

**MACROECONOMIC CREDIT RISK MODEL FOR THE  
FINANCIAL SECTOR IN SRI LANKA**

Dona Hansani Ireshika Wickramasinghe

(158386V)

Degree of Master of Science

Department of Mathematics

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Dissertation submitted in partial fulfillment of the requirements for the degree  
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## **Declaration of the candidate**

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## **Abstract**

Economic development has a direct bearing on the credit quality of financial institutions. This study attempts to recognize this association of macroeconomic determinants and credit risk in the Sri Lankan banking sector by way of a macroeconomic credit risk model. The study employs a Vector Error Correction Model (VECM) to capture the relationship between macroeconomic variables namely the Real Gross Domestic Product (GDP), Unemployment Rate and Real Effective Exchange Rate (REER) with Non-Performing Loans (NPL), the proxy for default rates. The study uses data on Sri Lankan banking sector from 2009 to 2018 for the purpose. As of the findings Unemployment rate and Exchange Rate are found to be significant determinants of NPL. Unemployment Rate and Exchange rate is observed to have a significant positive association with Non-performing loans. Additionally, NPL itself is shown to have a significant feedback effect on credit default.

Key words: Non-performing loans, Macroeconomic determinants, Credit risk, Real GDP

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## **List of abbreviations**

ADF - Augmented Dickey–Fuller  
AIC - Akaike Information criteria  
ARDL - Autoregressive Distributed-lagged  
ARIMA – Auto Regressive Integrated Moving Average  
ASPI – All Share Price Index  
AWLR – Average Weighted Lending Rate  
CPV - Credit Portfolio View  
EDF – Expected Default Frequency  
EXRT – Exchange Rate  
FPE - Final Prediction Error  
GDP – Gross Domestic Product  
GNP – Gross National product  
HQ - Hannan-Quinn information criterion  
INF – Inflation  
INT – Interest Rate  
LLP – Loan Loss Provision  
NPL – Non-Performing Loans  
OLS – Ordinary Least Square  
REER – Real Effective Exchange Rate  
SD – Standard Deviation  
SHRPRC – Share Price Index  
SIC - Schwarz information criterion  
UNEMP – Unemployment  
VAR – Vector Autoregression  
VECM - Vector Error Correction Model

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