

# Fiscal-Oil Dominance and the Finance Resource Curse: The Paradoxes of Plenty and Banking

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# The Problem I

- Several banking inefficiencies in L&MICs resource-based countries
  - Natural resource exports  $> 25\%$  of merchandise exports (IMF 2012).
- Seven pathologies are associated with commodity price shocks:
  - ① Lower credit creation
  - ② Higher non-performing loans (NPLs)
  - ③ Lower loan-deposit ratios (LDR)
  - ④ Higher interest rate spreads, i.e. lending-deposit rate spread
  - ⑤ Higher stocks of gov. securities in the banking system
  - ⑥ Persistent **non-borrowed** and non-remunerated excess bank reserves
    - These produce the **Finance Resource Curse**.
  - ⑦ Premature de-industrialisation
    - The real economy component of the resource curse.

## The Problem II

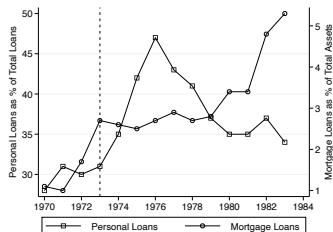
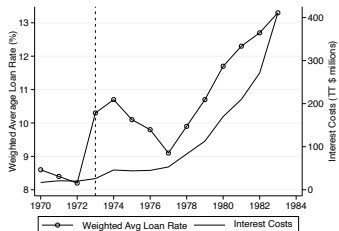
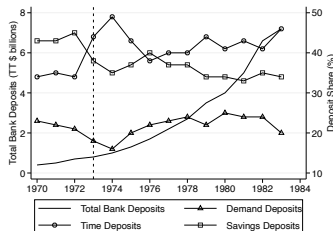
- The Structure-Conduct-Performance (SCP) paradigm (oligopolistic theory of the banking firm) is unable to explain **all** the stylised facts:
  - Cannot explain persistent non-borrowed central bank reserves.
  - Or, why banks hold larger stocks of gov. securities.
  - Requires a causal relationship btwn commodity price shocks and banks' market power. **But what about non-bank competition?**
  - No compelling explanation for why oligopolistic banking  $\Rightarrow$  premature de-industrialisation. **Sure:** higher  $r$  spreads. **But:** higher industrial profit rates too in the case of resource booms.
- Some studies find supporting evidence of the SCP paradigm, **but:**
  - **Lerner Index** is a biased est. of the lending rate by *construction*.
  - **HHI:** mixed or non-sig. results.
  - **Market share of loans** may  $\approx$  higher **share of the interest cost**  $\neq$  market power.
    - Identification problem: market power or interest costs?
    - Evidence of the **cost channel** in Bangladesh and Malawi (Mujeri and Younus 2009, Chirwa and Mlachila 2004).

# Evidence of a Financial Resource Curse

- Strong evidence of finance resource curse caused by natural resource booms:
  - Umar et al. 2021; Mlachila and Ouedraogo 2020; Beck and Poelhekke 2017; Kurronen 2015; Bhattacharyya and Hodler 2014; Hattendorff 2014; Beck 2011.
- Several identification strategies to distinguish among:
  - Discovery effects, price shocks, quantity effects via increased production, and effects relating to lower unit cost of production.
- The channels are less clear-cut:
  - Institutions channel (e.g. non-democracy) to explain lower credit growth.
  - Capital flight channel =  $\Downarrow$  in deposits (loanable funds).
  - Dutch disease channel.
  - Property boom & bust channel to explain NPLs and lower productivity growth.

# Evidence: The Case of TTO

Figure 1: Finance Resource Curse: Trinidad and Tobago



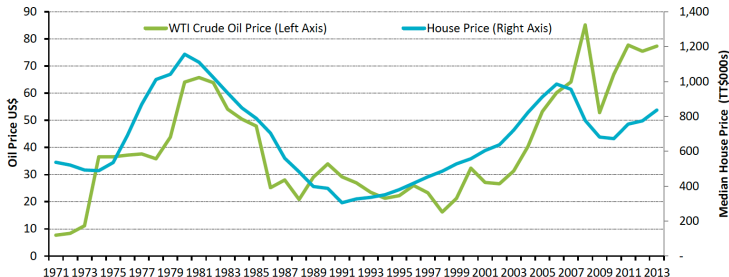
Dotted line indicates the beginning of the Oil Boom  
Largely a story about Interest Costs & Consumer Loans

Source: Bourne (1985)

# Evidence: The Case of TTO

Figure 2: Unstable Property Boom: Trinidad and Tobago

WTI Crude Oil Price vs. Median House Price  
*/ In terms of 2003 constant prices/*



Source: Central Bank of Trinidad and Tobago's Handbook of Key Economic Statistics, AREA and authors calculations.  
Note: The real crude oil price was found by deflating the nominal crude oil price using US Consumer Price Index. The real house price was calculated by deflating the nominal median estimated price by the TT Retail Price Index (core). The base year was 2003 for both indices.

Source: Ramlogan and Ho Sing (2014)

# The Argument

- Fiscal Dominance (FD) explains the stylised facts.
  - FD or monetisation accelerates bank deposits and interest costs; raises the interest rate spread (1) and reduces credit (2), lowers the LDR (3), and explains the persistence of non-borrowed and non-remunerated excess bank reserves (4).
  - Typically, FD regimes maintain a managed float or a hard peg, and routinely sterilise FXI. This accounts for excess liquidity beyond regulatory requirements (5).
- Oil-dominance, i.e. the outlay of oil receipts  $\equiv$  FD + some bells and whistles:
  - Bells: accelerating consumer loans as a defensive measure to rising interest cost, i.e. a property boom. Particularly pronounced on consideration of non-bank competition, e.g. mortgage providers.
  - Whistles: property bust  $\Rightarrow$  NPLs (6) and lower productivity growth or premature de-industrialisation via labour and capital transfers to non-tradables, e.g. construction (7).

# Key Contributions

## Standard Models of Banking, Excess Liquidity & Resource Curse

- Oligopoly banking: higher  $r$  spread &  $I_D$  constraint:  $\downarrow$  LDR (Khemraj 2014, Freixas and Rochet 2008, Hannan 1991, Klein 1971).
- Stiglitz and Weiss (1981) explains a low LDR via credit rationing.
- Involuntary reserves (Agenor and Aynaoui 2010)  $\Rightarrow$  lower  $r_L$  &  $r_D$ .
- De Grauwe (1982)'s PBM: higher  $r_D$  as a lower RRR  $\Rightarrow ER$ .
- Models of Resource Curse: Dutch Disease & non-financial channels (Rodrik & Subramanian 2009, Benigno & Fornaro 2014).

## This paper models banking in the case of Fiscal-Oil Dominance

- Zooms in on **interest costs** instead of reserves and market structure:
  - **Finance resource curse** + inflation and BOP/FX crises.
  - **Realistic channel** of wider  $r$  spreads unlike loanable funds model.
  - **New rationale for fiscal rules** beyond debt, equity, stabilisation, & Dutch disease considerations.
  - **Financial channels of the res. curse**: e.g. consumer loans crowding-out production loans via an unstable property boom.
  - The degree of FD-OD  $\Rightarrow$  **a low loan-deposit ratio**.



# A Medium-Run Model in Continuous Time

## Banking System and Regulations

- Regulatory requirements:
  - Required reserve ratio, bank liquidity requirement, and a capital adequacy ratio
- There is no inter-bank or secondary bond markets, and the representative bank holds bonds until maturity.

## Monetary Policy

- Fixed peg and sterilises FXI
- Central bank bonds: liquidity management and deficit financing
- Fiscal-oil dominance holds

## Non-bank private sector

- Relatively high liquidity preference

# Fiscal and Oil Dominance

## Definition 1 (Fiscal and Oil Dominance)

- (a) When the central bank finances the primary fiscal deficit through the outright purchase of government securities, central bank advances to the government, the provision of an overdraft facility, or there are unexpected reductions in the government's deposit balance at the central bank; a fiscally dominant regime is realised.
- (b) When the non-oil primary deficit is financed by the local currency equivalent of oil receipts, an oil dominant regime is realised.

# Two Axioms of Money and Banking

## Axiom 1 (Fiscal Deficits and Bank Deposits)

*Fiscal deficits increase deposits in the banking system.*

## Axiom 2 (Fiscal-Oil Dominance and Non-Borrowed Excess Reserves)

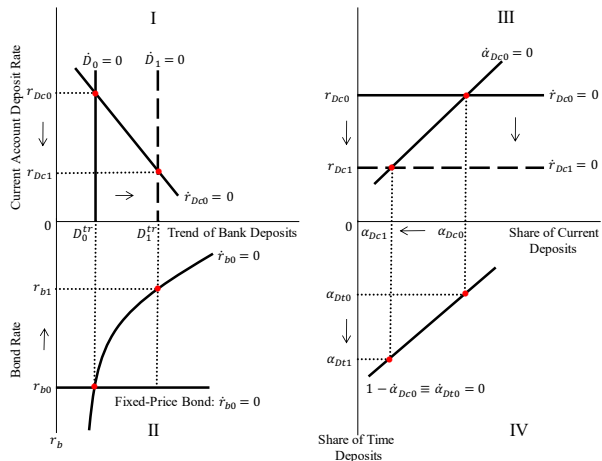
*Fiscal-oil dominance engenders non-borrowed excess bank reserves.*

## Remark 1 (Trend of Bank Deposits and Speed of Adjustments)

The bank does not generate price and/or quantity adjustments for every continuous change in bank deposits, otherwise, there are continuous fluctuations in the price and quantity of its assets, which are not consistent with the observed facts. However, when there is a change in the **trend** of bank deposits, discrete changes and some continuous fluctuations are observed in key prices and quantities, for example, the deposit rate. The basic rationale for this behaviour is to maintain stable expectations on the part of households and firms regarding key interest rates, and shareholders; regarding bank profitability.

# Bond and Deposit Markets

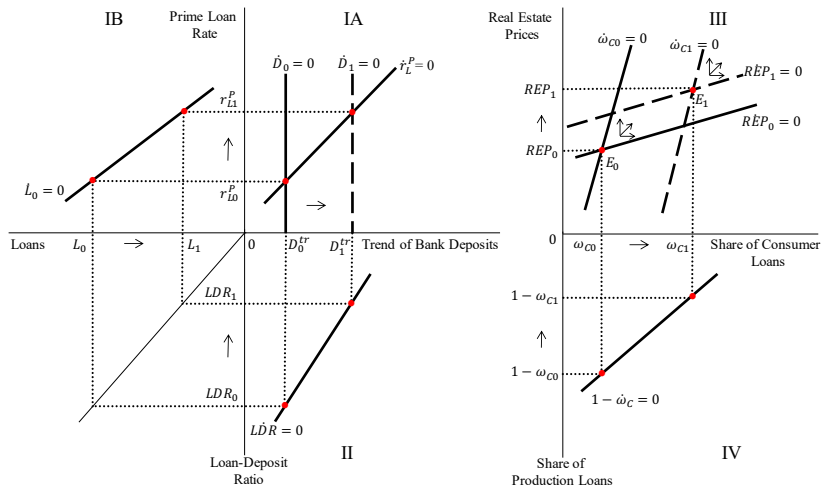
Figure 3: Fiscal-Oil Dominance, Bond and Deposit Markets



- Following the two axioms of money and banking, a **bigger than avg. fiscal deficit**:
  - Lowers the bank's liquidity ratio (bonds/deposits) and compromises its ability to service interest costs w/o affecting profits.
  - Engenders excess demand for bonds to service interest costs  $\Rightarrow$  **lower bond rates** (flexible-price case).  $\therefore$  lower opportunity costs of holding deposits.
    - Fixed-price bond: non-bank private sector passively accepts the deposits due to relatively high liquidity preference.
  - The **bank reduces current deposit rates** to lower interest costs.
  - Non-bank private sector switches to time deposits for higher yield:
    - But this increases the weighted average deposit interest cost!
    - Structure of deposit rates are: time deposit rate  $>$  current deposit rate.

# Loan Market

Figure 4: Fiscal-Oil Dominance and the Loan Market



# Intuition

- Following the two axioms of money and banking, a **bigger than avg. fiscal deficit**:
  - Lowers the bank's average profit margin (profits/deposits) and compromises its ability to satisfy capital adequacy requirements.
  - The **bank raises the loan rate** to stabilise its profit margin and satisfy regulations:
    - **Lower credit creation** and **loan-deposit ratios** are realised.
- Through govt. policy and/or strong non-bank financial competition, the **bank's share of consumer loans rises relative to production loans**:
  - **Unstable property price explosion** due to + feedback effects btwn real estate prices and the share of consumer loans.
  - Property bust: since the share of consumer loans has an upper limit of one, the bank's diversification strategy determines peak price and bust.

# Equilibrium

## Definition 2 (Medium-Run Equilibrium)

The steady-state equilibrium is realised when the banking system obtains a new trend of deposits, where bank prices ( $\dot{r}_B = \dot{r}_{Dc} = \dot{r}_L^P = 0$ ) and quantities ( $\dot{D} = \dot{L} = \dot{F}_{cb} = 0$ ) have fully adjusted. This is a medium-run equilibrium because of rising prices in the property market ( $\dot{REP} \neq 0$ ), and a growing share of consumer loans ( $\dot{\omega}_C \neq 0$ ).

This definition implies that the medium-run equilibrium is characterised by a financial resource curse: a real estate boom that crowds out the share of production loans, an increase in the prime loan rate that reinforces the latter, and lower credit creation. It is worth noting that this equilibrium transitions to the long-run by way of a financial crisis: a collapse in real estate prices, a corresponding rise in non-performing loans, and changes in bank prices and quantities that reinforce the financial resource curse.



# Conclusion

- **Main result:** A bigger than avg. monetised or oil-financed fiscal deficit pushes the banking system off kilter  $\Rightarrow$  a finance res. curse.
- **Channels:** An unstable explosion in property prices, wider  $r$  spreads, lower LDRs & credit, and a rising share of consumer loans.
- **Policy:** Fiscal policy must have a neutral effect on banks' net income
  - Monetary dominance or bond-financed expenditures only.
  - Perfect sterilisation of oil-financed fiscal deficits.
    - Complete bond-financing still necessary with oil/resource rents.
    - Sell all the bonds demanded at an institutionally determined rate, which accounts for the prevailing global  $r$  and country-risk premium.
  - Must be undertaken within a stock-flow consistent framework of fiscal and debt sustainability; see Constantine (2022).