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**A STUDY INTO THE CONSEQUENCES OF
USING THE MONETARY CONDITIONS
INDEX AS AN OPERATIONAL TARGET
FOR MONETARY POLICY IN
NEW ZEALAND**

A thesis submitted in partial fulfillment of the requirements for the degree
of Master of Applied Economics at Massey University
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**This thesis is dedicated to the memory of
Dr Claudio Michelini**

ABSTRACT

The Reserve Bank of New Zealand (RBNZ) used a Monetary Conditions Index (MCI) as an operational guide for monetary policy from 30 June 1997 until 16 March 1999. This thesis uses four different methodologies to determine how this affected the implementation of monetary policy. The first is a survey that investigates the impact of the MCI regime on the way financial market participants viewed the RBNZ's policy stance. The second methodology consists of a series of rolling 10-week regressions that examines the relationship between short-term interest rates and the exchange rate. The third methodology is the autoregressive-distributed lag procedure, which explores the links between the RBNZ's policy actions, the MCI and its components, and external influences as represented by the United States 90-day bank bill rate. Finally, additional information about these relationships is obtained from block Granger causality tests, forecast error variance decompositions and impulse-response functions derived from a VAR framework. This study draws two major conclusions from the results. First, the MCI regime was responsible for an inverse relationship, which developed between the two components of the MCI and lasted from June 1997 until November 1998. This deepened the recession in 1998 by raising short-term interest rates when the currency depreciated after mid-1997. Second, the MCI regime did not significantly change the way the RBNZ's policy instruments impacted on the MCI or its components.

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ABBREVIATIONS

A90	Australian 90-day Bank Bill Rate
ADF	Augmented Dicky-Fuller
AIC	Akaike Information Criterion
AR- λ^2	Lagrange multiplier version of Godfrey's test for residual correlation
AR-F	F-version of Godfrey's test for residual correlation
ARDL	Autoregressive Distributed Lag
BC	Bank of Canada
CBI	Central Bank Independence
CPI	Consumer Price Inflation
DF	Dicky Fuller
DVM	Dummy variable for model with MCI as dependent variable
DVN	Dummy variable for model with NZ90 as dependent variable
DVX	Dummy variable for model with FX as dependent variable
EC	Error Correction
ECA	Employment Contracts Act
ECB	European Central Bank
EMU	European Monetary Union
ESF	Exchange Settlement Funds
FEV	Forecast Error Variance
FPS	Forecasting and Policy System
FX	Value of the New Zealand dollar in American cents
GDP	Gross Domestic Product
GST	Goods and Services Tax
H- λ^2	Lagrange multiplier test for heteroscedasticity
H-F	F-test for heteroscedasticity
HQC	Hannan-Quinn Criterion
IMF	International Monetary Fund
IR	Impulse-Response
ISC	Interest Rate on Settlement Cash
LFV	Liquidity Forecast Variation
LM	Lagrange Multiplier

LO	Liquidity Operations
LR	Log-Likelihood Ratio
MCI	Monetary Conditions Index
MPS	Monetary Policy Statement
NZ	New Zealand
NZ90	New Zealand 90-day Bank Bill Rate
OCR	Official Cash Rate
ODM	Overnight Discount Margin
ODMG	Overnight Discount Margin (using government securities as collateral)
ODMP	Overnight Discount Margin (using private paper as collateral)
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
OMO	Open Market Operation
PTA	Policy Targets Agreement
RBB	Reserve Bank Bill
RBA	Reserve Bank of Australia
RBNZ	Reserve Bank of New Zealand
RBNZA-64	Reserve Bank of New Zealand Act 1964
RBNZA-89	Reserve Bank of New Zealand Act 1989
RESET- λ^2	Lagrange multiplier version of Ramsey's test for functional mis-specification
RESET-F	F-version of Ramsey's test for functional mis-specification
RSS	Residual Sum of Squares
SER	Standard Error of Regression
SBC	Schwarz Bayesian Criterion
TB	Treasury Bill
TBS	Treasury Bill Sales
TWI	Trade Weighted Index
US	United States
US90	United States 90-day bank bill rate
VAR	Vector Autoregression

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1 INTRODUCTION

The Treasury (1984) argued that inappropriate government interventions were largely responsible for problems besetting the New Zealand economy after the mid-seventies. External developments such as the oil price shocks of the 1970s merely exposed long-standing structural problems that made it hard for the economy to adjust to changing economic realities. Many interventions had limited success because they were poorly designed and their objectives conflicted. For example, the wage and price freeze, which ended in 1984, reduced inflationary expectations and increased the profitability of businesses by reducing real wages but was not supported by appropriate monetary, fiscal and exchange rate policies. Government expenditure did not fall in line with tax cuts made at its introduction and this caused the nominal money supply to grow throughout the freeze and the budget deficit to rise to 9-percent of gross domestic product (GDP).

Many policymakers came to believe that a new style of economic management was required. These people gained the ascendancy in government after the foreign exchange crisis of July 1984 and introduced a series of far reaching macroeconomic and financial reforms that continued until 1 July 1994 when the Fiscal Responsibility Act came into force. Dalziel and Lattimore (1999) describe this programme, which included the deregulation of financial markets, floating of the New Zealand dollar, privatisation, corporatisation of government trading departments, removal of producer subsidies, and deregulation of the labour market under the Employment Contracts Act (ECA). These were radical changes and it often took many years before their benefits became apparent. For example, economic growth, which reached 7-percent in 1984, remained below 2-percent for almost the entire period from December 1985 to June 1993, while unemployment rose to nearly 10-percent over the same interval (*ibid.*, pp. 96-97).

The reform of monetary policy was critical to the success of this programme and was given a legislative basis by The Reserve Bank of New Zealand Act 1989 (RBNZA-89). The RBNZA-89 put inflation-targeting theory into practice by making price stability the sole objective of monetary policy and giving the Reserve Bank of New Zealand (RBNZ) autonomy in choosing the best means of achieving and maintaining it. In a

broader context, the RBNZA-89 was part of a move by many western governments away from demand management policies and towards a more hands-off style of economic management. The influence of the natural-rate hypothesis advanced by Friedman (1968) and Phelps (1968) can be seen behind this process and hence behind the RBNZA-89. Friedman and Phelps argued that nominal variables, such as the money supply, have no permanent effect on real variables and so there is no long-run trade-off between unemployment and inflation. This implies that every economy has its own long-run equilibrium, which is largely insensitive to monetary policy induced shifts in aggregate demand.

The RBNZA-89 required monetary policy to be conducted transparently in order to increase credibility and reduce risk premiums. In line with this, the RBNZ used a Monetary Conditions Index (MCI) as an operational guide from 30 June 1997 until 16 March 1999 in an effort to improve the communication of its monetary policy stance to financial markets. The RBNZ thus became one of only four central banks to publish an MCI. The Bank of Canada (BC) used its MCI as an operational target in a similar manner to the RBNZ, whereas the central banks of Norway and Sweden used their MCIs only as indicators of monetary conditions when formulating policy.

The New Zealand MCI is calculated as the weighted sum of the 90-day bank bill rate (NZ90) and the Trade Weighted Index (TWI), and so can be used as a rough measure of the overall ease or tightness of monetary conditions. The MCI regime had many critics who claimed that it not only failed in its objectives but may also have exacerbated the very problems it was meant to solve (Bennett, 1999; Edlin, 1997; Grimmond, 1998).

This thesis used four methodologies to investigate the impact of the MCI regime on the effectiveness of monetary policy. The first was a survey, which was given to the chief economists of six New Zealand banks in order to find out how the MCI regime affected their perceptions of the RBNZ's monetary policy stance. The second methodology consisted of a series of rolling 10-week regressions. It was used to determine if an inverse relationship existed between changes in the NZ90 and the value of the New Zealand dollar in American cents (FX) on a regular basis or was confined to periods associated with readily identifiable portfolio shocks. A systematic negative relationship

would suggest that the MCI hindered policy implementation¹. An identical study was conducted with Australian data in order to provide a comparative analysis. The third methodology was the autoregressive-distributed lag (ARDL) technique. It was used to obtain information about how the MCI and its two components were affected by RBNZ policy actions and external influences as represented by the United States 90-day bank bill rate (US90). Finally, block Granger causality tests, impulse-response (IR) functions and forecast error variance (FEV) decompositions were obtained from a vector autoregression (VAR) framework. They yielded additional information about how the RBNZ's policy instruments influenced the NZ90 and FX.

Results obtained from these methodologies suggest that the MCI regime failed to improve the implementation of monetary policy and caused a systematic inverse relationship to develop between short-term interest rates and the exchange rate. This deepened the recession in 1998 by raising interest rates when the exchange rate depreciated after mid-1997. The study also finds that the MCI regime did not significantly change the way the RBNZ's policy instruments affected the MCI or its components. The RBNZ was unable to set the desired value of the MCI on a daily basis and its policy instruments had no significant long-term influence on interest rates or the exchange rate, in fact they appear to have been more useful in smoothing out daily fluctuations in money markets.

The balance of this thesis is organised as follows. Chapter two reviews the theoretical basis and empirical development of the MCI, and summarises its use by central banks and financial institutions around the world. Chapter three describes the recent history of monetary policy in New Zealand with special emphasis on the MCI regime. Chapter four describes the methodologies and data used in this study. Chapter five presents the empirical results and chapter six summarises the main conclusions of this thesis. Five appendices and a list of references follow. Appendices 1 and 2 contain those sections of The Reserve Bank of New Zealand Act 1964 (RBNZA-64) and the RBNZA-89 that relate to the conduct of monetary policy. Appendix 3 contains a copy of the survey used in this study. Appendix 4 describes the operation of monetary policy in Australia and Appendix 5 describes the dummy variables used in the ARDL analysis.

¹ This inverse relationship is explained in greater detail in section 4.2.