

# FINANCIAL LIBERALISATION AND THE CAPITAL STRUCTURE OF FIRMS LISTED ON THE JOHANNESBURG STOCK EXCHANGE

by

### **CHIMWEMWE CHIPETA**

Thesis submitted in fulfilment of the requirements for the degree

Ph.D. (FINANCIAL MANAGEMENT SCIENCES)

in the

FACULTY OF ECONOMIC AND MANAGEMENT SCIENCES

at the

**UNIVERSITY OF PRETORIA** 

**JANUARY 2012** 

I dedicate this thesis to my late father, Professor Donald Phatiswayo Chipeta.

I would like to thank the Lord God Almighty for allowing me to complete this thesis. Furthermore, my sincere appreciation goes to the following:

- My supervisors, Professor Hendrik, P. Wolmarans and Professor Frans, N.S. Vermaak who provided the guidance throughout the period of the study,
- The Head of Department, at the University of the Witwatersrand, Professor Christo Auret, who provided an enabling and stimulating environment for the execution of the research,
- Participants of the 20<sup>th</sup> Southern African Finance Association conference held in Cape Town, South Africa, and the 8<sup>th</sup> African Finance Journal conference held in Windhoek, Namibia, for the useful comments on some aspects of the thesis,
- Ms Ngobile Mazibane, for assisting with the data collection,
- My wife, Meda for her support and motivation during the research,
- My two daughters, Ruth, Jemima, Joy, Chipeta (4), and Zoe, Muwemi, Chipeta (1) for their love which kept me encouraged and motivated.



### **ABSTRACT**

This thesis examines the impact of financial liberalisation on the capital structure of non-financial firms listed on the Johannesburg Stock Exchange (JSE). The research hypotheses have been formulated and tested by using various econometric estimation procedures. The empirical assessment begins by resolving some methodological issues relating to the dating of financial liberalisation and the measurement of leverage. Next, a panel of 100 non-financial firms is constructed for the period 1989 to 2007.

The pooled Ordinary Least Squares, fixed (within), and random effects (Generalised Least Squares) models are used to estimate the impact of various aspects of financial liberalisation on firm capital structure. Robustness checks are performed by using the instrumental variable technique and the Arellano and Bond (1991: 277) two-step Generalised Method of Moments (GMM) procedure. Irrespective of the procedure used, the lifting of international sanctions and stock market liberalisation is associated with a reduction in leverage for all sets of firms. Capital account liberalisation causes firms to access more debt, and there is mild support for domestic financial sector liberalisation. Stock market liberalisation provides avenues for firms to increase their debt maturity structure. The size of the stock market is positively associated with leverage, and banking sector development is negatively correlated to leverage. The effect of financial liberalisation is more pronounced for larger firms, suggesting that the process of financial liberalisation causes a wedge between small and large firms.

Furthermore, regime dummies are interacted with firm specific determinants of capital structure. The notable facts arising out of the interactive dummy variable exercise reveal that the lifting of international sanctions and stock market liberalisation cause significant structural shifts in the profitability, growth and tax rate variables. This is evident for the book and market value of the debt to equity ratio.

The results of the dynamic model of capital structure document evidence of transaction costs for both the pre and post liberalisation regime. However, it appears that transaction costs reduce dramatically in the post liberalisation regime. The associated coefficient of adjustment increases accordingly. This suggests that a developed financial system promotes competition amongst the issuers of capital, thereby lowering borrowing and transaction costs. The empirical significance of firm specific determinants in a closed economy appears to be weaker than that of the post liberalised regime. Furthermore, firm size speeds up the adjustment to the target level of leverage for firms operating in both the pre and post liberalisation regimes. Finally, the results confirm most of the theoretical predictions of capital structure theories.

KEYWORDS: Financial liberalisation, Capital structure, Lifting of international sanctions

Domestic financial sector liberalisation, Stock market liberalisation, Capital account liberalisation



# FACULTY OF ECONOMIC AND MANAGEMENT SCIENCES



University of Pretoria

## **Declaration Regarding Plagiarism**

The Faculty of Economic and Management Sciences emphasises integrity and ethical behaviour with regard to the preparation of all written assignments.

Although the lecturer will provide you with information regarding reference techniques, as well as ways to avoid plagiarism, you also have a responsibility to fulfil in this regard. Should you at any time feel unsure about the requirements, you must consult the lecturer concerned before submitting an assignment.

You are guilty of plagiarism when you extract information from a book, article, web page or any other information source without acknowledging the source and pretend that it is your own work. This does not only apply to cases where you quote the source directly, but also when you present someone else's work in a somewhat amended (paraphrased) format or when you use someone else's arguments or ideas without the necessary acknowledgement. You are also guilty of plagiarism if you copy and paste information directly from an electronic source (e.g., a web site, e-mail message, electronic journal article, or CD-ROM) without paraphrasing it or placing it in quotation marks, even if you acknowledge the source.

You are not allowed to submit another student's previous work as your own. You are furthermore not allowed to let anyone copy or use your work with the intention of presenting it as his/her own.

Students who are guilty of plagiarism will forfeit all credits for the work concerned. In addition, the matter will be referred to the Committee for Discipline (Students) for a ruling. Plagiarism is considered a serious violation of the University's regulations and may lead to your suspension from the University. The University's policy regarding plagiarism is available on the Internet at <a href="http://www.library.up.ac.za/plagiarism/index.htm">http://www.library.up.ac.za/plagiarism/index.htm</a>.

For the period that you are a student in the Faculty of Economic and Management Sciences, the following declaration must accompany <u>all</u> written work that is submitted for evaluation. No written work will be accepted unless the declaration has been completed and is included in the particular assignment.

I (full names & surname):	Chimwemwe Chipeta
Student number:	28472862

#### Declare the following:

- 1. I understand what plagiarism entails and am aware of the University's policy in this regard.
- 2. I declare that this assignment is my own, original work. Where someone else's work was used (whether from a printed source, the Internet or any other source) due acknowledgement was given and reference was made according to departmental requirements.
- 3. I did not copy and paste any information <u>directly</u> from an electronic source (e.g., a web page, electronic journal article or CD ROM) into this document.
- 4. I did not make use of another student's previous work and submitted it as my own.
- 5. I did not allow and will not allow anyone to copy my work with the intention of presenting it as his/her own work.

Chimwemwe Chipeta	2011-12-13
Signature	Date

CH	APTER 1: BACKGROUND AND INTRODUCTION	1
1.1	INTRODUCTION	1
	1.1.1 Goal of this chapter	
1.2	THE FINANCIAL SECTOR IN SOUTH AFRICA	2
	1.2.1 The evolution of the banking sector in South Africa	4
1.3	MOTIVATION FOR THIS STUDY	7
	1.3.1 The economic and political imperative.  1.3.2 The cost of equity capital imperative.  1.3.3 The capital inflow imperative.  1.4.4 The financial constraints imperative.  1.5.5 Other imperatives  1.6.6 Why South Africa?	8 9 9 10
1.4	THE RESEARCH PROBLEM	12
	1.4.1 The implications of stock market liberalisation  1.4.2 The implications of the lifting of international sanctions.  1.4.3 The implications of domestic financial sector liberalisation.  1.4.4 The implications of capital account liberalisation.  1.4.5 The implications of market segmentation.  1.4.6 The implications of transaction costs.  1.4.7 Other unresolved issues.	14 14 15 15 16
1.5	RESEARCH OBJECTIVES	17
1.6	DEFINITION OF KEY TERMS	18
1.7	STRUCTURE OF THE THESIS	. 21
1.8	CHAPTER SUMMARY	23



СН	IAPTER 2: THE THEORY OF CAPITAL STRUCTURE	25
2.1	INTRODUCTION	25
2.2	DOES CAPITAL STRUCTURE MATTER?	26
2.3	THEORETICAL DETERMINANTS OF CAPITAL STRUCTRE	28
	2.3.1 The trade-off theory	31 32 36 38
2.4	EMPIRICAL EVIDENCE ON FACTORS AFFECTING CAPITAL STRUCTURE	40
	2.4.1 Institutional, legal and financial factors	41 43 44 46 48 49 50
2.5	CORPORATE CAPITAL STRUCTURES AROUND THE WORLD	54
	2.5.1 Corporate capital structures in the developed economies      2.5.2 Corporate capital structures in the developing economies	
2.6	CHAPTER SUMMARY	59
СН	IAPTER 3: THE THEORY OF FINANCIAL LIBERALISATION	62
3.1	INTRODUCTION	62
	3.1.1 Goal of this chapter	



3.2 WHAT IS FINANCIAL LIBERALISATION?	63
3.3 DOES FINANCIAL LIBERALISATION MATTER?	63
3.4 THE PROCESS OF FINANCIAL LIBERALISATION	66
3.4.1 The multifaceted nature of financial liberalisation	
3.5 THE EFFECTS OF FINANCIAL LIBERALISATION	67
3.5.1 Financial liberalisation and capital flows	68 70
3.6 THE DATING OF FINANCIAL LIBERALISATION	74
3.7 CHAPTER SUMMARY	78
CHAPTER 4: HYPOTHESIS DEVELOPMENT	80
4.1 INTRODUCTION	80
4.1.1 Goal of this chapter4.1.2 Layout of this chapter	
4.2 HYPOTHESES DEVELOPMENT	80
4.2.1 Hypothesis one 4.2.2 Hypothesis two 4.2.3 Hypothesis three 4.2.4 Hypothesis four 4.2.5 Hypothesis five 4.2.6 Hypothesis six 4.2.7 Hypothesis seven 4.2.8 Hypothesis eight	
4.3 CHAPTER SUMMARY	88
CHAPTER 5: METHODOLOGICAL ISSUES	90
5.1 INTRODUCTION	90
5.1.1 Goal of this chapter	90

	5.1.2 Layout of this chapter	90
5.2	THE DATING PROBLEM	. 91
	5.2.1 Challenges in dating financial liberalisation	. 92 . 93
5.3	THE LEVERAGE MEASUREMENT PROBLEM	. 96
	5.3.1 The objective of the analysis	98
5.4	VARIABLE DEFINITION	.101
	5.4.1 Dependent variables	
5.5	CHAPTER SUMMARY	. 109
СН	APTER 6: RESEARCH DESIGN AND ECONOMETRIC APPROACH	.110
6.1	INTRODUCTION	. 110
	C.1.1. Cool of this chapter	.110
	6.1.1 Goal of this chapter	
6.2		110
	6.1.2 Layout of this chapter	.110
	6.1.2 Layout of this chapter	.110
6.3	6.1.2 Layout of this chapter  CHOICE OF FIRMS AND DATA  DATA ANALYSIS  6.3.1 Data analysis plan	.110
6.3	6.1.2 Layout of this chapter	.110 .111 .113 .113 .116
6.3	6.1.2 Layout of this chapter  CHOICE OF FIRMS AND DATA  DATA ANALYSIS  6.3.1 Data analysis plan 6.3.2 Panel data analysis  MODEL SPECIFICATION TECHNIQUES  6.4.1 The static panel data model.	.110 .111 .113 .113 .116 .116

6.5 TESTING FOR STRUCTURAL SHIFTS IN PARAMETER ESTIMATES	122
6.6.1 Tests for the equality of intercepts and slopes	
6.7 FORMAL TESTS OF SPECIFICATION IN PANEL DATA	124
6.7.1 Sargan test 6.7.2 Test for lack of first and second order autocorrelation 6.7.3 Wald test: Joint significance 6.7.4 Multicollinearity tests 6.7.5 Hausman specification test	124 124 125
6.8 CHAPTER SUMMARY	125
CHAPTER 7: EMPIRICAL RESULTS	127
7.1 INTRODUCTION	127
7.1.1 Goal of this chapter7.1.2 Layout of this chapter	
7.2 BASIC TESTS AND SUMMARY STATISTICS	127
7.2.1 Normality tests	128 131
7.3 THE CONTRASTING EFFECTS OF FINANCIAL LIBERALISATION ON CAPITAL STRUCTURE	135
7.3.1 Average leverage ratios for all firms (pre and post liberalisation) 7.3.2 Average retained earnings and debt maturity structure	136
ratios for all firms (pre and post liberalisation)	
7.3.4 Average leverage ratios for internationally financed firms (pre and post liberalisation)	
7.3.5 Average retained earnings and debt maturity structure ratios for internationally financed firms (pre and post liberalisation)	139
7.3.6 Average leverage ratios for domestically financed firms (pre and post liberalisation)	141
7.3.7 Average retained earnings and debt maturity structure ratios for domestically financed firms (pre and post liberalisation)	141
7.3.8 Average leverage ratios for small firms (pre and post liberalisation)	142



7.3.9 Average retained earnings and debt maturity structure ratios for small firms (pre and post liberalisation)	142
7.3.10 Average leverage ratios for large firms (pre and post liberalisation	on) 1/13
7.3.11 Average retained earnings and debt maturity structure ratios	
for large firms (pre and post liberalisation)	
7.3.12 Summary of the contrasting effects of financial liberalisation	144
7.4 REGRESSION OUTPUTS	145
7.4.1 Organisation of the regression outputs	
7.4.2 Models reported for the full sample set	
7.4.3 Models reported for small firms	146
7.4.4 Models reported for large firms	146
7.5 RESULTS AND PRESENTATION OF HYPOTHESES	153
7.5.1 Results and presentation of hypothesis one	153
7.5.2 Results and presentation of hypothesis two	
7.5.3 Results and presentation of hypothesis three	
7.5.4 Results and presentation of hypothesis four	
7.5.5 Results and presentation of hypothesis five	
7.5.6 Results and presentation of hypothesis six	
7.5.7 Results and presentation of hypothesis seven	164
7.5.8 Results and presentation of hypothesis eight	
7.5.9 Robustness checks	
7.5.10 summary of the effects of financial liberalisation on capital struct	
7.6 FIRM SPECIFIC DETERMINANTS OF LEVERAGE	177
7.6.1 Results for the dynamic panel data specification tests	
(pre and post liberalisation)	177
7.6.2 The book value of the debt to equity ratio	
(pre and post liberalisation)	178
7.6.3 The market value of the debt to equity ratio	
(pre and post liberalisation)	183
7.6.4 The book value of the total debt ratio	
(pre and post liberalisation)	186
7.6.5 The market value of the total debt ratio	
(pre and post liberalisation)	
7.6.6 Firm specific determinants of debt maturity (pre and post liberalis	ation) 195
7.7 THE LONG RUN TARGET ADJUSTMENT MODEL AND	
TRANSACTION COSTS	198
7.7.1 Transaction costs for the book value of the debt to equity ratio	199
7.7.2 Transaction costs for the market value of the debt to equity ratio	
7.7.3 Transaction costs for the book value of the total debt ratio	



7.7.4 I ransaction costs for the market value of the total debt ratio	200
7.7.5 Transaction costs for the short term debt ratio	
7.7.6 A comparison of the adjustment costs for select countries	201
7.7.7 The determinants of the adjustment speed	
7.7.8 Summary of the results presented by the dynamic model of capital s	
8 CHAPTER SUMMARY	205
HAPTER 8: CONCLUSIONS AND IMPLICATIONS FOR	
FURTHER RESEARCH	208
1 INTRODUCTION	208
8.1.1 Goal of this chapter	208
8.1.2 Layout of this chapter	
2 THE THEORETICAL CONCLUSIONS OF THE STUDY	209
8.2.1 The theoretical determinants of capital structure	209
8.2.2 Factors correlated with firm leverage	210
8.2.3 The theory of financial liberalisation	212
3 THE EMPIRICAL FINDINGS OF THE STUDY	212
4 THE CONTRIBUTIONS OF THE STUDY	214
8.4.1 The contribution to the knowledge gap	214
8.4.2 The methodological contribution of this study	
8.4.3 Lessons that can be learnt from this study	
5 SHORTCOMINGS AND SUGGESTIONS FOR FURTHER RESEACRH	218
IST OF REFERENCES	220
DDENDIY	242



## **LIST OF TABLES**

Table 1.1: Abbreviations used in this document	20
Table 2.1: Summary of the origins and evidence of the main	20
theories of capital structure	
Table 3.1: Conditions for positive economic growth	65
Table 3.2: Summary of the effects of financial liberalisation	72
Table 3.3: A comparison of liberalisation dates for	
a sample of emerging economies	77
Table 5.1: Definitions of leverage	100
Table 5.2: Summary of suitable proxies for size	104
Table 5.3: Variables and expected signs	108
Table 7.1: Summary statistics for all the dependent and independent variables	128
Table 7.2: Average values for variables	
over the sample period	
Table 7.3: Correlation matrix for the independent variables	132
Table 7.4: Variance inflation factors and Tolerance for the dependent variables	
Table 7.5: Correlation matrix for all the variables	134
Table 7.6: Panel data regression results for all firms	147
Table 7.7: Panel data regression results for all firms	148
Table 7.8: Panel data regression results for small firms	149
Table 7.9: Panel data regression results for small firms	
Table 7.10: Panel data regression results for large firms	151
Table 7.11: Panel data regression results for large firms	152
Table 7.12: Interactive dummy regression outputs for the debt to equity ratios	169
Table 7.13: Interactive dummy regression outputs for	
the total debt and short term debt ratios	171
Table 7.14: Instrumental variable results	174
Table 7.15: Arellano-Bond two-step GMM results	175
Table 7.17: GMM estimates of target capital	
structure (Book debt to equity ratio)	179
Table 7.18: GMM estimates of target capital	
structure (Market debt to equity ratio)	183
Table 7.19: GMM estimates of target capital	
structure (Book total debt ratio)	187
Table 7.20: GMM estimates of target capital	
structure (Market total debt ratio)	191
Table 7.21: GMM estimates of target capital	
structure (Short term debt ratio)	
Table 7.22: Summary of the coefficients of the lagged dependent variables	199
Table 7.23: A comparison of transaction costs for firms in selected countries	
Table 7.2.4 Determinants of the adjustment speed	
·	



## **LIST OF FIGURES**

Figure 1.1:	Indicators of stock and banking sector development	. 4
	JSE market profile	_
Figure 1.3:	Net purchases of bonds and shares by non-residents	
Figure 2.1:	The trade-off theory of capital structure	. 29
Figure 2.2:	Statutory and effective corporate tax rates in South	
J	Africa	30
Figure 2.3:	A comparison of dividend payouts and	
_	Market value total debt ratios	. 52
Figure 2.4:	Long term debt ratios for firms from select industrialised	
_	countries	57
Figure 2.5:	Long term debt ratios for firms from select developing	
J	countries	59
Figure 2.6:	Debt ratios for select African countries	59
	The debt maturity structure for small firms	85
	The debt maturity structure for the average firm	
	Average retained earnings ratio for the pre and post liberalisation	
J	regimes	86
Figure 7.1:	Book and market value debt ratios for all firms (pre and post	
J	liberalisation)	136
Figure 7.2:	Internal finance and debt maturity structure ratios for all firms	137
	Debt to equity ratios for internationally financed and	
Ü	domestically financed firms	138
Figure 7.4:	The effects of financial liberalisation on debt to equity ratios of	
3	Internationally financed firms	139
Figure 7.5:	The trend in the leverage ratios for internationally financed	
3	Firms	139
Figure 7.6:	The effects of financial liberalisation on internal finance and debt	
3	maturity structure of internationally financed firms	140
Figure 7.7:	The effects of financial liberalisation on debt equity ratios of firms with	
3	no access to international equity markets	141
Figure 7.8:	The effects of financial liberalisation on internal finance and debt	
Ü	maturity structure of firms with no access to international equity	
	markets	141
Figure 7.9:	Book and market value ratios for small firms	
_	: Internal finance and debt maturity structure ratios for small firms	
	: Book and market value debt to equity ratios for large firms	
		144