THE DYNAMICS OF INVOLUNTARY COMMERCIAL BANKS' RESERVES IN TRINIDAD AND TOBAGO

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Outline

- **Rationale for Study.**

- **Review of the Literature.**

- **Excess Liquidity in Trinidad and Tobago.**

- **Consequences of Excess Liquidity for Monetary Policy.**

- **Empirical Methodology.**

- **Policy Recommendations and Conclusion.**

Rationale for Study

- To estimate commercial banks' demand for excess reserves for precautionary purposes.

- To investigate the dynamics of involuntary excess reserves - which can have consequences for the effectiveness of monetary policy.

Excess Liquidity - Definitions

- The maintenance by banks of a higher level of funds than is normally required to meet their statutory reserve requirements and settlement balances (CBTT, 2005).

- The involuntary accumulation of liquid reserves by commercial banks (Agenor and El Aynaoui, 2008).

- Banks' holding of reserves over and above what they need for transactions purposes (Heenan, 2005).

Previous Research

Developed Countries

- **Reserve Management Model**
- **Frost (1971) – Banks' Demand for Excess Reserves.**
- **Baltensperger (1974) – The Precautionary Demand for Reserves.**

Developing Countries

- **Reserve Management Model**
- **Agenor et al., (2004) – The Credit Crunch in East Asia: What can Bank Excess Liquid Assets tell us?**

- **Saxegaard (2006) – Excess Liquidity and Effectiveness of Monetary Policy: Evidence from Sub-Saharan Africa.**

- **Aikaeli (2006) – Determinants of Excess Liquidity in Tanzanian Commercial Banks.**

- **Khemraj (2008) – Excess liquidity and the foreign currency constraint: the case of monetary management in Guyana.**
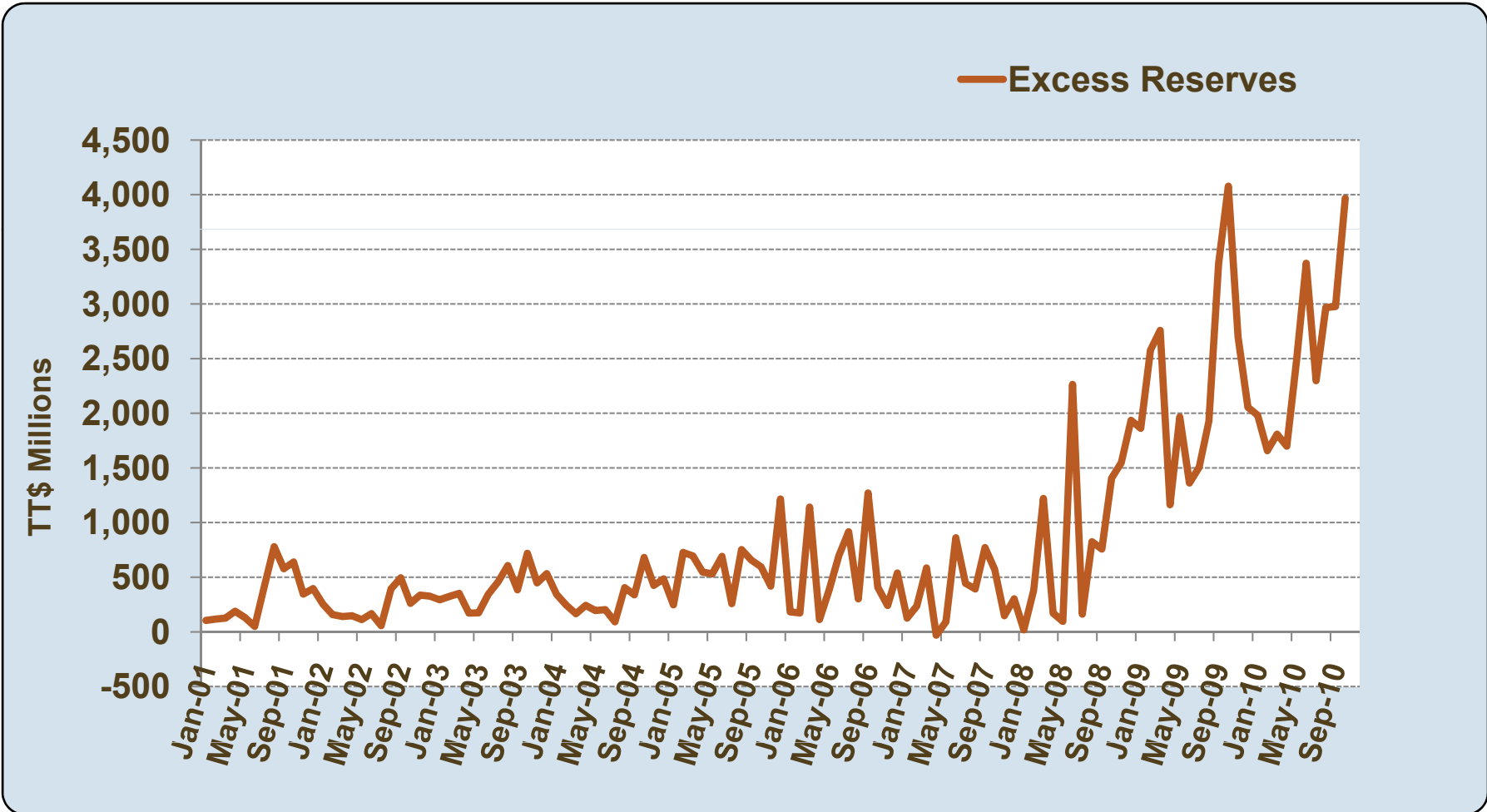
Reasons for Excess Liquidity

- Foreign currency inflows.

- Monetization of fiscal deficits.

- Underdeveloped capital markets.

- Central bank net credit to Government.

- Central bank net credit to the banking system.

- Supply- or demand-side factors.

- Underground economic activities.
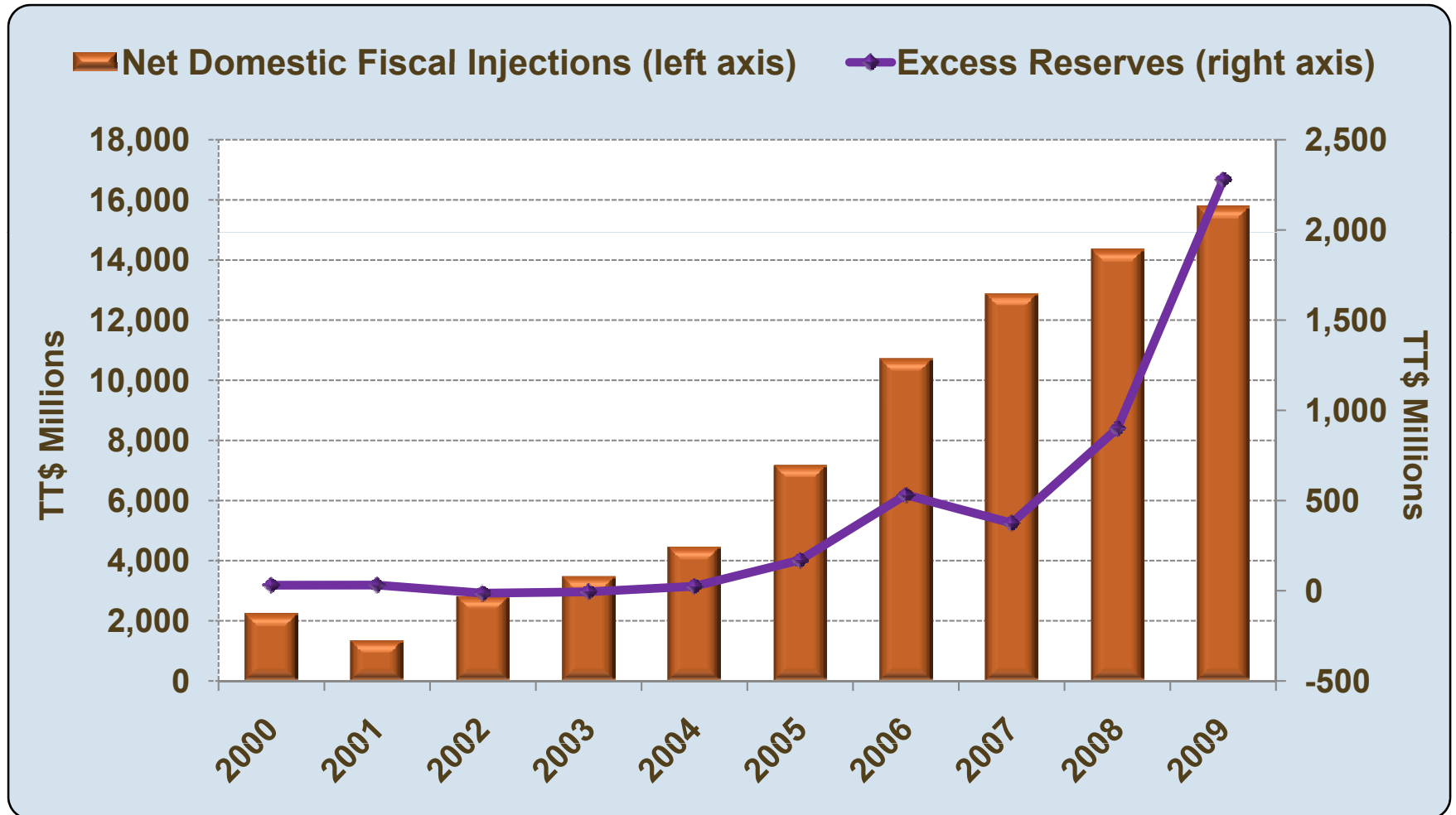
Commercial Banks' Excess Reserves

Source: Central Bank of Trinidad and Tobago.

Sources of Excess Liquidity in T&T
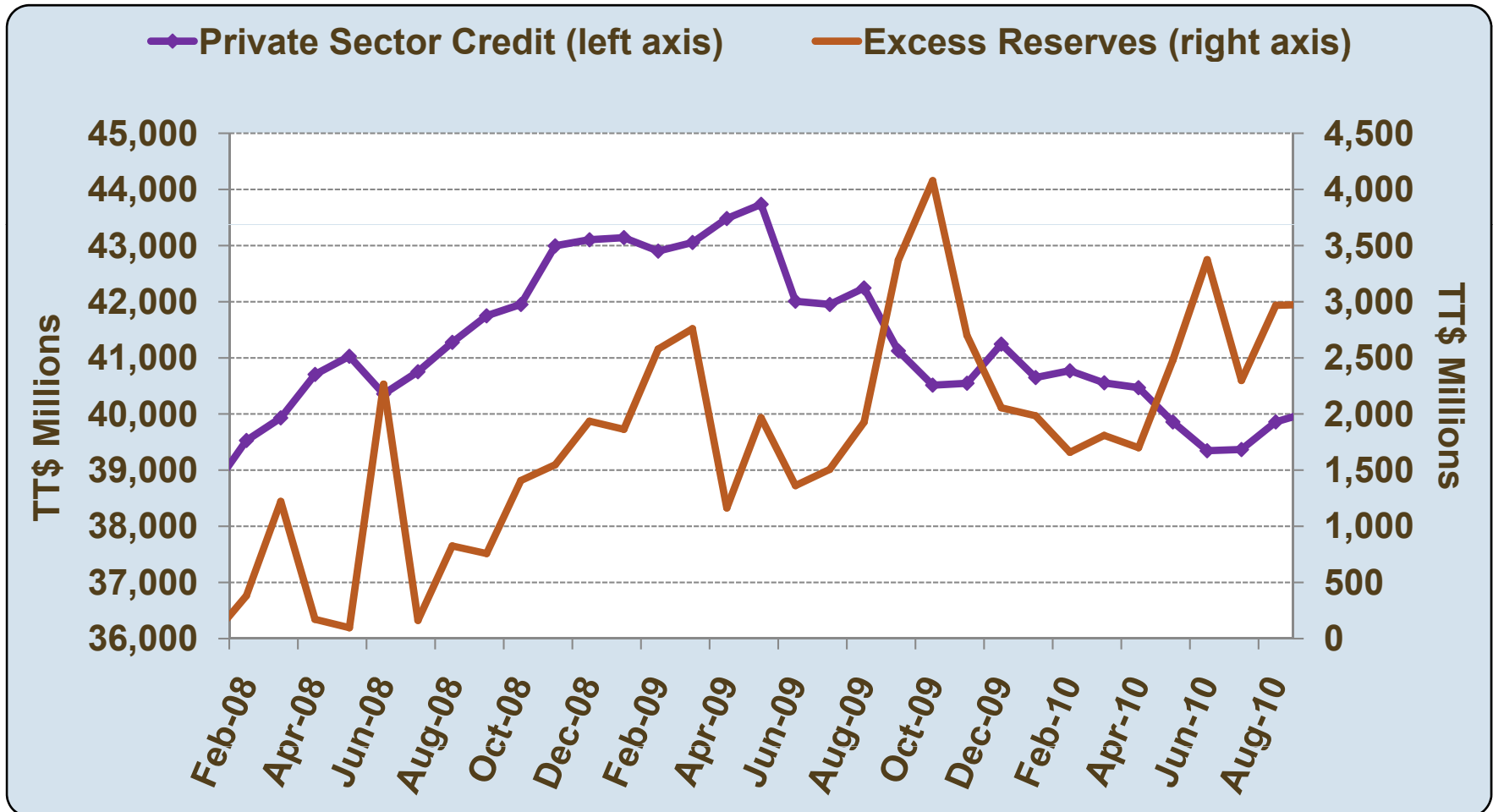
1) Net domestic fiscal injections

Source: Central Bank of Trinidad and Tobago.

Sources of Excess Liquidity in T&T Cont'd

2) Low credit demand

Source: Central Bank of Trinidad and Tobago.

Liquidity Absorption Measures

Open market operations

Government bonds

Foreign exchange sales
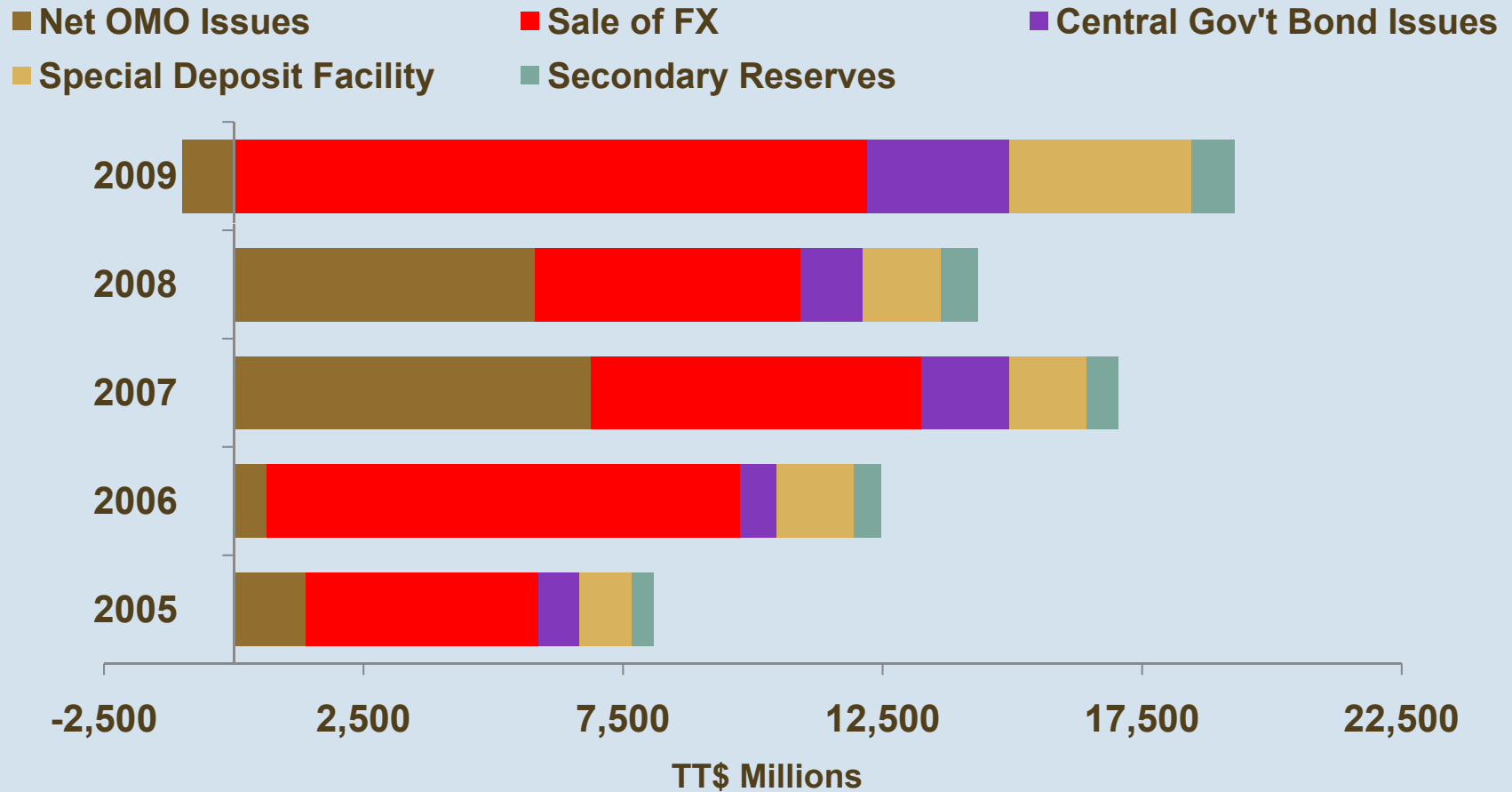
Primary reserve requirement

Secondary reserve requirement

Special deposit facility

Liquidity Absorption

Source: Central Bank of Trinidad and Tobago.

Consequences of Excess Liquidity for Monetary Policy in T&T

- Impedes the monetary transmission mechanism.
- Results in higher loan-deposit interest rate spreads.
- Reduces commercial bank profitability.
- The interest costs on instruments used to sterilize liquidity can increase public sector debt.
- Can create pressures in the foreign exchange market.
- Credit expansion can occur as a result of excess liquidity.
  - Inflation & deterioration in the quality of loans.

Empirical Methodology

Two-Step Procedure:

☐ **1. Generalized Methods of Moments (GMM) Estimation Technique**

  ⬚ **A GMM model is used to estimate commercial banks' demand for excess liquidity for precautionary purposes.**

☐ **2. Vector Autoregressive (VAR) Model**

  ⬚ **A VAR model is used to explore the dynamics of involuntary excess liquidity.**

Estimated Period: 1995:m01 to 2010m03

Methodology... Part 1
GMM Estimation – Precautionary Specification

$$\left(\frac{ER}{TD}\right) = c_t + \alpha_1(L)\left(\frac{ER}{TD}\right) + \alpha_2\left(\frac{DD}{TD}\right) + \alpha_3\ RLD + v_t$$

- *ER/TD* = ratio of excess reserves to total deposits.

- *DD/TD* = ratio of demand deposits to total deposits.

- *RLD* = the difference between commercial banks' prime lending rate and the Central Bank's discount rate.

- v_t is a well-behaved error term.

- α_j are vectors of polynomials defined as:

$$\alpha_1(L) = \alpha_{11} L + \cdots + \alpha_{1p} L^p$$
$$\alpha_j = 1 + \alpha_{j1} + \cdots + \alpha_{1p}, \qquad j \geq 2$$

- Instruments: level and lagged values of endogenous variables.
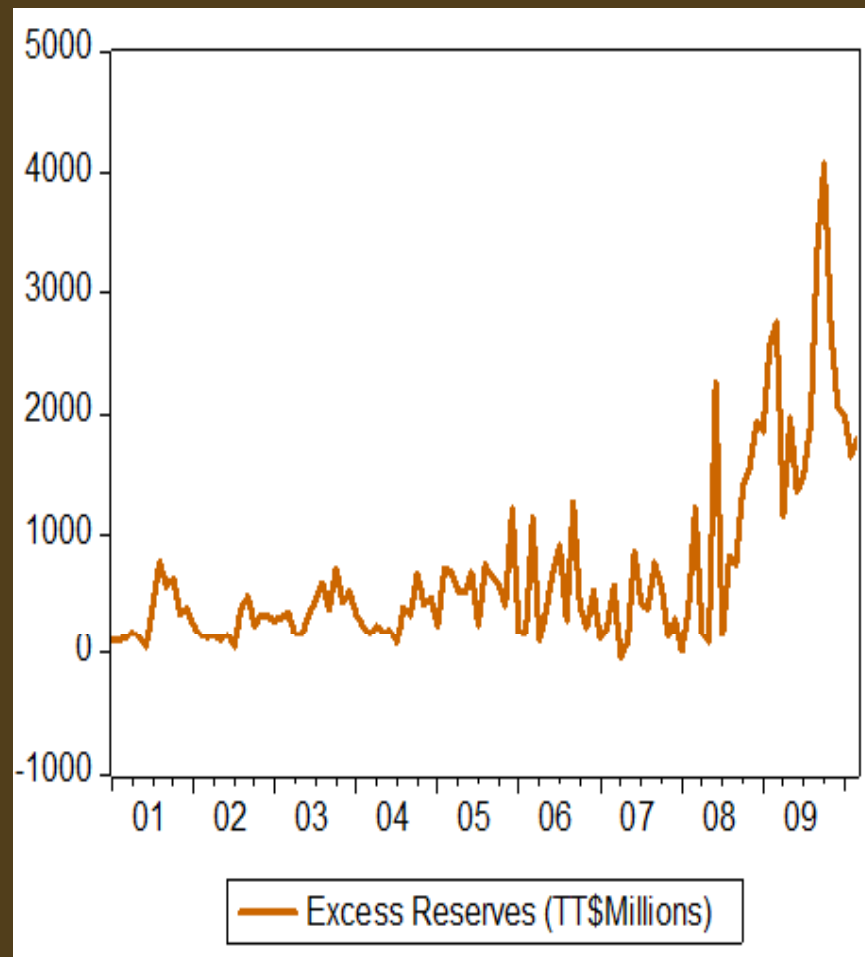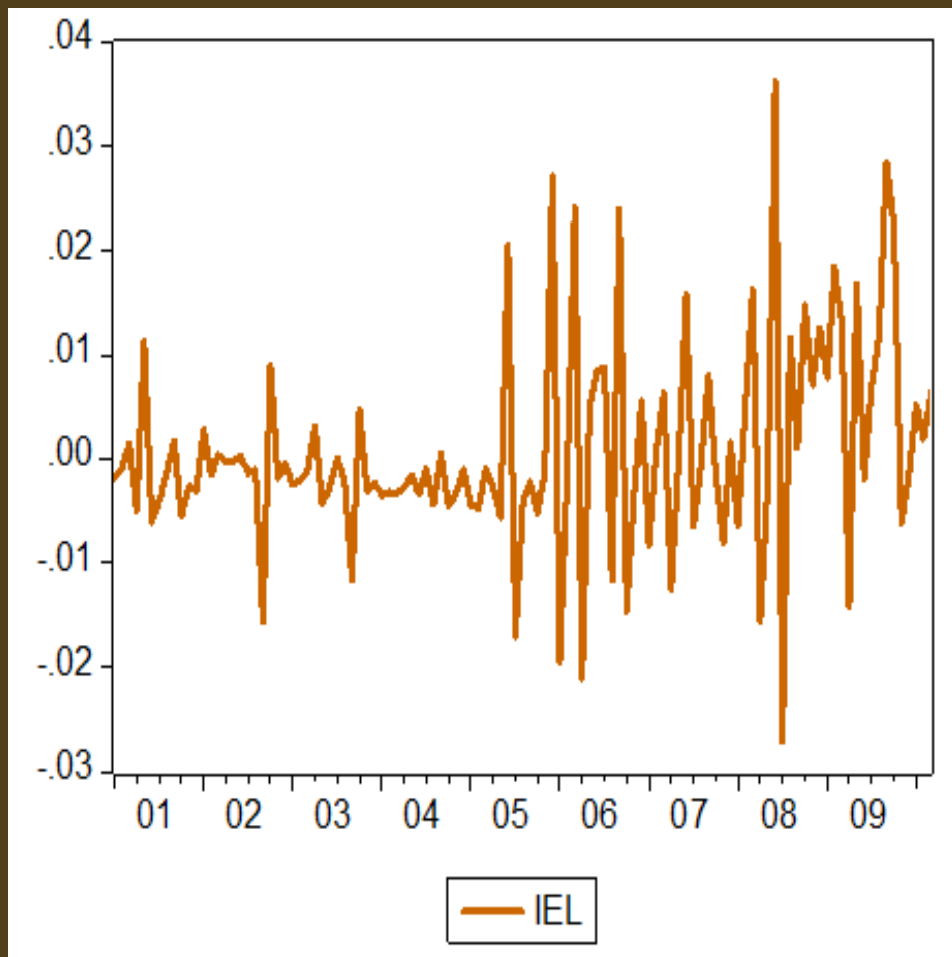
Results…GMM Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.0004	0.0015	-0.2884	0.7734
α_1 [EL/TD(-1)]	0.6956	0.0430	16.1634	0.0000
α_2 [DD/TD]	0.0122	0.0053	2.3293	0.0210
α_3 [RLD]	-0.0005	0.0002	-2.1405	0.0337

Source: EViews 7 Output.

Residual from GMM Model ...Involuntary Excess Liquidity

Methodology… Part 2

VAR Model

$$IEL_t = \gamma_{10} + \gamma_{11}\,IEL_{t-1} + \gamma_{12}\,IEL_{t-2} + \gamma_{13}\,IEL_{t-3} + \gamma_{14}\,CGEXP_{t-1}$$
$$+ \gamma_{15}\,CGEXP_{t-2} + \gamma_{16}\,CGEXP_{t-3} + \gamma_{17}\,PSC_{t-1} + \gamma_{18}\,PSC_{t-2}$$
$$+ \gamma_{19}\,PSC_{t-3} + v_{t-1}{}^{IEL}$$

$$CGEXP_t = \gamma_{20} + \gamma_{21}\,IEL_{t-1} + \gamma_{22}\,IEL_{t-2} + \gamma_{23}\,IEL_{t-3} + \gamma_{24}\,CGEXP_{t-1}$$
$$+ \gamma_{25}\,CGEXP_{t-2} + \gamma_{26}\,CGEXP_{t-3} + \gamma_{27}\,PSC_{t-1} + \gamma_{28}\,PSC_{t-2}$$
$$+ \gamma_{29}\,PSC_{t-3} + v_{t-1}{}^{CCGEXP}$$

$$PSC_t = \gamma_{30} + \gamma_{31}\,IEL_{t-1} + \gamma_{32}\,IEL_{t-2} + \gamma_{33}\,IEL_{t-3} + \gamma_{34}\,CGEXP_{t-1}$$
$$+ \gamma_{35}\,CGEXP_{t-2} + \gamma_{36}\,CGEXP_{t-3} + \gamma_{37}\,PSC_{t-1} + \gamma_{38}\,PSC_{t-2}$$
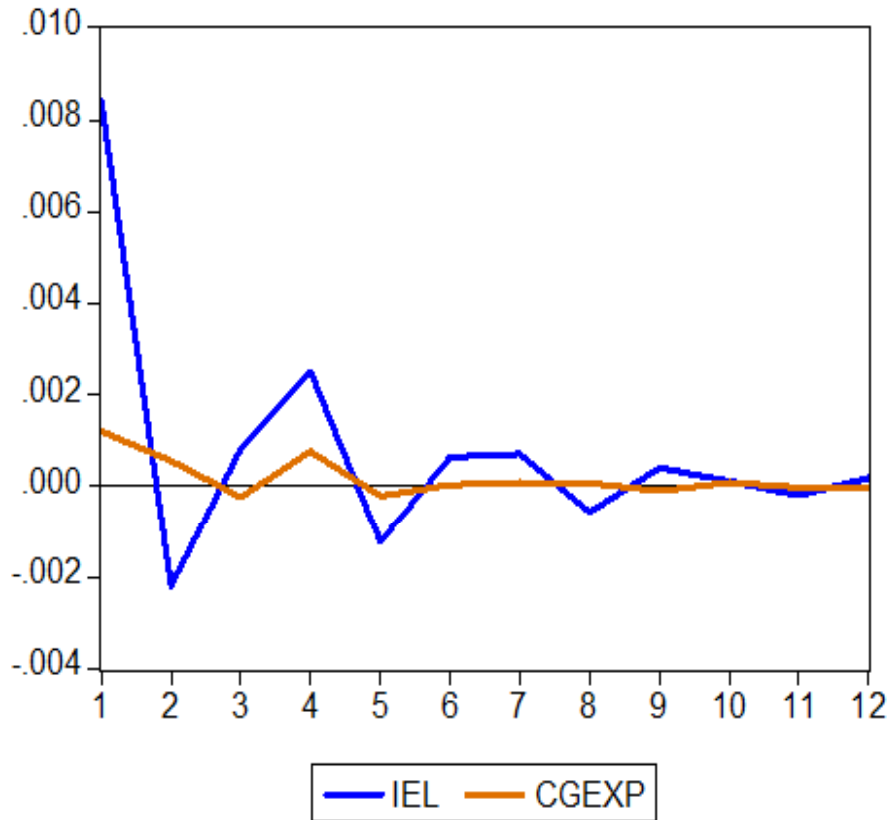$$+ \gamma_{39}\,PSC_{t-3} + v_{t-1}{}^{PSC}$$

Where:
IEL – Involuntary excess liquidity; CGEXP – Central gov't expenditure;
PSC – Private sector credit

Dynamic Analysis

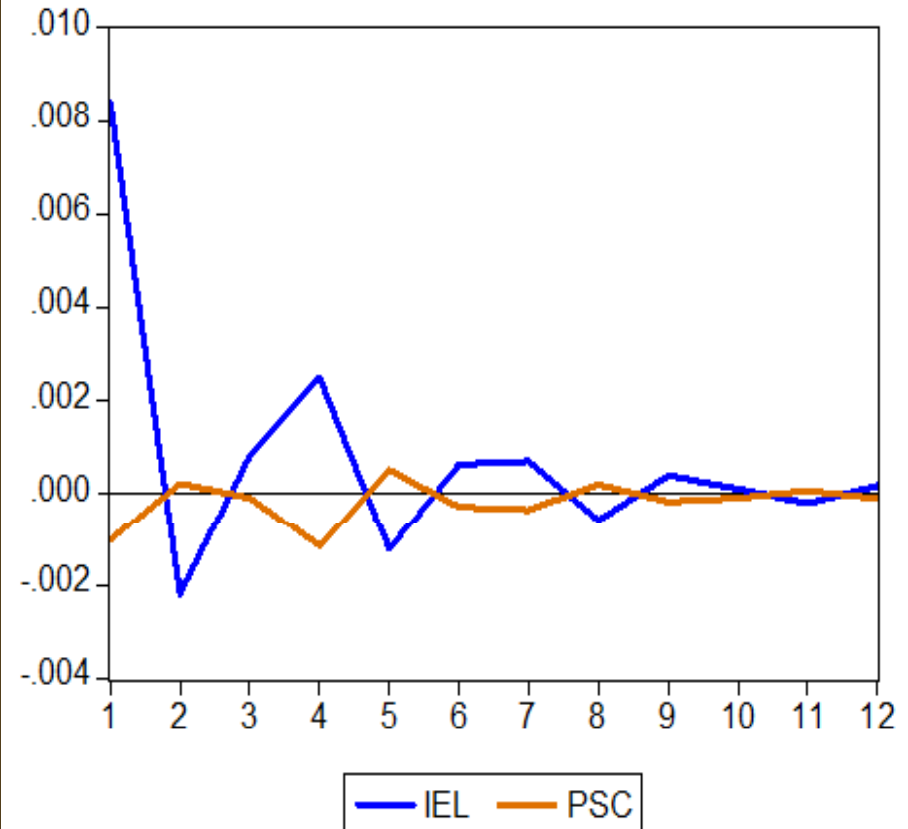**Involuntary Excess Liquidity - Central Gov't Expenditure & Private Sector Credit**

Response of IEL to Generalized One S.D. Innovations (IEL — CGEXP)

Response of IEL to Generalized One S.D. Innovations (IEL — PSC)

Conclusion

- Commercial banks in Trinidad and Tobago demand excess reserves for precautionary purposes to safeguard against any liquidity shortfall. Nonetheless, the persistent high liquidity in the banking system is primarily owing to the involuntary component of total bank liquidity.

- The assessment of the dynamics of involuntary excess reserves shows that the government's fiscal operation is the main driver of liquidity in the financial system. Moreover, the substantial decline in private sector credit during the recent economic downturn exacerbates the liquidity overhang.

Policy Recommendations

- **Commercial banks should be required to make another one-time compulsory deposit.**

- **Increase the secondary cash reserve requirement.**

- **Increase the primary reserve requirement applicable to commercial banks.**

Policy Recommendations Cont'd

- A reduction in government expenditure can lower the non-energy fiscal deficit. This will lessen the build-up of domestic liquidity in the financial system.

- The government may also put policies in place to help channel excess liquidity to productive investments.

- The ceiling on open market securities for government borrowing can be increased.

THANK YOU!