# Macroprudential Surveillance of the Guyanese Financial System

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# Objectives of Macroprudential Surveillance Using Direct Measures

1. Monitor sectoral production, income, savings gap, prices, interest rate, market data, and financial balance sheets

2. Identify risks that affect the financial system and individual sectors

3. Generate vulnerability report

4. Make prudential and macroeconomic policy recommendations

5. Review risk assessment benchmarks

6. Go to step 1

# Leading Indicator Approach
## Battacharayay (2009)

1. Determine an optimal set of leading and contemporary indicators
2. Analyze risks in household sector, corporate and consumer sentiments (indirect measures), and other sectors
3. Generate vulnerability report
4. Make prudential and macroeconomic policy recommendations
5. Review risk assessment benchmarks
6. Go to step 1

# Introduction – Financial Soundness

- During the last decade, financial stability issues have been receiving increased attention from policy makers around the world.

- The intensity and duration of the recent global financial crisis has underscored the dangers of systemic risks which are risks that cannot be diversified away and is caused by institutional failure, market failure or both.

- These risks could span (with the failure of) a chain of institutions and markets.

- The adverse effects of systemic risks (direct consequences) are increases in the cost of capital and decreases in financial capital availability (Schwarcz, 2008).

# Introduction – Financial Soundness (Con'd)

- Macro prudential policy, although still in its infancy stage, has been included as an important part of the overall policy toolkit to contain systemic risk, foster financial stability and sustainable growth.

- Accordingly, many central banks and regulatory authorities including the Bank of Guyana have adopted a macro perspective to regulate and supervise within a macro-prudential framework to assess and mitigate potential risks to financial stability.

- This paper highlights key risk factors that threaten financial stability within the economy's domestic sectors and its external flow of funds in the current and capital accounts.

# Introduction – Financial Soundness (Con'd)

- This paper is structured as follows: Section 2 of the paper provides an overview of the financial sector performances over the last five years (2007-2011);

- Section 3 discusses macro prudential policy framework.

- Section 4 identifies and analyses financial stability ratios within the macro prudential policy framework in Guyana (using a quantitative monitoring system);

- Section 5 discusses recommendations for reducing systemic risks; and

- Section 6 provides plans for using the risk assessment framework and evolving improved identification and measurement of new risk factors discovered within the Bank's quantitative and qualitative monitoring system.

# 2.0 Overview of Financial Stability in Guyana

- Over the last five years, the performances of the financial sector in Guyana have improved significantly with the continued growth in economic activities while the soundness and stability of the system were maintained.

- Macroeconomic performance of the domestic economy during the last five years showed real GDP averaging 4.4 percent between 2007 and 2011. All sectors contributed to the growth with improved performances, especially the export led sectors of agriculture and mining sectors which benefited from higher world market prices.

- This has boosted income and strengthened the balance-sheet of households and firms to improve creditworthiness and the profitability of the financial sector.

- Except for 2007 when the Value Added Tax (VAT) was introduced, inflation averaged 4.4 percent owing to high fuel and food prices. Price stability has had positive effects in the financial position of households and asset prices.

# 2.0 Overview of Financial Stability in Guyana (Con'd)

- High international commodity prices have spurred production and increased export revenues that helped to offset high import costs from fuel and other non-fuel commodities.

- Notwithstanding, the current account balance expanded but was offset by stronger flows to the capital and financial accounts which had positive effect on the overall balance of payments and hence higher international reserves.

- The foreign exchange market remained relatively stable during the review period with minimal fluctuations in the exchange rate from G$203.50 end-2007 to G$203.75 end-2011 per United States Dollar.

- The risk of loss on exchange due to unexpected fluctuations was almost non-existent due to mitigating factors of both supply and demand pressures.

- Higher export earnings, remittances and financial flows provide sufficient supply of foreign exchange to facilitate growing transaction demands for imports and other payments.

# 2.0 Overview of Financial Stability in Guyana (Con'd)

- Higher economic activities have been beneficial to the performance of the public sector. Consistent increases in revenues have had favourable effects on the overall deficit of the public sector which averaged 3.4 percent of GDP during the review period.

- This is a sustainable level of imbalance with financing from multilateral and bilateral creditors which included the Inter-American Development Bank, Caribbean Development Bank, China Eximbank, Venezuela and India Eximbank.

# 2.0 Overview of Financial Stability in Guyana (Con'd)

- Total public sector debt averaged 65.2 percent of GDP for 2007-2011.

- Domestic debt was below the IMF 25 percent threshold averaging 20.3 percent of GDP, while external debt as a percentage of GDP was above the 40 percent threshold at approximately 44.8 percent.

- The overall financial sector remained resilient to the global financial challenges, benefiting from the economy's economic growth.

- The banking sector remained highly profitable, overly liquid, held a moderately stable risk profile, well-capitalized, conservative in its investment strategy and

# 2.0 Overview of Financial Stability in Guyana (Con'd)

- This high concentration of loans and the large percentage of mortgage loans in the portfolios of the lending institutions can pose systemic issues.

- The spread between the savings rate and the lending rate remained high, ranging between 9.3 percent and 9.7 percent.

- This reflects inefficient intermediation and given relatively low deposit rates to savers, financial stability compromised with capital outflows and high levels of consumption.

- The non-bank sector, on the other hand, which held 18 percent of total assets, had a stable but yet high risk profile with respect to the non-performing loans of the real estate mortgage sector.

# 2.0 Overview of Financial Stability in Guyana (Con'd)

- Stress testing of financial system, which is an important mechanism for assessing the vulnerability of the portfolios of financial institutions to abnormal shocks or unfavourable conditions, was conducted for most of the review period.

- Insurance Sector
- The insurance sector was adequately capitalized in keeping with the requirements of the Insurance Act 1998 while the key financial soundness indicators of asset quality, management soundness, earnings and profitability, liquidity and sensitivity to market risk indicate that the financial health and soundness of insurance companies were adequate.

# 3.0 Macro Prudential Policy Framework

- Macro prudential policy framework is seen as essential in improving the grasp of the interrelated web of connections between financial institutions, financial markets and the macro economy.

- In this regard, the macro prudential framework includes a broad set of early warning indicators that identified vulnerabilities to the financial system and real economy.

- The indicators include macro economic variables in the economy and aggregated micro prudential indicators.

# 3.0 Macro Prudential Policy Framework (Con'd)

- Bhattacharay (2009) proposed a framework that includes indicators shown in Table 1 under the following six broad categories of: Money, Credit and Interest Rates; Banking; Public Finance; External Debt and International Flows; Trade and International Reserves; and Stock Market and Business Tendency Survey.

- The economic and financial rationales for indicators inclusion and characteristics are outlined in the table.

- The indicators are monitored against a set of countries specific threshold values whereby a vulnerability signal is noted when an observed outcome of a macroprudential indicator crosses its threshold value.

- There is a positive relationship between the number of indicators flashing and the level of vulnerability at any given period.

- The proposed framework can be modified with more or less indicators based on available data and other measures such as CoVar which measures cross exposure across intermediaries as well as credit rating by international credit rating agencies which are useful complementary indicators.

# 3.0 Macro Prudential Policy Framework – Table 1 – From Battachrayay (2009)

- **List of Leading MPIs, Economic and Financial Rationale for Selection, and**
- **Predictive Characteristics**

- **Table 1 explains the identification and definition of the optimum set of leading indicators combining direct (balance sheet ratios normalized with the GDP) and indirect assessment measures (expectation surveys)**

**Table 1: List of Leading MPIs, Economic and Financial Rationale for Selection, and Predictive Characteristics**

| | Rationale | Characteristic |
|---|---|---|
| **Money, Credit and Interest Rates** | | |
| M2, Growth, y-o-y | High growth rate of this indicator might indicate excess liquidity that may fuel speculative attacks on the currency and lead to a crisis. | Coincident/leading |
| Domestic Credit ☐ Growth, y-o-y ☐ Ratio to GDP | Considered as an indicator of a monetary policy stance w/c is incompatible with the currency peg. Very high growth rates of domestic credit may serve as a crude indicator of the fragility of the banking system. Its ratio to GDP usually rises in the early phase of the banking crisis. It may be that as the crisis unfolds, the central bank may be pumping money to the banks to alleviate their financial situation. | Coincident/leading |
| Real Money Market Rate/Inter-Bank Rate (Borrowing Cost) | A sharp increase in this rate signals a tight liquidity situation in the banking sector, which can possibly lead to solvency problems | Leading |
| Lending Deposit rate spread | An increase above a threshold level possibly reflects deterioration in credit risk, as banks are unwilling to lend. | |
| **Banking** | | |
| Net Bank Profits ☐ Return on Assets ☐ Return on Equity | Unusually high profitability may be a sign of excessive risk-taking or imperfectly competitive financial sectors, but too low profits can indicate deterioration in credit quality or intense competition | Leading |
| Total Bank Loans to Total Deposits | A high ratio may indicate stress in the banking system and a low level of liquidity to respond to shocks | Leading |
| Credit to Private Sector, Ratio to GDP | Over-investment of the private sector could lead to a deterioration in the quality of credit portfolios of the banking sector | Coincident/leading |
| Central Bank Credit to the Banking System | A large increase in central bank credit to banks and other financial institutions often reflects severe liquidity or solvency problems in the financial sector | Coincident/leading |
| Liquid Assets to Short-term Liabilities | This indicator measures the banking system's capability to meet short-term debt obligations. A too low ratio may result to liquidity problems if debtors decide to pull out their funds. | Coincident/leading |
| **Households** | | |
| Household Debt ☐ Growth, y-o-y ☐ Ratio to GDP | Households are more sensitive to changes in interest rates, income and asset prices. A too high proportion of loans to this sector may pose additional risk to the financial sector. | Coincident/leading |
| Real Estate Loans (Ratio to Total Loans) | In the past, many financial crises have been caused or amplified by downturns in particular sectors of the economy spilling over into the financial system. This has often been the case for concentration in real | Leading |

| | | |
|---|---|---|
| Non-performing Loans (Ratio to Total Loans) | High levels of NPLs indicate deteriorating asset quality of the financial system. | Coincident/lagging |
| **Public Finance, External Debt and Financial Flows** | | |
| Overall budget deficit to GDP | Large fiscal deficits could lead to a worsening of the current account position, which could in turn put pressure on the exchange rate | Coincident/Leading |
| Short-Term International Borrowing or External debt with maturities one year or less | A large increase in short-term debt indicates vulnerability in the solvency of the country. | Leading |
| **Trade and International Reserves** | | |
| Trade Balance to GDP | Deterioration in the trade balance could signal declining international competitiveness. It also leads to a worsening of the current account, which is often associated with currency crisis. | Coincident/leading |
| Real effective exchange rate | If real appreciation of a currency is not backed by corresponding productivity gains in the real economy, this implies a loss of international competitiveness which can be a possible source of vulnerability. Also, real appreciation of a currency that occurs in the context of a large current deficit is a source of increased vulnerability. | Coincident/leading |
| International Reserves <br> ?  Growth, y-o-y <br> ?  In months of imports | A low and declining amount of international reserves signals possible problems for the country to meet international payment requirements and the economy's import demands. | Leading |
| **Stock Market** | | |
| Composite Stock Price Index (1997=100) | A sharp decline in stock prices may signal adverse market perception of the health of the stock market. Declining asset prices usually precedes financial crises. | Leading |
| Stock Price Earnings Ratio | A high and increasing stock price earnings ratio may signal asset inflation, which is unsustainable in the medium term | Leading |
| **Business Expectation Survey Indicators** | | |
| Current Business Situation <br> Expected Business Situation (next 6 months) <br> Stock of Finished Products <br> ?  Industry <br> ?  Wholesale and retail trade <br> Employment (present situation)-here next quarter <br> Financial Situation (present situation) | BTS are able to capture current and future profitability trends. Answers on the current business situation as well as on the expected business trend in the next three to six months reflect the perceived profit assessment of managers which are not only important for the real economy but also has implications for the financial sector. | Coincident/leading |

| | Rationale | Characteristics |
|---|---|---|
| **Capital Adequacy** | | |
| | Capital provides a margin to help an insurer to cope with variability in its results and adverse circumstances. However, if premiums are high in relation to capital, the margin might be insufficient.<br><br>Gross premiums written can be used to assess overall capacity, including the ability to bear operational risk. | |
| Net Premiums/Capital | Net premiums written can be used to assess the capacity to bear the retained underwriting operations risk.<br><br>Net premiums to capital below the threshold may indicate that companies in the industry are not taking adequate steps to maximise their full potential. However, a ratio exceeding 100 percent may reflect the industry inability to meet its financial obligations. | Leading |
| | The ratio analyses the institution's ability to meet its financial obligations when compared with how much financial risks the company has acquired. | |
| Capital/Assets | A reduction in the capital to total assets ratio may result in increase liabilities in the industry and may show poor solvency position for companies in the industry. | Leading |
| **Asset Quality** | | |
| Equities/Total Assets | Reveals the degree of investment exposure to stock markets risks and fluctuations of the economy. | Leading |
| Real Estate/Total Assets | Higher ratio reflects larger probability of impairment | Leading |
| Re-Insurance and Actuarial Issues | | |
| | Net retention rate measure the amount of risks retained by the insurer after reinsurance has been paid. However, cession rate measures the percentage of business reinsured or the amount of risks transferred to the reinsurer. | |
| Net Premiums/Gross Premiums | An increase in the cession rate may reflect an increase in claims ratio, which may be a direct result of poor underwriting policies adopted by companies within the industry. | Leading |
| **Earnings and Profitability** | | |
| | Low profitability signals solvency problems. The lower the ratio, the better the underwriting performance of the insurer. The ratio can be calculated net or gross of reinsurance, i.e. after or before taking into account reinsurance receivables. | |
| Net Claims/Net Premiums | This ratio reflects if industry is collecting premiums higher than the amount paid in claims or if it is not collecting enough premiums to cover claims. | Leading |

| | | |
|---|---|---|
| Expenses/Net Premiums | The percentage of insurance premiums used to pay for an insurer's expenses, including overhead, marketing and commissions. Expense ratio is calculated as underwriting expense divided by net premiums earned.<br><br>More specifically, the expense ratio is money used in acquiring, writing and servicing an insurance policy. Business expenses like advertising, used to attract customers; commissions, used to pay insurance agents, brokers and employees; and taxes, paid on insurer earnings, are all examples of expense ratio costs.<br><br>Expense ratio exceeding the threshold may result in poor profitability or losses in the industry. This may be a direct result of poor underwriting policies adopted by companies within the industry. | Leading |
| Combine Ratio | Combine Ratio measure the profitability from underwriting activities, as distinct from investment activities. The result has traditionally been compared to 100 percent. The sum of the expense ratio and the loss ratio makes the combined ratio.<br><br>A ratio below 100 percent represents a measure of profitability and the efficiency of the industry underwriting policies. Ratios above 100 percent denote a failure to earn sufficient premiums to cover expected claims and underwriting expenses. High ratios can usually occur either because of under pricing and/or because of unexpected high claims. | Coincident/ Leading |
| Investment and Other Income/Net Premiums | Investment and Other Income/Net Premiums was developed to measure the total profitability of the insurer by adding this ratio to the underwriting results.<br><br>Investment and Other Income aid in the overall profitability of the companies. However, exceeding the threshold may indicate that companies are moving away from their primary operations (Insurance) and concentrating more on investment. This may not be the best practice for the industry. | Coincident/ Leading |
| **Liquidity** | | |
| Liquid Assets/Total Assets | Illiquidity is linked to insolvency through the loss of confidence and runs causing policy holders to cancel cover. | Coincident/ Leading |
| **Sensitivity to Market Risks** | | |
| Equity/Capital Net Open Foreign Exchange/Capital, etc. | Losses may result from a collapse in equity value due to sudden changes in interest rates, reducing in real estate value or currency depreciation. | Coincident/ Leading |

# 3.0 Macro Prudential Policy Framework (Con'd)

- Banking, insurance and other financial macro prudential/soundness indicators are monitored to highlight economic and financial vulnerabilities using several methods.

- Trend analysis is used to detect vulnerability when they are major fluctuations in a particular indicator.

- This is a simple, cost effective and transparent method which is commonly used by many countries.

- Macro stress-testing is another method aimed at verifying the resilience of the financial system under stress conditions and through financial crisis simulation exercises to assess the effectiveness of existing arrangements.

# 3.0 Macro Prudential Policy Framework (Con'd)

- The periodic conduct of simulation exercises are usually done at the individual institution and/or country level.

- Early warning signals (EWS) models are also used to estimate the probability of a crisis occurring through econometric techniques based on the movements of macro prudential indicators.

- EWS models are not suitable for high frequency monitoring because it requires extensive time series data which are not always available especially for countries that did not experience a crisis.

- It is recommended that a country should adopt an appropriate framework tailor-made for its specific characteristics using all or some of the appropriate methods for macro prudential analysis taking into consideration the level of accuracy, timeliness, cost, technical capacity and policy actions (Bhattacharyay 2009).

# 4.0 Financial Stability Analysis Using Macro Prudential Policy Framework

- Table 2, shows a modified list of macro prudential indicators compiled with empirical data for the 2007 – 2012 period to analyze vulnerability in Guyana.

- These indicators are compared with specific threshold values to signal vulnerability in the financial sector specifically and in the economy generally. The thresholds are based on historical averages, prudential values and averages from similar countries with strong financial systems.

- Table 3, provides the detailed tabulation of the signals for each indicator over the same period. The results showed that the total number of vulnerability signals ranged between 6 and 15 during the 2007 – 2011 periods. It declined from 15 in 2007 to 6 in 2009 and then increased to 11 in 2011.

# 4.0 Financial Stability Analysis Using Macro Prudential Policy Framework (Con'd)

- The number of indicators that underscored vulnerability signals remained modest indicating that there is not much cause of concern.

- However, there is the need to address continuing concerns over interest rate spreads, growth in domestic private sector credit and concentration, external debt and external current account deficit.

- The signals indicate that the insurance financial indicators have been satisfactory and strengthened during the review period.

## 4.0 Financial Stability Analysis Using Macro Prudential Policy Framework (Con'd)

- In addition to the analysis of macro prudential indicators for vulnerability, stress tests are conducted for areas of potential risks in the banking sector. Shocks and risks are assessed in the four categories of: investment, foreign currency, credit and liquidity.

# 5.0 Policy Analysis and Recommendations

- The analysis suggests that the concerns in the Guyanese Financial System are interest rate spread, lending to the top twenty borrowers and external debt which are the three indicators that have given persistent warning signals.

- The insurance sector soundness indicators indicate that there have been temporary warning signals.

- The stress tests suggest that the banking systems shock absorptive capacities were adequate under various scenarios with reasonable vulnerability.

- High interest rate spread has been a major challenge in efficient intermediation.

- Commercial banks have consistently blamed it on high administrative cost, growing levels of excess liquidity and investment in low earning government securities.

- Greater efforts will have to be made to encourage commercial banks to reduce the spread through the adoption of cost reducing technology, capital market deepening, better investment outlets and more competition from other non bank entities.

# 5.0 Policy Analysis and Recommendations (Con'd)

- Lending to the top twenty borrowers which accounts for over 30 percent of private sector credit is a systemic concern and the borrowers are under intensive surveillance by the lending institutions and the Bank of Guyana.

- The growing level of private sector credit and in particular to households in the form of real estate loans, although it is a serious concern (Ganga 2011), will need to be monitored more closely in view of the increased in real estate prices.

- To mitigate these systemic concerns, the Bank can implement a number of macro prudential tools.

- These include loans-to-value ratios (LTV) and debt service to income ratios (DTI) which are administrative rules to limit bank lending when monetary policy is constrained.

# 5.0 Policy Analysis and Recommendations (Con'd)

- Leverage caps can be used to limit asset growth by tying total assets to bank equity. Levy on non core liabilities can be used to mitigate pricing distortions that lead to excessive asset growth.

- The level of external debt has been increasing.

- However, external debt is largely long term and highly concessional and therefore does not pose risks of insolvency of the country in the short term.

- In order to minimize sovereign risk and improve financial stability, it is imperative that policy makers strive towards prudent debt management in conjunction with sound monetary, exchange rate and fiscal policies.

# 6.0 Conclusions

- Macro prudential approach is a vital supplement to supervision in improving the overall financial stability of the system.

- Elements of the macro prudential approach include monitoring the financial sector to detect exposures to quantify magnitude and nature of economic and financial vulnerability as well as, accessing potential systemic risks and suggest appropriate policy to address them.

- The implementation of a macro prudential approach is essentially work in progress which has many limitations such as relying on historical precedents, structural break in time series, problems in capturing qualitative information and unique characteristics of individual country.

# 6.0 Conclusions (Con'd)

- Notwithstanding, the benefits in crisis prevention suggests that some aspects of the prudential approach can be implemented as suggested by Bhattacharyay (2009) and Jayara et al (2011).

- The framework utilizing macro prudential indicators, which can be modified to the country specific circumstances, to detect vulnerability in the economy and the financial system is very simple and costs effective for high frequency monitoring.

- The vulnerability signals in the proposed framework can direct attention to particular issues or problems where trend analysis can amplify signs of vulnerability which can be addressed to avoid systemic issues.

# 6.0 Conclusions (Con'd)

- A strong and independent institution with proper governance arrangements in the form of clear mandate with transparent decision making process is required to implement the macro prudential policy framework.

- This will help to determine how the different elements of the framework are brought together, how policy interacts with other policy areas and to access the necessary micro and macro prudential information such as exposure between institutions and on exposure commonly held by institutions.

- In this regard, central banks are given the responsibility in establishing the macro prudential policy framework.

# 6.0 Conclusions (Con'd)

- This will help to overcome the major challenges with respect to the overlap between different policy areas and the responsibility of using instruments which can be used for multiple policy areas and hence the likelihood of unintended impacts.

- This will also necessitate strong policy coordination (of macroprudential and monetary policy instruments) so that policies reinforce each other and do not work against each other.