CENTRAL BANK OF TRINIDAD & TOBAGO

# Exploring the Benefits of Stress Testing: The Case of Trinidad and Tobago

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# Outline

1. Why stress testing of Trinidad & Tobago banks?
2. Scope and technical aspects of the tests
3. Results of the stress tests
4. Assessment of the exercises
5. Conclusion

The Presentation is based on Central Bank of Trinidad and Tobago Working Paper 05/2011 November 2011

# 1. Why stress tests of Trinidad & Tobago banks?

**Philosophy:**

- Stress tests subject financial institutions' portfolios to *large but plausible* shocks
- By simulating the impact of the shocks *before* they occur, vulnerabilities can be uncovered
- Remedial action can be taken early based on this information to forestall financial system difficulties

## Stress tests have been used around the world:

- Most financial institutions use some sort of formal or informal tests to check vulnerabilities

- Regulators and supervisors use stress tests to complement other analyses of financial entities

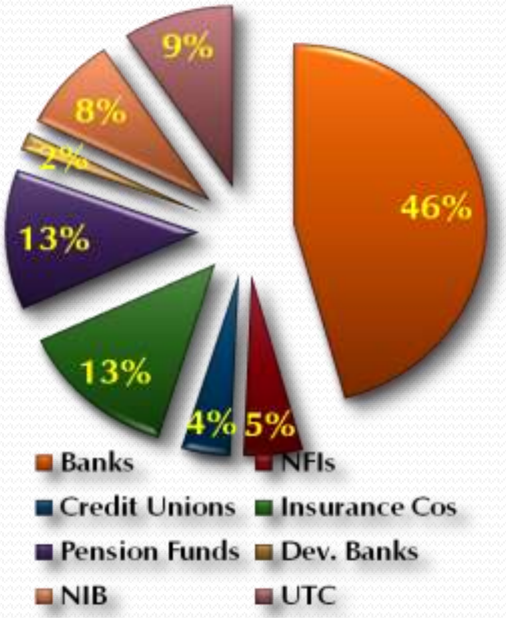
- Recent large-scale stress tests include:
  - United States (2009);
  - Europe (2010/2011);
  - Ireland (2010) for banks; and
  - Europe (2011) for insurance companies.

## In Trinidad & Tobago:

- Commercial banks dominate the financial system: (46% of assets in 2010)

- Given their importance, they are a good group to start with for stress testing

- The experience could then be broadened to other institutions




- Five sets of stress tests done on T&T banks:
    - IMF FSAP (2005 and 2010)
    - CBTT (Dec 2009, June 2010 and Dec 2010)

# 2. Scope and technical aspects of the tests

**The tests covered shocks in the following areas:**

1. Interest rate
2. Exchange rate
3. Credit risk (general)
4. Credit risk (property price)
5. Credit risk (large exposure by group, sector)
6. Liquidity
7. Scenario: Energy price decline
8. Scenario: Local natural disaster
9. Scenario: Regional disaster

## The basic approach involved:

- Collection of relevant data from the banks at the test dates
- In the FSAP tests the banks’ financial performance was projected for the upcoming year in a “baseline scenario”
- Simulating the impact of the shocks (“adverse scenarios”) on the banks’ portfolios
- Computing the impact on the banks’ capital adequacy ratios as a measure of the shocks’ effects; or how long it would take banks to become illiquid in the liquidity test.

## The orders of magnitude of the shocks were determined by:

- Assessment of economic developments and prospects in Trinidad and Tobago, sometimes using econometric models

| Shock | FSAP 2005 | FSAP 2010 | CBTT |
|---|---|---|---|
| Interest rate | 500bps ↑ ; 300 bps ↓ | 200 bps ↑ | 700bps↑ ;100 bps↓ |
| Exchange rate | 10-50% depreciation | 40% depreciation | 40% depreciation |
| Credit | ↓ Via GDP | ↓Via production | 30%↓ asset quality |
| Property price | 20% ↓ in market value of real estate portfolio | No test | 30%↓ asset quality |
| Large exposure | No test | 20-25%↑ provisioning | 50%↓asset quality |
| Liquidity | No test | Withdrawal: 10-20% deposits, 100% other liabilities over 30 days | 30% deposit withdrawal over 30 days |
| Energy price | 50%↓energy price | No test | 50%↓energy price |
| Local disaster | No test | No test | 25% in GDP ↓ |
| Regional disaster | Credit quality ↓ etc | No test | Credit quality etc |

# 3. Results of stress tests

**The big picture:**

- The banking system as a whole performed very well in all of the 5 sets of tests
- High capital buffers and conservative provisioning and other practices were important factors in limiting vulnerability
- There was some variability in the results across institutions with some banks more vulnerable than others to specific shocks

## The findings for specific shocks were instructive:

- The large interest rate shock in the CBTT exercises (700 bps increase) prompted a significant decline in the CAR but it still exceeded the 8 per cent minimum.

- Exchange rate depreciations actually improved banks' performance as most held long foreign exchange positions

- Conservative loan practices helped to dampen the effect of credit shocks, but some institutions with large property loans could be more exposed.

- In general, asset concentration could also pose problems for certain institutions, and some banks have been taking steps to reduce this source of exposure

## Banks also seemed capable of weathering economy wide shocks in the short run:

- The impact of a collapse in energy prices on banks would be meaningfully lowered in the case where monetary policy action lowers interest rates.
- Banks have some breathing room to maintain performance in the event of a domestic natural disaster.
- Banks’ direct sensitivity to a Caribbean disaster is relatively low but would increase to the extent that their local clients’ business is adversely affected.
- Meanwhile, banks’ high liquidity helps to shelter them from deposit runs.

## There were apparently some changes in vulnerability over time:

- Between first test in 2005 and later ones in 2010/11 it is difficult to pinpoint specific changes given differences in stress parameters.

- However greater attention was progressively paid by banks and the regulator to the issue of asset concentration.

- Comparing CBTT tests between Dec. 2009 & June 2011 shows:
  - Interest rate risk may have risen marginally;
  - No perceptible change in foreign exchange exposure;
  - Property price risk seems to have decreased;
  - Large exposure risk also apparently declined.

# 4. Assessment of the exercises

## A. How useful were the tests in identifying vulnerabilities?

- Many of the main sources of potential stress are adequately treated.
- Three areas warrant treatment in future stress testing exercises:
  - **Sovereign risk**—as well demonstrated in the ongoing euro zone debt debacle.
  - **Sudden stops of capital flows**—another global financial crisis could lead to sharp decline in portfolio and other flows to emerging markets.
  - **Contagion risk from other financial institutions**—the large and growing interconnectedness among local financial entities could make banks more susceptible to problems originating in other institutions.

## B. Did the exercises influence bank behavior?

- In Europe, Ireland and the US, the tests helped to determine the amount of capital banks needed to raise.
- In T&T there was not a direct link between the tests and capital needs.
- Nonetheless, the interactive nature of the CBTT exercises may have helped to give banks greater awareness of potential stresses.
- Some movement to limit large exposure may have been linked to the test findings and discussions.

## C. Can the tests aid in enhancing regulation and supervision?

- Stress tests are a tool that can be added to the regulator’s arsenal.
- It can add another layer to the analysis of banks’ portfolios using a methodology that is consistent across institutions.
- By formally introducing economy-wide variables, it can add to macroprudential analysis, incorporating developments that may be missed in the traditional micro analysis by supervisors.
- To be relevant, the shocks need to be reviewed and updated periodically as economic developments change and new sources of strain appear on the horizon.

## D. Will the tests boost transparency on financial system performance?

- Publishing the results of stress tests offer the opportunity to educate markets on the prospects for financial institutions.
- A balance must be struck between transparency and the provision of information that destabilizes markets.
- Financial markets in the US and Europe have proven to be sensitive to the release of stress test results, but many analysts felt they did not adequately take into account major risks (e.g. on sovereign debt).
- In T & T, the approach so far to publish system-wide findings and discuss individual results with relevant institutions seems appropriate.

# 5. Conclusion

- Overall, the stress tests of Trinidad and Tobago banks have added to the store of knowledge on these institutions' performance.

- Strains to a financial system can come from many, unexpected quarters so a continuous focus of attention on vulnerabilities is welcome.

- Stress tests cannot cater for all of the complexities of a dynamic integrated financial system but, used actively by institutions and supervisors, can usefully complement the other indicators of economic and financial performance.

# Thank you for your attention.