

LIQUIDITY MANAGEMENT, INTEREST RATES AND BANK BEHAVIOUR IN THE CARIBBEAN

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OUTLINE

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- The Model
- Preliminary Analysis-The Jamaican Experience:
Impulse Response of Lending and Deposit Rates
- Concluding observations
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- Questions and comments

Introduction

- The effectiveness of monetary policy in Caribbean economies is predicated on the responses of commercial banks to monetary policy initiatives.
- In most countries the banks are the dominant source of credit and repository of financial liabilities, and therefore the only channel by which monetary policy influences aggregate expenditure. (The exceptions are Jamaica and Trinidad and Tobago, where collective investment vehicles have grown to rival banks in size, but even in these two countries monetary policy is aimed principally at affecting bank behaviour.)

Introduction

- This paper explores the rationale for expecting a profit maximizing bank to adjust deposit and loan rates in response to central bank initiatives.
- The focus is on the interest responses that the bank would be expected to make in response to monetary initiatives, based on profit maximizing behaviour.

LINKS IN THE MONETARY TRANSMISSION MECHANISM

*Assumptions

- ✓ All excess liquidity is absorbed
 - ✓ Banks will not borrow abroad
 - ✓ Banks expect changes to persist
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- ✓ There is evidence of interest elasticity of loans and deposits
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- ✓ Evidence of interest elasticity of expenditure

Central bank policy is expected to lead to changes in commercial bank interest rates

Changes in commercial bank interest rates are expected to lead to changes in deposits and loans

Changes in deposits and loans are expected to lead to changes in spending

Considerations affecting banks' reaction

- Is the central bank rate likely to persist or be reversed?
- How should they adjust their deposit and loan rates, if at all, in order to become more profitable? Are there significant interest elasticities of loans and deposits? Would it be profitable to widen/narrow the spread? Which rate to adjust first?
- What will other banks do?
- What will non bank competitors do?
- Will there be any capital inflow or outflow?

What is the role of liquidity?

- Optimal level of liquidity is a necessary condition for the functioning of the transmission mechanism
- A flood of excess liquidity weakens the link between changes in the central bank's monetary policy and the intended changes in the commercial rates.

Review of Literature

The relationship between interest rates and liquidity

- Conventionally negative relationship between interest rates and liquidity
- Relationship is a side effect of oligopolistic banking sectors. Adjustments to the loan rates (and spreads) due to liquidity cost imposed by the central bank at the discount window. {Baglioni (2000)}
- A central bank that is preoccupied with stemming excess liquidity may opt to increase its discount rate to dissuade borrowing at the discount window. If banks compensate themselves by raising loan rates, the relationship between liquidity and spreads is weakened.

The relationship between interest rates and liquidity cont'd

- Weakening effect of involuntary excess liquidity on monetary transmission mechanism in Sub-Saharan Africa esp. Nigeria and Uganda where commercial banks' rates are unresponsive to central bank influence when they hold involuntary excess reserves {Saxeguard (2006)}
- Amidst oligopolistic loan markets in some C'bean territories, monetary policy is ineffective when excess unremunerated reserves become substitutes for loans at a high lending rate. Liquidity shocks from the central banks will only affect the loan rate (and spreads) if the existing loan rate is very high. {Khemraj (2008)}

A Closer Look at the Banking Channel

- Banking channel defined as the factors allowing central banks' interest rate policies to impact the supply of loans {Brooks (2007)}
- In Turkey, the effect of monetary policy may stream through the banking channel given banking sector's liquidity position provided that
 - banks cannot wholly shield themselves from a decline in liquid funds by outsourcing financing without incurring significant costs, and
 - There is a significant pool of borrowers that are unable to insulate their expenditure from the reduction in bank credit {Brooks (2007)}

A Closer Look at the Banking Channel cont'd

- Elasticity of loan supply to monetary policy is subject to bank characteristics.
 - *Smaller banks suffer disproportionately due to difficulty in raising funds*
 - *More liquid banks are able to tap into assets and reduce lending by smaller proportions*
 - *More leveraged banks respond more*
- In Brazil banking channel performs limited role in monetary transmission as follows
 - *The change in banking spreads inflates the intertemporal effect of monetary policy on liquidity absorption*
 - *This is offset by the short run expansionary effect of exchange rate appreciation (consistent with tightening policy) on bank credit*

{Catao et al (2008)}

A Closer Look at the Banking Channel cont'd

- In Colombia there is a long run relationship between policy and bank interest rates. However there is a low elasticity of lending and deposit rates to changes in policy rate due to financial structure and imperfect information. {Betancourt et al (2008)}
- Inflexibility of interest rates in the short run due to degree of competition in the banking sector, the size of the banks and loan risk level. {Bernstein and Fuentes (2003)}
- Inelasticity also explained by the increased holdings of government paper as a substitute for loans and decreased leverage financing. {Huertas et al (2005)}

- In Jamaica, the total loans most responsive to the reverse repo rate. Response is lagged.
- The impulse response function show the value of loans decreasing after two periods.
- Variance decomposition show shocks to the 30 day reverse repo rate begins to contribute significantly to changes in credit demand and supply after four months.
- More domestically liquid banks will be impacted less by monetary tightening aimed domestic currency prices stability since they are better able to insulate their loan position while foreign liquid banks may find difficult to access foreign funds at the instance of the shock and hence may respond more.

{Urquhart (2008)}

Things to Note

- Banks hold excess unremunerated reserves thus central bank initiatives enacted at the discount window are ineffective. Banks do not borrow from the discount window.
- Commercial banks are the primary source of retail credit, particularly on the small and medium scale.

THE MODEL

The bank's maximization problem is:

$$\Pi = q i_L L - i_d D - i_r L_D + i_F F + i_B B$$

$$\Pi = i_L L - i_d D + i_F F + i_B B$$

$$\frac{\partial \Pi}{\partial i_L} = i_L \frac{\partial L}{\partial i_L} + L + i_F \frac{\partial F}{\partial i_D} + i_B \frac{\partial B}{\partial i_L}$$

$$\frac{\partial \Pi}{\partial i_D} = -i_D \frac{\partial D}{\partial i_D} - D + i_F \frac{\partial F}{\partial i_D} + i_B \frac{\partial B}{\partial i_D}$$

$$i_L = - \left\{ i_F \frac{\partial F}{\partial i_L} + L \right\} / \frac{\partial L}{\partial i_L}$$

$$i_D = \left\{ i_F \frac{\partial F}{\partial i_D} - D \right\} / \frac{\partial D}{\partial i_D}$$

THE MODEL cont'd

- The framework defines the commercial banks' response to open market operations, which alter the interest rate on treasury bonds (and in the case of Jamaica, Bank of Jamaica certificates of deposit) held by the banks.
- In adjusting loan and deposit rates to maximize profits, banks will take account of the elasticity of their own holdings of foreign assets to changes in loan and deposit rates, and the interest elasticity of loans ($\delta L / \delta r_l$) and deposits ($\delta D / \delta r_d$).

Preliminary Analysis

- Data

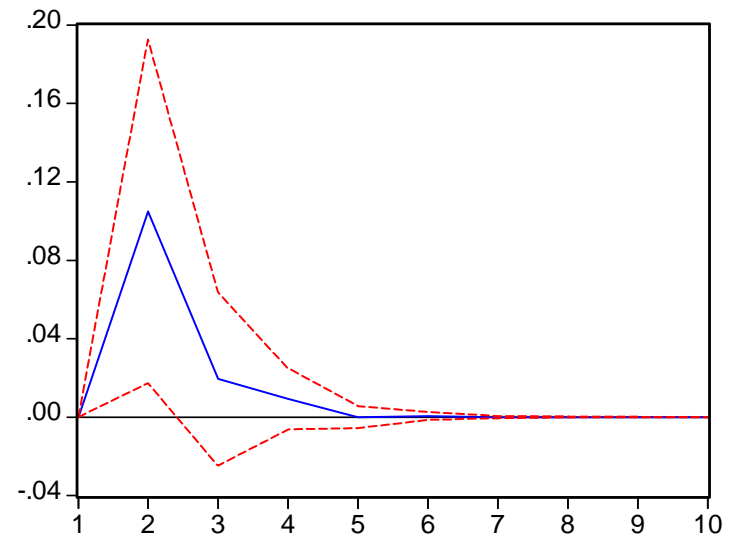
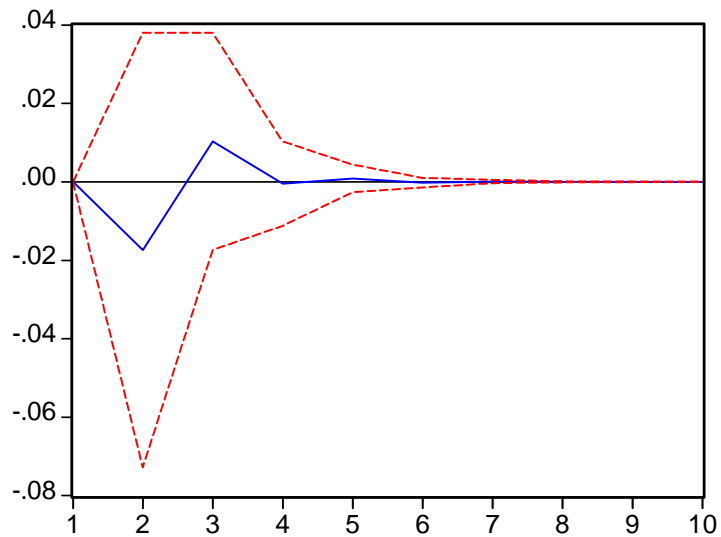
- The Sample Period: 1998/2 to 2008/12
- Sources: International Financial Statistics
Bank of Jamaica

- Methodology

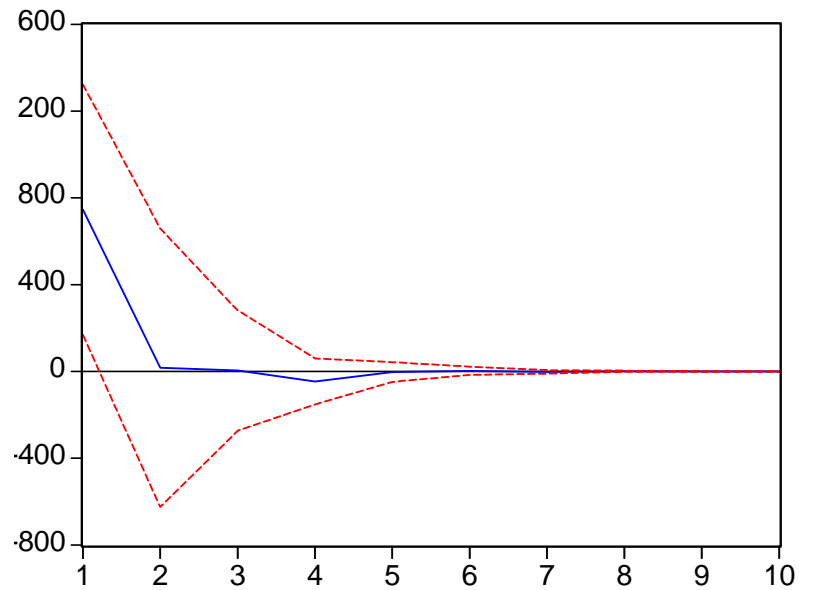
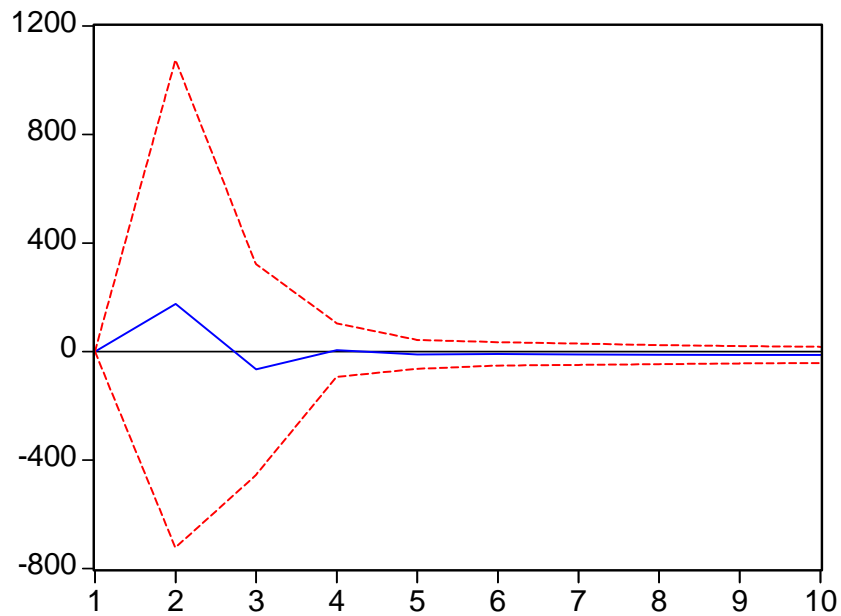
- Multivariate VAR inclusive of the lending and deposit rates, inflation, the central bank's certificate of deposit rate, total loans, total deposits and excess liquidity (excess reserves).

Preliminary Analysis

Response to Cholesky One S.D. Innovations ± 2 S.E.



Preliminary Analysis



What next?

- Extend the methodology to other Caribbean countries.
- Examine the elasticity of banks' holdings of foreign to changes in the lending and deposit rates, which also factors into determining the profit maximizing interest rate.
- Policy recommendations specifically aimed at improving the effectiveness of the monetary policy instruments via the banking channel.