i - BLr_j$

$B(-Ar_j + Lr_j) = -(\lambda - \mu)A\sum r_i a_i - \mu L\sum r_i a_i$

$B = \frac{(\lambda-\mu)A\sum r_i a_i + \mu L\sum r_i a_i}{(A-L)r_j} = \frac{(\lambda-\mu)A+\mu L}{r_j C_1}$

If $C_3 = \frac{(1+\Omega\lambda)A+B-(L+B)}{(1+\Omega\mu)\sum r_i a_i + r_j B} = \frac{A-L}{\sum r_i a_i} = C_1$ then:

$A\sum r_i a_i + \Omega\lambda A\sum r_i a_i + B\sum r_i a_i - L\sum r_i a_i - B\sum r_i a_i = A\sum r_i a_i + \Omega\mu A\sum r_i a_i + ABr_j - L\sum r_i a_i - \Omega\mu L\sum r_i a_i - BLr_j$

$B(-Ar_j + Lr_j) = -(\lambda - \mu)\Omega A\sum r_i a_i - \Omega\mu L\sum r_i a_i$

$B = \frac{\Omega(\lambda-\mu)A+\Omega\mu L}{r_j C_1}$

If $B = \frac{\Omega(\lambda - \mu)A + \Omega\mu L}{r_j C_1}$ then:

Let $u = \Omega(\lambda - \mu)A + \Omega\mu L$ and $v = r_j C_1$ then

$\frac{du}{d\Omega} = (\lambda - \mu)A + \mu L$ and $\frac{dv}{d\Omega} = 0$

$\frac{\partial B}{\partial \Omega} = \frac{v\frac{du}{d\Omega} - u\frac{dv}{d\Omega}}{v^2} = \frac{r_j C_1.[(\lambda - \mu)A + \mu L]}{(r_j C_1)^2} = \frac{(\lambda - \mu)A + \mu L}{r_j C_1}$

12.2 *Graphical representation of the development of Figure 6.2:*

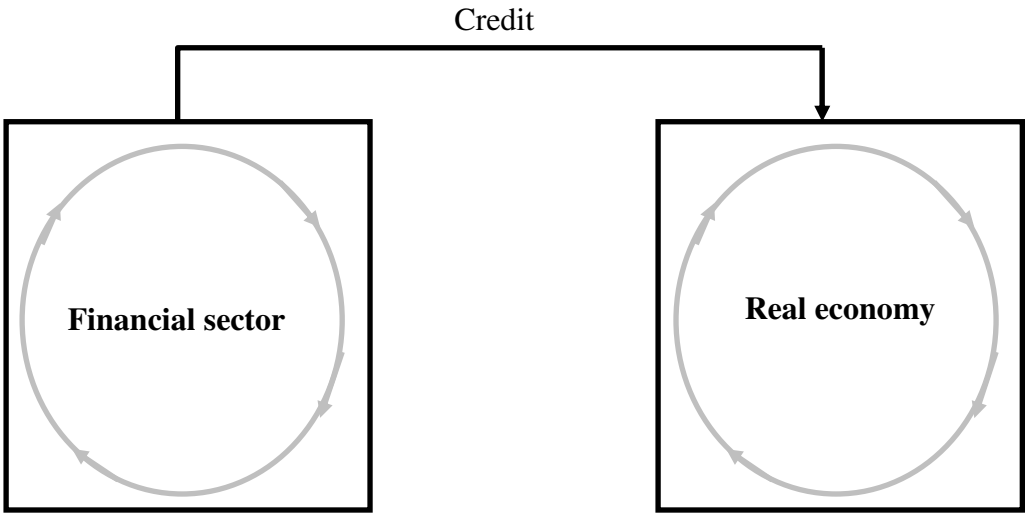

Fig. A. $C_2 = \frac{(1+\lambda)A+B-(L+B)}{(1+\mu)\sum r_i a_i + r_j B}$

The following example will illustrate the main points. A bank (or the total banking system) has $100 of total assets (*A*) with 30% of those assets subject to FVA and 70% of those assets subject to historical cost accounting. The bank has equity capital of $6 (*A–L)* and deposit liabilities of $94 (*L*). The capital ratio is thus 6/100=6% and the effective tax rate is 30%. If the market value of the fair valued assets increase by 10% then the value of λ is (30*(10%*(1-30%)))/(30+70) = 2.1%. An increase in debt-financed assets of 2.1/6% = $35 is required. After this increase the original capital ratio is restored ($\frac{A-L}{A}$ = ((100+2.1+35)-(94+35))/(100+2.1+35)=6%). Additional demand for financial assets is $35 and $35 of additional spending power is made available to the real economy.

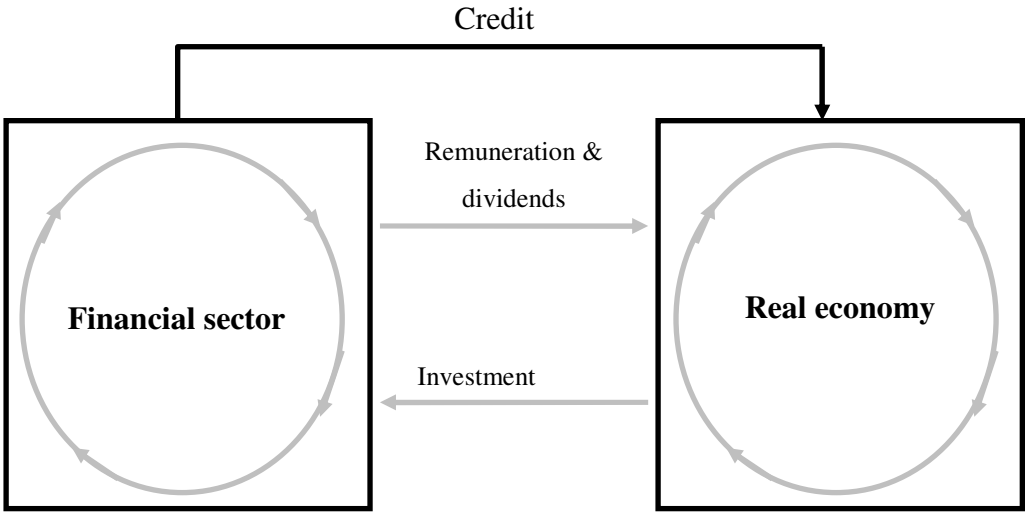

Fig. B. $C_3 = \frac{(1+\Omega\lambda)A+B-(L+B)}{(1+\Omega\mu)\sum r_i a_i + r_j B}$

The previous example of the bank above is developed further in this paragraph. Suppose that the remuneration and dividend policy of the bank is that 50% of after tax profits is paid as remuneration and that 25% of after tax profits is paid as dividends; in this case, the retention rate of the bank is 25% (Ω). If only 25% of the 2.1% increase in average assets is retained (100*2.1%*25%= $0.525 is left as additional capital and 100*2.1%*75%= $1.575 is paid out), then the debt-financed increase in financial assets required to restore the 6% capital ratio is (2.1*25%)/6%= $8.75. The asset expansion (B) and the remuneration and dividend payments to the real economy (1- Ω) increase the spending power available to the real economy by 1.575+8.75= $10.325; substantially less than the $35 previously when Ω was equal to one. The new demand for financial assets is only $8.75 versus the $35 previously. The reason for the differences is the gearing that takes place inside this banking system.

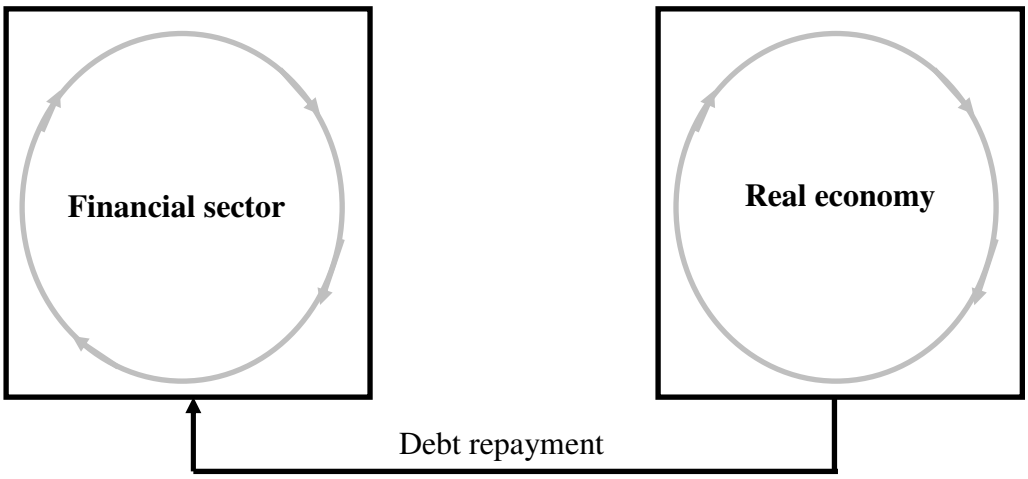

Fig. C. $\lambda < 0$

The previous example of the bank now continues. Given λ=-2.1% the reduction in financial assets and deposits required to restore the 6% original capital ratio is equal to $-35. This reduces the demand for financial assets as well as the spending power available to the real economy. In our example a 2.1% increase led to a $10.325 increase in spending power for the real economy and increased demand for financial assets of $8.75. A decrease of 2.1% leads to a reduction in spending power available to the real economy of $35 and a reduction in the demand for financial instruments of $35. The reason for this difference between the increase in balance sheet required and the decrease in balance sheet required to restore the original capital ratio is because no contribution towards alleviating the capital shortage can be expected from employees and shareholders ($\Omega = 1$) with the 2.1% decrease.

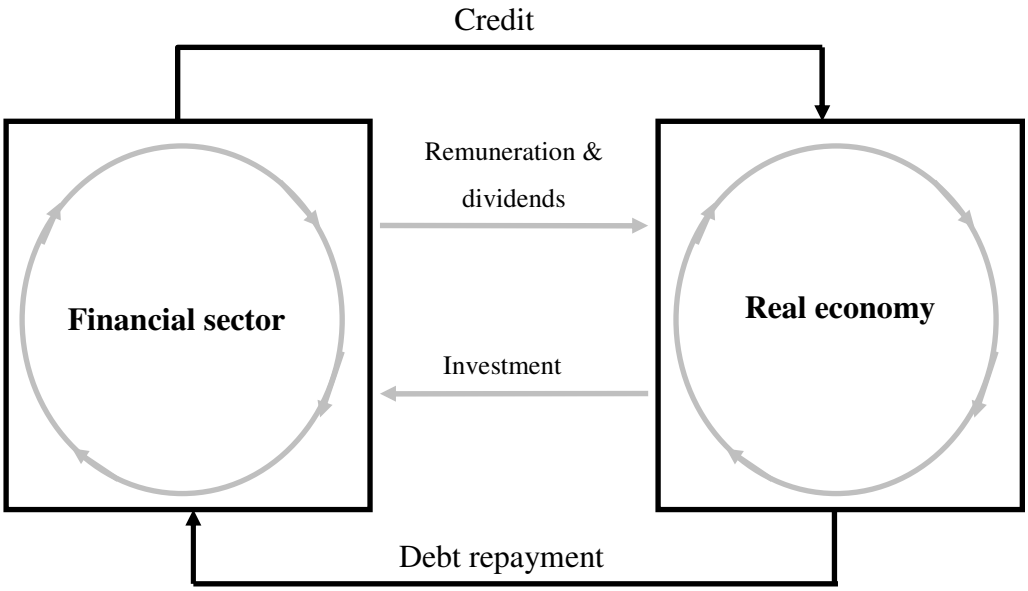

Fig. D. $\frac{\partial\lambda(t)}{\partial t} = \mathbf{f(B(\lambda), \Omega(\lambda), \Phi)}$

The previous example is now continued: thus, it has already been shown that with λ=2.1% and Ω=25%, the increase in financial assets and deposits required to restore the 6% original capital ratio is equal to $8.75 and the increase in spending power available to the real economy is $10.325. Let us now suppose that that the real economy spends 50% of any additional spending power on the purchase of financial assets and that the demand function for financial assets is a simple linear function of the form $Q=10+90P$. The additional demand for financial assets is 10.325/2+8.75= $13.9125. Using the demand equation the initial price was 1 as the total of financial assets available then equated $100. The total level of demand is now 100+13.9125= $113.9125 and solving the demand equation the new price equals 1.16. As 30% of the assets are subject to fair value accounting then 30% of that 16% increase will enter capital via FVA and set the whole process in motion again.

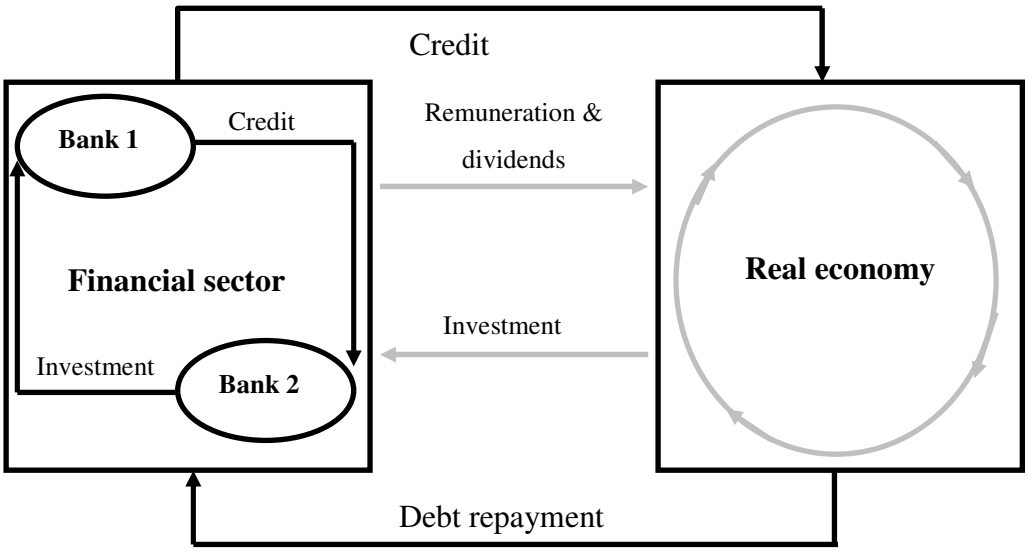

Fig. E. (R_{asset} - $R_{liability}$) > 0

CHAPTER SEVEN: SEPARATING FAIR VALUE ACCOUNTING FROM ITS USE

1. Introduction

An argument for investigating the use of FVA, made in the introduction to this thesis, is that the implementation of a perfectly good accounting standard can have unintended consequences. Empirical evidence on the use of FVA by South African banks was gathered from before and after the global financial crisis. One conclusion was that South African banks did not use FVA in a neutral manner; FVA generated profits were accepted but FVA generated losses were avoided. Another conclusion was that South African banks made pay-outs from unrealised FVA gains leading to fragility. Asset expansion during the boom was also shown to be excessive. The question that arises is whether these results are due to the way FVA was used by the South African banks or whether the results are inherent to FVA. The use argument can be split further into two possibilities; the possibility that the results found were due to the inexperience of South African bank managers with IAS 39 (and IFRS) (South Africa only adopted IFRS in 2005) or the possibility that South African bank managers were using FVA to manage earnings.

This section will proceed as follows. First, the possibility of inexperience with IFRS being behind the results will be investigated. Thereafter, the possibility that FVA is another earnings management tool will be investigated. Finally, the possibility that the results are due to inherent flaws in FVA will be investigated.

2. Inexperience with IAS 39 (and IFRS)

IFRS was complex to implement (Jermakowicz, Prather-Kinsey and Wulf, 2007; Paananen and Lin, 2009:38) with IAS 39 arguably one of the most challenging standards within IFRS (Jermakowicz, 2004:60; Sucher and Jindrichovska, 2004:112). Sucher and Jindrichovska (2004:126) also argue that IAS 39 implementation in a "transitional economy" is likely to be even more difficult due to interpretation issues of fair values and the greater use of fair value estimates. Brown and Tarca (2012:322) argue that the consequences of lack of expertise in IFRS (of preparers, auditors and information systems) may be significant. Based on the literature a plausible explanation for the South African findings is thus a lack of experience with IAS 39 as mandatory IFRS adoption was only in 2005.

How inexperienced were the South African bankers? South African banks in fact adopted IFRS already in 2004 as comparative figures according to IFRS were needed in 2005 (Bank Supervision Department of the South African Reserve Bank, 2006:27). The chapter on the South African context also showed that from the beginning of the 2000's the local South African accounting standards were harmonised with IFRS. The South African version of IAS 39, AC 133, was implemented in January 2001. For these reasons the switch to IFRS in 2005 was a non-event as can be seen from the insignificance of the adoption adjustments of the five systemic banks: Absa Group (1.6% less net profit after tax in 2004), Nedbank Group (no change in net profit after tax in 2004), Standard Bank Group (0.6% less net profit after tax in 2004), Firstrand Group (1.8%[1] less net profit after tax in 2005) and Investec Group (6.4%[2] more net profit after tax in 2005). The implication is that by the time of the global financial crisis, South African bankers were not completely inexperienced with IFRS and IAS 39.

The South African evidence obtained in this thesis provided two pertinent examples of a change in behaviour as it relates to FVA: Investec Bank Limited after 2009 started to base their bonuses on *realised* profits and Firstrand Limited from 2010 onwards based dividend cover on sustainable earnings excluding volatile FVA components. In addition, the CEO of Nedbank in 2013 acknowledged that FVA entries in earnings are of lower quality. The possibility that additional pay-outs were made due to inexperience with FVA and that going forward (with more experience) the same mistake will not be made again thus seems reasonable. The mistake picked up in the 2011 annual financial statements of the Standard Bank of South Africa also demonstrates inexperience.

However, dangerous pay-outs were only one source of fragility in the model chapter. Commercial banks form part of a feedback process between the real economy and the financial economy where FVA increases the pro-cyclicality of lending as increases in bank profits and capital during upturns support the overextension of credit. Pay-outs, all else equal, actually dampened the feedback process. The conclusion that all would be well if banks refrain from making pay-outs from unrealised FVA gains ignores the core feedback process. If FVA gains in profits (and thereafter in capital) are risky then the heart of the problem is to not allow debt financed asset expansion underpinned with the risky capital. The implication

[1] Changes due to IFRS remeasurement.
[2] None of the Investec Group change was due to IAS 39. IFRS 2 share based payments and goodwill adjustments made up the bulk of the change.

of the foregoing argument is that banks will need to track the risky component of retained income (whether for the pay-out or the asset expansion argument) and because of moral hazard[3] disclose it, either to the bank regulator (regulatory rules will need to change) or to financial markets (accounting will need to change). Tracking the risky component of retained income will not be too onerous as banks already have to track it for other purposes. South African banks had to track it for income tax purposes (income tax is only payable on realisation) and in the case of Investec, after 2009, for remuneration purposes.

It can be argued but not completely proven that increased pay-outs are a direct result of FVA. Inexperience can explain the pay-outs but the South African bankers were not that inexperienced. Inexperienced or not the results highlight that FVA components of retained income are risky and should be tracked and disclosed. The next section investigates whether the conclusion that South African banks did not use FVA in a neutral manner is not perhaps a manifestation of earnings management?

3. Earnings management

This section focuses on the finding that South African banks did not use FVA in a neutral manner and starts by defining earnings management and some key findings. Thereafter the focus shifts to earnings management in banks and the findings in the South African case study.

Scott (2009:402) argues for both "good" and "bad" earnings management. "Good" earnings management allow managers to reveal their inside information to investors. "Bad" earnings management aims "to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers" (Healy and Wahlen, 1999:368). No matter what the motivation, "earnings management is the choice by a manager of accounting policies, or actions affecting earnings, so as to achieve some specific reported earnings objective" (Scott, 2009:403). The use of real transactions to manage earnings, even though apparent in the definition above, is not the focus of this section. Rather, this section aims to investigate whether earnings

[3] Bank managers are not incentivised to act in the best interest of society and thus reliance should not be placed on their goodwill and experience. Banks play too an important role in the economic system.

management via accounting choice can explain the South African results; i.e. are the results attributable to FVA or to the way that management made use of FVA.

An important aspect of earnings management is the so-called "iron law" of earnings management; that accruals eventually reverse. Thus, higher earnings that cannot be sustained will lead to lower future earnings (Scott, 2009:404). This aspect of earnings management was referred to when making modest predictions of how future bank profitability is likely to unfold.

Studies by Healy (1985) and Holthausen, Larcker and Sloan (1995) show that managers use accruals to manage earnings so as to influence their bonuses. For banks realised security gains (gains trading), loan loss provisions and loan write-offs are the common avenues of earnings management (Collins, Douglas and Shackelford, 1995:267; Healy and Wahlen, 1999:378). Beatty, Chamberlain and Magliolo (1995) found that regulatory capital affects loan loss provisions, loan write-offs and external financing simultaneously. The implication for this thesis is that the South African results can be due to bank managers maximising their bonus pay-outs, especially when considering that Investec Bank Limited applies no upper limit to potential bonuses. If bank managers use FVA for earnings management purposes then it is likely to be used in conjunction with other earnings management avenues.

The obvious avenues of accounting choice in IAS 39 are the "designate at fair value" option, the different levels of fair value determination and reclassifications (Paananen, Renders and Shima, 2012). Paper I: Liberal fair value accounting in South African banks contributes to the accounting literature by identifying two more IAS 39 related avenues of accounting choice. First, the ratio between total assets at fair value and total liabilities at fair value is a key factor in determining fair value profits. Second, comparative figures can be adjusted in accordance with IAS 8 to overcome the IAS 39 ban on reclassifications into and out of the "designated at fair value" category.

Table 4.11 summarised the evidence on the use of reclassifications, transfers and remeasurements to influence FVA outcomes by Investec Bank Limited and the Standard Bank of South Africa. What stands out is that all but one of the actions took place around the global financial crisis. The only exception took place in 2011 and was the transfer by the Standard Bank of South Africa of R 27 billion of liabilities from valued at cost to "designated

at fair value". An interpretation is that prior to the global financial crisis the two banks used FVA as is, not using their accounting choice to influence outcomes. Further evidence to support this conclusion is that of the increased pay-outs; if management were using earnings management they would have been more likely to see the additional earnings as temporary and not make dividend pay-outs from it. In addition, during 2006 FVA had a negative effect on the annual profit of Investec Bank Limited. This took place in the midst of the overall build-up of unrealised gains in retained income as indicated on Table 4.4. If the bank was using FVA as earnings management tool during the upturn then why did it not avoid this negative adjustment and so smooth earnings? Finally, in Paper II: For banks fair value adjustments do influence dividend policy on Table 5.7 it was found that FVA adjustments from the banking book reduced the yearend earnings management dummy by only 8%. In other words, the impact from FVA was minimal during the upturn.

However, the use of FVA during the crisis is another story. Clearly the flexibility in FVA was used by the two South African banks to avoid losses. The South African banks were not unique in avoiding FVA losses during the global financial crisis (Fiechter and Meyer, 2011; Bischof, Brüggemann and Daske, 2010). One can argue that this is an example of "good" earnings management where management signalled their inside knowledge that financial instrument values were not as bad as indicated by market values. Yet, one can also argue that this was not earnings management but rather a unique systemic event with banks expected and facilitated to have avoided FVA losses. Clearly, the flexibility in FVA regulations can be used to manage earnings and the 2011 adjustment by the Standard Bank of South Africa seems like earnings management, this time separate from the global financial crisis.

Further evidence of no earnings management before the crisis can be obtained by investigating the mix of capital used by the Standard Bank of South Africa and the Standard Bank Group Limited before the crisis to fund the exceptional asset growth observed in the second paragraph of section 8 in Chapter four. If bank management regarded the unrealised FVA gains in retained income as temporary they would not have raised additional equity and subordinated bond finance to augment retained income.

3.1 *Funding mix of the Standard Bank of South Africa and the Standard Bank Group Limited*

The idea behind this section is if bank management are managing earnings using FVA then they know that a portion of capital locked up in retained earnings is risky and they will thus not grow the bank's other sources of capital (that funds the growing asset base) at the same pace (or faster) as retained earnings. This possibility for the largest bank in South Africa, Standard Bank, is investigated in the table below.

STANDARD BANK OF SOUTH AFRICA	**2004**	**2005**	**2006**	**2007**	**2008**	**2008 Actual capital ratios**	**Average capital ratios**	**2008 Pro forma capital figures**
Share capital & premium	8197	10790	15790	21290	22790	46%	41%	10907
Retained income	9992	9403	9278	10530	14438	29%	33%	8717
Subordinated debt	7869	7832	10862	12985	11809	24%	27%	7156
	26058	**28025**	**35930**	**44805**	**49037**			
Defered tax balance due to FVA on financial instruments	1816	2241	3144	3844	4877			
STANDARD BANK GROUP LIMITED								
Share capital & premium	2676	2242	2439	1368	16997	18%	10%	8371
Retained income	30486	35198	41809	53028	59693	62%	68%	55042
Subordinated debt	9493	10445	15516	18759	19088	20%	22%	17523
	42655	**47885**	**59764**	**73155**	**95778**			
Defered tax balance due to FVA on financial instruments	1857	2319	3340	4039	4652			
STANDARD BANK OF SOUTH AFRICA	**2008**	**2009**	**2010**	**2011**	**2012**	**Compound growth 2004-2012**		
Share capital & premium	22790	24290	25290	27290	35256	20%		
Retained income	14438	19170	22212	26039	34277	17%		
Subordinated debt	11809	15814	15683	16095	22400	14%		
	49037	**59274**	**63185**	**69424**	**91933**			
Defered tax balance due to FVA on financial instruments	4877	3040	1293	1808	1807	0%		
STANDARD BANK GROUP LIMITED								
Share capital & premium	16997	17197	17522	17735	18092	27%		
Retained income	59693	67999	75897	82777	92832	15%		
Subordinated debt	19088	24195	20685	22328	29185	15%		
	95778	**109391**	**114104**	**122840**	**140109**			
Defered tax balance due to FVA on financial instruments	4652	3213	1537	1882	2751	5%		

Table 7.1 Summary of the funding mix of the Standard Bank of South Africa and the Standard Bank Group Limited over time (sourced from the annual financial statements).

The data in Table 7.1 was hand collected from the balance sheets of the Standard Bank of South Africa Limited (the bank licence holder) and the Standard Bank Group Limited (the listed holding company). The first three rows, totalled in the fourth row thereafter, for each entity collates the regulatory capital of that entity, excluding reserves not through profit and loss (under Basel II such reserves were excluded from regulatory capital). This capital was available to fund the asset book growth, noted on page 103, of 13% (2004 to 2012) and 25% (2004 to 2008) for the Standard Bank of South Africa Limited and 12% (2004 to 2012) and

25% (2004 until 2008) for the Standard Bank Group Limited. What the compound growth figures on Table 7.1 indicate is that for the whole period capital grew faster than assets with "Share capital & premium" growing the fastest. This is consistent with a global financial crisis response of more capital held after the global financial crisis. The figures also show that the deferred tax liabilities due to FVA adjustments on financial instruments over the whole period hardly grew, but over the shorter term peaked and then dropped off – indicating risk. Retained income is the capital component where the related after tax portion of these unrealised FVA gains would have ended up (in Paper one it was found that South African banks did not have material AFS reserves).

The focus of this section is not on the full period 2004 to 2012 but rather on the upswing period 2004 to 2008. The capital ratio columns indicate the portion of total capital represented by each capital item. The 2008 pro forma capital figures column indicates an adjusted value for each capital item. The adjustment worked as follows. "Retained income" in 2008 was adjusted for the risky portion of "Retained income". The risky portion of "Retained income" was defined as the difference between the 2008 deferred tax balance and the long-term average deferred tax balance for that entity (2004 to 2012) divided by the current 28% South African income tax rate multiplied with (1-28%). With risk-free "Retained income" in 2008 known the values of the other two capital items could be calculated using the 2004 to 2012 average capital ratios. Now compare the 2008 pro forma capital figures with the 2008 actual capital figures. If management was managing earnings and capital, and thus aware that a portion of retained income was risky, then the capital base would have grown from 2004 to the 2008 pro forma figures. Instead, "Share capital & premium" and "Subordinated debt" grew much faster indicating that management regarded the whole of "Retained income" as risk-free. In terms of funding mix the managers did not treat the FVA generated component of retained income as temporary.

4. Problems in FVA

The possibility that the South African results are due to problems in FVA is investigated in this section.

Neither the decision to expand a bank's asset base nor the decision to pay out remuneration and dividends can be directly linked to FVA. Those are second order effects. Management

make those decisions. The use of FVA in earnings management is also the decision of management. Does this mean that FVA played no role in the South African results? A role for FVA can be argued, if FVA is used as an earnings management tool, based on FVA giving management too much flexibility. In addition, in the case of inexperience, a role for FVA can be argued based on FVA being too complex, FVA obscuring risky capital in retained earnings and the inability of bankers to act differently while "the music is playing".

The section above showed that it is unlikely that FVA was used for earnings management in South Africa before the global financial crisis. However, the probability is much higher during and after the global financial crisis that FVA might have been used for earnings management. FVA is clearly a more flexible accounting regime than earnings management under cost accounting. Some judgement must be permitted (Healy and Wahlen, 1999:366) in the use of accounting standards but the implication of allowing flexibility is that accounting standards cannot be regarded as blameless when that flexibility leads to unwanted outcomes.

FVA standards are partly to blame even if it is accepted that the South African observations are based on the inexperience of managers with FVA. Accounting standards that are so complex that high-level managers (of large banks) and their big four auditors are still inexperienced after four years (2008 less 2004) of experience with IFRS, are arguably too complex.

The model paper showed FVA to be central in a feedback process between the financial sector and the real economy with the debt-financed expansion of bank balance sheets and pay-outs from unrealised gains behind fragility. The model focused specifically on FVA adjustments that impact profit and loss and thus ends up in retained income and in regulatory capital. By allowing risky components into retained income accounting helped to obscure the risk. Management might have assumed all of retained income to be of the same risk as paid up capital as the realised and unrealised items are combined. Even if management was aware that all of retained income was not of the same risk as paid up capital (implying conservative asset expansion relative to available capital and conservative pay-out policies relative to profit levels) they would have found it difficult to justify conservative behaviour to the market during the boom years while the "music was playing", famously said by Chuck Prince of Citibank when explaining why Citibank did not exit markets that they knew were risky (Cassidy, 2009:12).

A core issue that was highlighted in the modelling paper is that market values for financial instruments are not independent of banks as a group, unlike market values for financial instruments relative to non-banks. Banks as a group strongly influence values by being market makers, by influencing the money supply with their actions and by speculating. Even in very liquid markets, such as the foreign exchange market, banks have been shown to be able to influence values; testifying to the lack of objective values relative to banks. Without objective values banks as a group can get caught up in a cycle of increasing values generating more profit through FVA that further increase values through more financial instrument transactions.

5. Conclusion

This chapter showed that the South African results are arguably due to inexperience with IAS 39 and IFRS. It was shown that the results observed during the upturn (before the global financial crisis) are not likely to have been due to earnings management.

Does this mean that FVA itself played no role in the South African results? If inexperience was behind the South African results then the FVA standard was arguably too complex if one considers the quality of the people involved at the large South African banks and the time it took them to gain experience. In addition (with inexperience behind the results) FVA obscured the risky components of retained earnings by allowing the combination of risky and non-risky components. Finally, even if management was experienced enough to not base further asset expansion and pay-outs based on the risky components of capital they would have found it difficult to justify conservative behaviour (relative to capital levels and profits) to the market whilst the upswing was in place.

If the results (shown to be unlikely) were due to earnings management then FVA cannot be regarded as blameless when the flexibility in the standard leads to unwanted outcomes.

Systemic risk is difficult to observe on a micro level and thus the possibility that FVA, banks, market making by banks, speculation by banks and money supply interact to form a feedback system that increases fragility should not be charged to individual bank managers to control. Even if bank managers are experienced enough they will probably be as unable as everybody else to spot financial bubbles reliably. And even if they are able to spot the bubbles then they

have to be able to convince the market that they are correct. Due to the centrality and importance of banks in the modern economy a regulatory intervention will be more appropriate rather than expecting the impossible from bank managers.

The chapter hereafter will conclude this study. That chapter will review the research process, summarise the findings of each chapter and then link them together. Subsequently, the thesis statement will be evaluated and the overall conclusions drawn. Finally, suggestions for future research will be made.

CHAPTER EIGHT: GENERAL DISCUSSION AND CONCLUSION

1. Review of the research process and summary of findings

The overall objective of the larger study is to investigate the role of FVA in the global financial crisis by gathering empirical evidence on the use of FVA by South African banks (with the focus on the time period before the crisis) and then to develop a theoretical perspective on the problem. To this end, a South African case study was performed and a theoretical model was developed with bank capital and bank behaviour as the nexus and financial crisis endogenous. That case study informed and enriched the theoretical model. The advantage of using a case study design is that it allows an extensive and in-depth description of a given social phenomenon; an essential step in this instance as it was necessary to understand and explain the behaviour of bank management. The approach adopted in this study was to place the case study and the model in three separate publication-ready papers. These papers were linked together by the use of additional chapters with a global introduction and conclusion. The remainder of this section will briefly revisit the findings of each chapter.

1.1 *Chapter two (literature review): The global financial crisis and the role of fair value accounting*

This chapter reviewed the global financial crisis and the role of FVA in that crisis. A possible reason for the lack of attention that has been given to the time-period before the crisis was also identified.

As part of the review of the global financial crisis, the conclusions of the NCCFEC were discussed. At the end of chapter six (the model paper), the conclusions of the NCCFEC were related to what was found in the three papers. In this way, the global applicability of the study's results was emphasised. The review of the global financial crisis showed that there is currently no consensus on what caused that crisis and that FVA played a potential role. The role of FVA in the global financial crisis was therefore reviewed next. What emerged from that review was that the empirical work performed focused on the role of FVA *during* the financial crisis. No strong role was found. The possibility that management used the flexibility in FVA to avoid losses during the crisis was not addressed in the empirical papers. A few researchers did raise the possibility that FVA encouraged dangerous behaviour *prior* to the global financial crisis but this idea has not been empirically investigated. The review

explained why the impact of FVA on profit and loss and not just AFS reserves should be investigated.

The review also investigated the relationship between the EMH and FVA as a plausible reason for the lack of attention given to the time-period before the crisis. The rationale for this step was bolstered by the claims that the global financial crisis was caused by exogenous events and that "accounting is only a messenger". The relationship between FVA and the EMH was found to be strong and combined with an EMH that does not imply market values are equal to fundamental values, opened the way for FVA playing a role in feedback processes working through market values. The first step in the empirical work was to explore how banks actually used FVA (the South African case study).

1.2 *Chapter three: The South African context*

This chapter contextualised the South African case study to follow. The chapter focused on South African banking regulations and accounting standards. The chapter also considered the question of whether the fact that no South African banks failed during the global financial crisis implied that South African banks and their actions are not comparable to other Western banks. The conclusion of the chapter was that South Africa can be regarded as a representative case. This conclusion concurs with the work done at the end of chapter six where the results of each paper were discussed relative to the NCCFEC report.

Within this context the larger study can now move to the next chapter that forms the first part of the South African case study, which investigates how two South African banks actually implemented FVA in practice.

1.3 *Chapter four (paper one): Liberal fair value accounting in banks: A South African case study*

This paper used an inductive approach to investigate in detail how two South African banks used FVA before and after the global financial crisis. It was found that the two banks did not apply FVA in a neutral or impartial manner. A novel way using deferred tax was devised to estimate the percentages of profit and capital that are due to unrealised fair value adjustments on financial instruments. The actual level of profits and capital derived from FVA was found to be surprisingly high and concurred with the view that FVA is procyclical over the long-term. Over the short-term, it was found that both banks actively avoided the recognition of FVA losses during the downturn. The smaller bank was the slower one to recognise losses.

Techniques used to avoid the recognition of losses included intergroup transfers, transfers between FVA levels, reclassifications and adjustments to comparative figures. The result of changing the gap between total assets at fair value and total liabilities at fair value was a change in the group entity where overall FVA profits and losses manifested. The chapter concluded with a calculation of asset growth and a consideration of the evolution of remuneration in the two banks. It was found that assets increased the most during the period that FVA impacted profit positively and peaked as a component of retained income. Remuneration was overpaid before the crisis.

At the end of chapter six a comparison was made between American banks and what was found for the South African banks. The outcome of that comparison showed that the overall conclusion of this chapter (four), that bankers accept FVA gains but resist losses, is likely to hold outside South Africa. Moreover, it was found that the tools used by the South African banks also seem to be used by U.S. banks and broker-dealers; these tools would include strategically altering the ratio between assets at fair value and liabilities at fair value and moving items along the fair value hierarchy.

The next chapter continued the South African case study and investigated whether South African banks paid dividends from FVA profits during the boom; the investigation used South African banking system data obtained from the regulator.

1.4 *Chapter five (paper two): For banks fair value adjustments do influence dividend policy*

This paper investigated whether South African banks paid out dividends from profits that had been increased by FVA during the economic upswing. If banks did pay out dividends based on unrealised FVA profits then this is an example of bad capital driving out good capital. The unrealised FVA profits increase bank capital, all else being equal, and paying out dividends reduces bank capital; consequently, the end result of paying out dividends based on unrealised FVA profits should, on the surface, show no signs that anything has changed. However, this impression is incorrect because the counterpart to the increase in capital is found in less liquid financial instruments whereas the counterpart to the dividend payments is in the most liquid instrument: money. This leaves the bank more vulnerable to a crisis as capital quality was reduced in the process.

This paper could not test directly whether unrealised FVA gains are relevant when setting dividends because IFRS 7 does not require the disclosure of realised versus unrealised income statement items. As a result the conclusions of this study depend on three strands of evidence taken together. A panel data regression of the change in dividends of the five largest South African banks shows that unrealised FVA gains were probably ignored when these banks made dividend decisions. This was also confirmed at a meeting of the Banking Project Group and from the financial statements of the banks following the crisis. The materiality of transitory FVA gains in profit was shown with a co-integrated regression of the monthly net profit of the total South African banking system; FVA entries from the banking book increased profits materially. The proportion of profits paid out as dividends showed that the banks did not decrease their dividends in response.

The next chapter developed an analytical model to make sense of what was observed in South Africa.

1.5 *Chapter six (model paper): Fair value accounting, fragile bank balance sheets and crisis: A model*

This paper proposed and developed an alternative theoretical model through which to view the use of FVA by large banks. This alternative model was developed as a model with crisis endogenous, enriched with the South African case study.

That model explained the procyclical expansion of bank balance sheets during the economic upswing followed by a contraction during the downturn; any such contraction takes place over the long-term because of management intervention that blunts the impact of FVA over the short-term. By incorporating the payment of dividends and remuneration from profits into the model it was demonstrated that the need for balance sheet expansion during the upswing is moderated by these payments; this implies that the balance sheet contraction required during a downturn will be greater than the preceding balance sheet expansion. A state of crisis was shown to be inherent in the model's working because of systemic fragility caused by running out of suitable investment opportunities, bad capital driving out good capital and reaching for yield.

Two features of the model are highlighted next. First, money supply was not assumed to be just a response to credit demand in the economy. Rather, money supply was shown to be

critical to economic outcomes. Second, feedback effects were integral to the model and its predictions. The feedback effects are between the real economy and the financial sector and within the financial sector. These feedback effects explain why FVA is procyclical and amplifies the boom and bust business cycle: even though in equilibrium (the usual assumption made by economists), the real economy's credit demand is unaffected by FVA.

An empirical example was given towards the end of the paper to demonstrate the materiality of FVA components in profit and loss and retained earnings of Dutch bank ING and South African bank Standard Bank.

At the end of the chapter the model was linked with the review of the global financial crisis. First, it was shown that the capital ratios of four large American broker-dealers evolved similarly to those of the South African banks. Next, it was shown that the model aligns with and explains observations made by the NCCFEC about feedback effects and a search for yield in the American economy during the run-up to the crisis. The payment of excessive remuneration can also be linked back to the model.

1.6 *Chapter seven: Separating fair value accounting from its use*

This chapter investigated whether FVA itself or rather its use by people could explain the results found. The chapter showed that the South African results are possibly due to inexperience with IAS 39 and IFRS. The results observed during the upturn are not likely to have been due to earnings management. Even if inexperience explains the results, FVA could have played a role in the crisis by being very complex, by obscuring the risky component of retained earnings or by putting bank management in a position where they have to act as if the capital is not risky due to market pressure. If earnings management explain the results then FVA could have played a role in the crisis by granting bank management the flexibility that they then abused.

It is argued that regulatory intervention is needed as placing the burden on "experienced" individual banks to spot asset bubbles and risky capital is unreasonable.

2. General discussion[1]

In the introduction chapter the literature review led to seven research objectives. The seven research objectives, taking into account that the thesis is structured as a compilation of research papers, were reduced to three research questions, one for each paper. Those research questions were joined together with a provisional global research question. The global research question led to the thesis statement.

The first objective of the thesis was to determine how FVA was practically applied by banks, both before and after the global financial crisis. Paper one was exploratory and focused on this research objective with the research question: *What can be learned from large South African banks' practical use of FVA before and after the global financial crisis?* The following was learned. That South African banks applied FVA asymmetrically; FVA adjustments that increased profits were accepted as is whilst FVA adjustments that decreased profits were actively avoided. That for South African banks FVA adjustments related to AFS assets were immaterial compared to FVA adjustments that impacted profit and loss. That a majority of assets and liabilities need not be subject to FVA in order for unrealised components of profits and regulatory capital to be substantial. That the unrealised components of profit and loss and retained income can be deduced by using deferred tax information. That the Standard Bank of South Africa in 2011 made a mistake of R26 992 million in their annual report. That most financial instruments in South Africa (and also in the United States) are at level 2 of the FVA hierarchy. That IAS 8 can be used to get around the prohibitions of IAS 39. That the gap between total assets at fair value and total liabilities at fair value, combined with interest rate movements, determine whether FVA generates profit or losses.

The second objective of the thesis was investigate the significance and impact of FVA entries that impact profit and loss from held for trading financial instruments (including derivatives) and financial instruments designated at fair value. Paper one addressed this objective and found that for South African banks FVA adjustments related to AFS assets were immaterial compared to FVA adjustments that impacted profit and loss. Paper two also addressed this

[1] Hofstee (2009), within the context of a normal monograph thesis, recommends that this section be a conclusion about the thesis statement whereas Gustavii (2012), within the context of an article-based thesis, recommends a general discussion section. The approach taken in this study is to combine their recommendations. First, the achievement of the individual research objectives will be discussed; thereafter the thesis statement will be presented and evaluated to comply with the University of Cape Town's requirements.

objective by using monthly regulatory data for the total South African banking system and found that FVA adjustments from the banking book materially impacted profit and loss.

The third objective of the thesis was to evaluate whether the observed usage of FVA before the global financial was due to implementation issues (inexperience or earnings management) or due to FVA itself. This objective was specifically addressed in Chapter seven and will be discussed as part of the thesis statement evaluation.

The fourth objective of the thesis was to investigate whether the limited use of FVA can impact systemic fragility. This research objective was partly addressed in Paper one that found a majority of assets and liabilities need not be subject to FVA in order for unrealised components of profits and regulatory capital to be substantial. Paper three specifically addressed this concern with a running example in the appendix that show how fractional reserve banking amplifies a minor position.

The fifth objective of this thesis was to establish whether the findings of Goncharov and van Triest (2012) hold in a setting of South African banks. Paper two was quantitative and focused on this research objective with the research question: *Did South African banks pay increased dividends based on FVA gains?* The results showed that South African banks did.

The sixth research objective was to investigate how FVA was used by South African banks for specific reasons. Paper one addressed this objective. Most financial instruments held by South African banks are not liquid as assumed by the South African revenue authority. The behaviour of the South African banks was not always prudent as expected by the South African bank regulator.

The seventh research objective was to find or develop theory that can explain what was observed. Paper three focused on this research objective with the research question: *What theoretical perspective can best explain the South African and international observations?* It was found that a stock-flow consistent accounting type model was a commonality amongst those who predicted the global financial crisis (Bezemer, 2010). This type of model was useful to understand what was found in South Africa. In modified form it could explain a link between FVA and excessive credit extension and dangerous pay-outs. Crisis was endogenous due to systemic fragility. Bank balance sheet fragility was due to the search for yield, bad

capital driving out good capital and the inversion of the yield curve. An empirical example was used to demonstrate the international applicability of the model.

The overarching research question for the three papers was: *Did FVA gains in profit and capital during the upturn support the overextension of credit and motivate dangerous pay-outs in South African banks?* Papers one and two showed that FVA adjustments through profit and loss were material in South Africa and that FVA adjustments on AFS assets were comparably insignificant; the focus on profit and regulatory capital is thus justified. The work at the end of Chapter four showed that for the period which FVA positively impacted profits and peaked as a component of capital, bank assets increased at a more rapid pace. Dangerous dividend pay-outs were shown in Paper two. The work at the end of Chapter four also showed dangerous remuneration pay-outs during this period. What remains is to address the third research objective as accounting cannot make somebody do something. Overextension of credit and dangerous pay-outs are second order effects related to FVA.

The general thesis statement developed in the introduction is presented below and evaluated.

FVA had negative financial stability implications in South African banks prior to the global financial crisis.

In Paper one it was found that the South African banks' profit and regulatory capital before the global crisis contained major unrealised FVA adjustment components. After the crisis these components decreased substantially. Evidence from the banks' financial statements as well as interviews indicated that the banks made pay-outs from these unrealised gains. This was confirmed in paper two which found that South African banks paid increased dividends based on FVA gains. Thus, FVA materially increased the profits of South African banks before the crisis and the South African banks, mistakenly, made pay-outs from those increases, making the banks more fragile.

It was also found that during the upswing, when FVA positively impacted profits, the South African banks grew their assets the fastest. Chapter seven showed how the Standard Bank grew their funding mix to fund the asset growth, treating the whole of retained income as permanent capital. Paper three, the model, showed how FVA adjustments in profit and loss can be central in a positive feedback process where banks expand their assets, financed by

debt, in an attempt to reduce their capital ratios and search for yield. This in turn, via increased market values, causes further FVA gains. This process is not dependent on the banks abusing FVA but is rather a systemic effect related to the banks' economic size and financial firepower and the role of banks in the payment system. This feedback process makes the banks more fragile as riskier and riskier assets are originated in the search for yield and capital contains more and more unrealised gains.

However, dangerous pay-outs and the overextension of credit are second order effects relative to FVA. Can the South African results be explained by inexperience or earnings management? Inexperience is a possible explanation but earnings management is unlikely to be an explanation (before the crisis) as argued in Chapter seven. This implies that the thesis statement is false in the sense that the use of FVA had negative implications and not FVA itself. But, by implication the complexity of FVA itself must be behind the inexperienced use of FVA. And, does FVA itself not obscure the risky component of retained earnings by lumping it together with realised earnings? Finally, how would an individual bank be able to observe and restrict a systemic feedback process; i.e. that one market value is reasonable and can be mark-to-marketed and the next market value is overdone and should not be mark-to-marketed. Recognising "financial bubble" values are usually only possible with hindsight.

Not finding earnings management during the upswing does not mean that FVA was never used for earnings management. The use of FVA during the financial crisis (and thus outside the scope of the thesis statement) was consistent with earnings management. However, it can be argued that the crisis and the response to it was a once-off event. In 2011 (again outside the scope of the thesis statement) the Standard Bank of South Africa did use FVA in a way consistent with earnings management, this time outside the global financial crisis period. FVA opens new potential avenues for earnings management.

The objective of this last paragraph is to attempt, briefly, to use the model to predict the most likely development path for the global financial crisis. FVA leads to the earlier recognition of profits compared to realisation. Thus, if everything else remains equal, then under FVA, future bank profitability will be subdued after the crisis because profits have already been recognised.[2] This fact alone is enough to expect a slow repair process for bank balance

[2] Profit representing a time value of money return will remain in each period.

sheets. However, when this is combined with the prediction of the model that FVA helped to inflate the upswing credit bubble more than normal through feedback effects, then it can be expected that the downturn will be protracted. After all, banks need to repair their balance sheets and the real economy cannot be counted on to help.

3. Summary of contributions

3.1 *Overall*

Perspective: The empirical evidence and the model emphasises an alternative perspective on the relationship between FVA and the global financial crisis. This perspective is not new, but also not mainstream and few, if any, empirical studies have been done. The role of FVA in that crisis is rather to be found before the crisis, as opposed to during or after that crisis. Also, that role is most readily detected within large, systemic banks due to the role that these banks play in the economy.

Bank regulators do not exclude most FVA gains from capital: The model is built on the assumption that FVA ends up in bank regulatory capital. In contrast, authors such as Barth and Landsman (2010) argue that FVA mostly impacts available-for-sale securities and, as available-for-sale reserves are excluded from regulatory capital, that FVA working through the regulatory capital channel is unlikely to have negative effects. Research by Bakoro, de Jager and Parsons (2013) and Shaffer (2010) was cited to show that this argument by Barth and Landsman is not accurate. The two case study papers both concur with the model's assumption that FVA does indeed influence regulatory capital materially. In the comparative case study of two South African banks it was shown that FVA gains formed a significant portion of net profit after tax as well as retained income. The case study that made use of regulatory data from the South African banking system showed that before the global financial crisis, FVA entries from the banking book increased the average levels of net profit after tax of the South African system by almost 20%. Combined, the evidence indicates that accounting scholars have underestimated the effect of FVA on banks when posted through profit and loss.

3.2 *Chapter three: The South African context*

The South African context indicated that a study of banks in South Africa can be regarded as a representative case study because of the country's propensity to implement international accounting and bank supervisory standards quickly.

3.3 *Chapter four (paper one): Liberal fair value accounting in banks: A South African case study*

This paper investigated empirically how large South African banks actually implemented FVA. It was important to explore the detail of how FVA is implemented by banks as accounting by itself cannot make anybody do anything; at best it can change behaviour. It was necessary, therefore, to develop an understanding of the behaviour of bank managers and how they use FVA. The detail points towards FVA providing bank managers with the flexibility to facilitate reaching the required profit and/or capital levels. Further investigation reveals the use of deferred tax balances to derive the unrealised portion of profits and capital due to FVA on financial instruments. Moreover, the gap between assets and liabilities at fair value was identified as a key instrument that determines where eventual profits or losses realise in a banking group. Also, the restatement of comparative figures was identified as a way to avoid the prohibition on reclassifications into and out of the "designated at fair value" category.

Accounting standard setters should be interested to know how banks apply their standards, and should note that management sometimes does not adhere to the spirit of those standards. The South African bank regulator should be interested in findings concerning the quality of South African bank capital through the business cycle, as bad capital drives out good capital. Likewise, the regulator could be expected to note the inappropriate use of the fair value option by the Standard Bank of South Africa. The South African Revenue Services, which is in the process of implementing an income tax on FVA bank profits, should be interested in how taxpayers implement FVA. The results show that this tax change assumes, incorrectly, that most fair valued financial instruments in the South African banking system are liquid.

Procyclicality was found during the upswing as managers accepted profits generated by FVA but they did not do so during the downturn, when FVA losses were postponed. The

increasing percentage of equity that was made up out of unrealised FVA gains points towards bad capital driving out good capital.

3.4 *Chapter five (paper two): For banks fair value adjustments do influence dividend policy*

On a high level this paper investigated empirically a hypothesis, that bad capital drives out good capital; this is the end-result of payments being made that are based on unrealised FVA profits. The findings confirmed this prediction of the model in a setting of South African commercial banks.

The paper also quantifies the effect on average bank profit levels due to FVA. It demonstrates the usefulness of an alternative source of higher frequency accounting data (data on banks obtained from a bank supervisor) and makes the finding that FVA profits from the banking book abnormally lifted profits: not the FVA profits from the trading book. This last finding is important as it points toward the use of the banking book as the nexus where FVA is can be opportunistically used.

3.5 *Chapter six (paper three): Fair value accounting, fragile bank balance sheet and crisis: A model*

The model answered the call for accounting researchers to become more involved in economics. A realistic, accounting focused model was developed that links FVA, bank regulatory capital and the economy. The model should help accountants to recognise that in banking, accounting is more than just a messenger. At the same time a contribution is made to monetary economics with a detailed description of the effect of FVA on the banking system and the alternative view that the focus should be on credit supply rather than on credit demand.

The implication for accounting research and monetary economics research is that accounting in a large bank is systemically important and that any changes in accounting standards should be carefully considered: economic models should be updated to incorporate any such changes.

4. Comparison to other studies

The main argument of this thesis concurs with the Bank of England in its *Financial Stability Report* (2009:43). That report found that a tendency for excessive risk-taking during the upswing of the credit cycle was one of the root causes of financial instability; the model developed in this study explains why there was this tendency. Writers Taylor (2009), McMahon (2011) and Kusano (2011) all believe that FVA was an important factor behind this tendency. During the upswing FVA increases bank capital and makes banks seem less risky, even though bank capital is increasingly full of unrealised profits and unstable gains; further risk-taking is encouraged.

The use of FVA by banks for earnings management purposes, not found during the upswing but during and after the crisis, is hardly a surprise if one considers the evidence presented by other authors on earnings management in banks during the financial crisis. Laux and Leuz (2009:830) found that banks overvalued financial assets during the crisis stating that: "There is evidence that managers can be reluctant to take write-downs even when assets are substantially impaired" (Laux & Leuz, 2009:829). Gebhardt and Novotny-Farkas (2011:330) conclude that managers can use the incurred loss approach to loan loss recognition to increase current earnings to the detriment of future earnings and Vyas (2011) found that write-downs during the global financial crisis were less timely than implied by credit indices. The finding in chapter six that fair value entries from the banking book are used to lift the overall bank profit levels, concurs with Nissim (2003), who found that banks manage the fair value of loans.

But it is arguably the current call for a return to prudent accounting by banks that provides the greatest support for what was found in this study. Because of large banks' important economic role they systemically influence market values and make the mark-to-market aspect of FVA dangerous. To stop the feedback process between market values, money supply and financial instrument demand unrealised FVA gains in profit and loss should be tracked.

5. Suggestions for further research

As indicated in the introduction chapter, the empirical work described in this thesis can be seen as a South African case study whilst the model makes global predictions. The obvious next step is to collect more international evidence of the model's predictions. The South African evidence has been shown to have importance for specific local actors and has

confirmed a model that can be used elsewhere. This research should enable future researchers to test the predictions of the model, as well as the South African empirical evidence, in other localities.

The thesis went to great lengths to draw the distinction between FVA entries that are allowed as part of capital under Basel II (those through profit and loss) and FVA entries that are not allowed as part of capital under Basel II (the fair valuation of available-for-sale assets). Basel III changes all of this by allowing all FVA entries as part of capital. Future research should investigate whether this change in regulation led to a change in bank behaviour.

In Paper one it was found that the size of the gap between assets at fair value and liabilities at fair value determines where in a banking group FVA gains materialise. The compliance departments of banks go to great lengths to oversee the valuation of instruments under FVA. However, few enquire as to movements in the gap between assets at fair value and liabilities at fair value; i.e. on the micro level controls are strong but on the macro level they are probably not that strong. Future research should investigate the relationship between this gap and the business cycle and other indicators of earnings management in banks.

6. Conclusion

This thesis investigated the use of FVA by South African banks and found that during the upswing, FVA gains substantially increase profits and capital. This increase in capital leads to feedback effects whilst at the same time systemic vulnerabilities build up. The model and the South African empirical evidence show that FVA is central in processes that weaken the banking system during the upswing. An option that should be considered is to prescribe conservative accounting standards for systemically important institutions. Bank supervisors would agree with this suggestion. Moreover, conservative accounting for banks would create a buffer against opportunistic behaviour by management.

An argument for conservative accounting is not an argument against FVA in general. First, the argument is only raised for large (systemically important) commercial banks. Second, it is FVA during the upswing that is dangerous. During the downturn FVA can have benefits such as the faster recognition of losses; this thesis did not focus on the downturn (but did find in the comparative case study that the recognition of losses under FVA was delayed) and thus these potential benefits of FVA remain. Last, conservative accounting for large commercial

banks need not imply that the financial instruments be accounted for at historic cost. What is needed is to ringfence the profits and the resultant tier 1 capital that arise from unrealised FVA gains. By creating a new reserve account as part of retained earnings this objective would be met. Bank regulators and shareholders would then be in a position to evaluate the riskiness of this portion of capital. Conclusions must be tempered by the fact that only South African empirical evidence was considered.

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