

DIRECTED RISK RESEARCH PROPOSAL

Risk Theme	Systemic risk
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Client Info: *(only applicable if proposal is in response to a client problem statement)*

Problem Title	Modelling the effect of banking regulations on the South African economy				
Client Name	Rolf van den Heever		Client Org.	Absa	
Designation	Mr				
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University		Classification	
Problem Nr.	PS16003	Type	
Proposal Nr.	RP16002	Date	29 July 2016

PROJECT TITLE: Modelling the effect of banking regulations on the South African economy using computable general equilibrium (CGE) model

PROJECT GOAL:

To extend the standard computable general equilibrium model to include the financial sector in order to assess the effect of banking regulation on the South African economy.

PROJECT SCOPE

The aim of this project is to apply CGE modelling to assess risks in banking regulation especially in times of financial crisis. CGE models considers the interactions among various economically relevant entities [1]. These models are used to model the economic impact of shocks and other changes on the modelled economic system. Regulation in the banking sector is typically more extensive than in other sectors, leading to higher costs of regulation for financial institutions. Basic CGE models for financial sectors have been developed [2]. However, the incorporation of these models in economy-wide CGE's can be regarded as novel.

In this research, an existing CGE for the South African economy is extended to incorporate a financial/banking sector that will receive input from the other model entities and feeds back into the model – hence contributing to the equilibrium state after the introduction of a financial shock. The economic impact of a range of regulatory interventions can be assessed, as noted in the paragraph below.

PROJECT OBJECTIVES

To extend the standard CGE model to cover the financial sector in order to assess the potential economic effect of the following regulatory interventions in South Africa:

- An expansionary monetary policy
- A positive deposit supply shock
- A positive bank capital shock to a bank
- Changes in capital adequacy requirements

In addition, the economic impact of various scenarios can be assessed, including:

- A permanent surge in the money supply and
- A permanent surge in government spending
- A positive/negative shock in Gross Domestic Product (GDP)

The model can potentially also be used to investigate the impact of changes in other sectors of the economy on the modelled financial sector.

[1] M.E. Burfisher, Introduction to Computable General Equilibrium Models: Cambridge University Press, 978-0-521-76696-8, Excerpt

[2] C.A.E Goodhart, P. Sunirand and D.P. Tsomocos, 2006. A time series analysis of financial fragility in the UK banking system. Annals of Finance Vol 2 p 1–21.

RESEARCH OUTPUTS / DELIVERABLES

PUBLICATIONS:	Name(s) / Title(s)
Articles	2 (over a period of 2 years)
STUDENTS:	Name(s) of Student(s)
Ph.D	Kojo Essel-Mensah

APPROACH TO BE FOLLOWED

- 1) Study relevant literature.
- 2) Extend the standard CGE model to include the financial sector.
- 3) Run the extended CGE model by changing various variables/inputs (e.g. capital adequacy requirements) one at a time or jointly.
- 4) Consider relevant scenarios, including stress scenarios.

STRATEGIC VALUE TO DIRECTED RISK RESEARCH

The research will enable decision makers in the banking industry, including regulators, to consider the potential economic impact of financial regulation and other shocks on the South African economy. This can be of significant importance in the current changing regulatory landscape. Other potential uses of the model include:

- o Regulation on capital requirements
- o Banking sector risk assessment
- o Stress testing
- o Policy advice and
- o Real time forecasting
- o Macro-economic stress testing

This research project forms part of an overarching systemic risk research initiative to develop macro-economic models (e.g. for South Africa) that can be used to study systemic risk.