

Macro-Prudential Policy and Systemic Risk: Issues For Caribbean Regulators

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Structure of Presentation

1. Systemic Risk and Macro-Prudential Policy.
2. Systemic Risk: Sources and Measurement.
3. Macro-Prudential Policy – The Caribbean Experience.
4. Imperatives for Strengthening Macro-prudential Policy in the Caribbean.



1.0 SYSTEMIC RISK AND MACRO-PRUDENTIAL POLICY

1.0 Systemic Risk and Macro-Prudential Policy

- **Systemic Risk**: The risk that an event will trigger a **loss of economic value or confidence in a substantial portion of the financial system** resulting in adverse “nation-wide” and “region-wide” effects. **Event(s) are serious enough to ultimately damage the real economy.**
- **WHILE SEVERAL PERSPECTIVES ABOUT SYSTEMIC RISK ABOUND, IT IS NOW COMMON PLACE TO ASSESS SYSTEMIC RISK IN TWO DIMENSIONS.**

1.1 Dimensions of Systemic Risk

Time-Series Dimension

- Risks caused by credit cycles and the pro-cyclicality of the financial system.
- (**Progressive build-up of aggregate risk over time**).

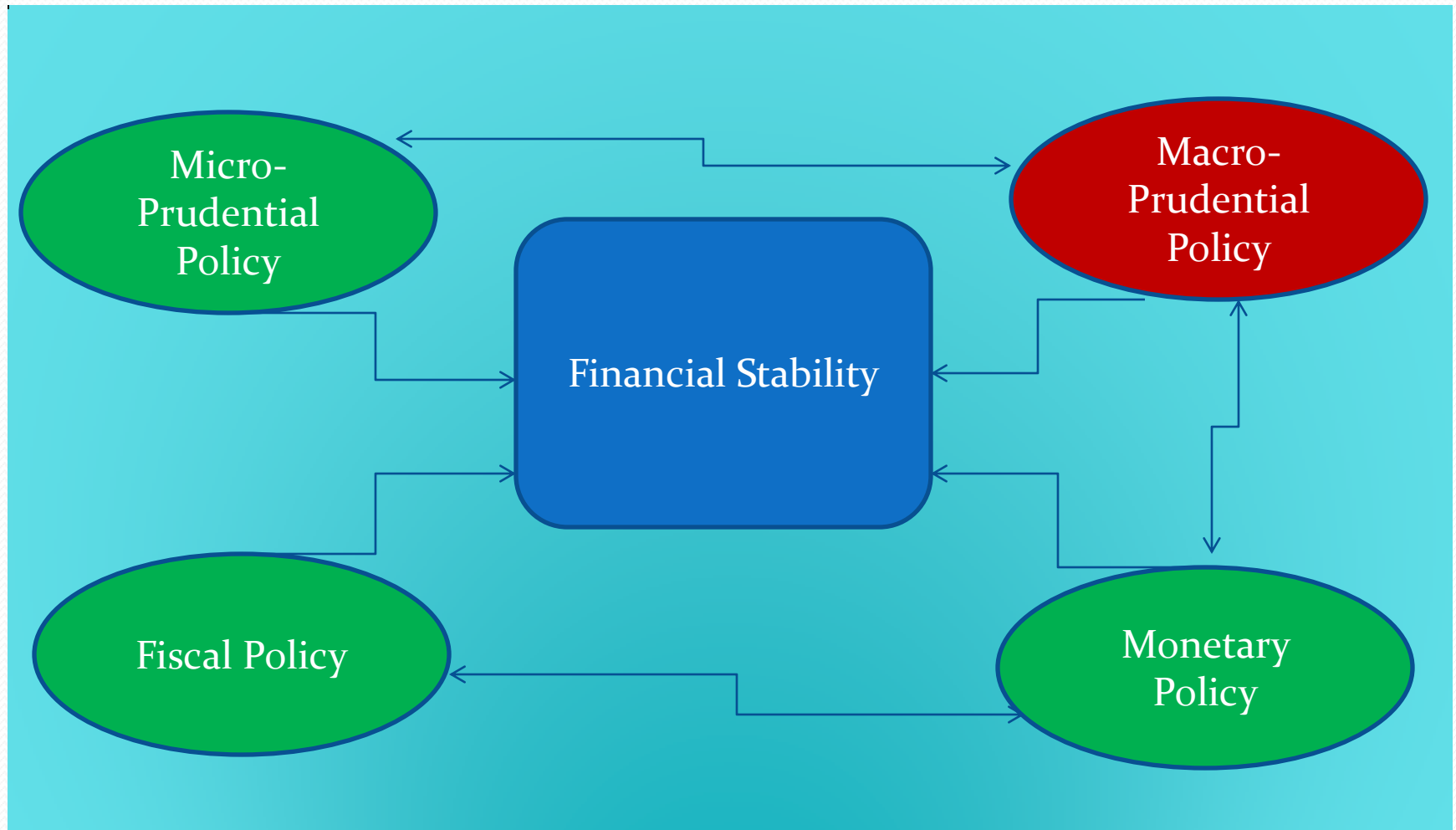
Cross-Sectional Dimension

- Interconnectedness risks through spillovers to financial system from SIFIs or through common exposures.

1.2 Meaning of Macro-Prudential Policy

□ Macro-Prudential Policy: Refers to prudential measures aimed at reducing or limiting systemic risk and preserving financial stability.


1.3 Financial Stability and Macro-Prudential Policy



1.4 Main Elements of Financial Stability

Risk Architecture for the Caribbean

Financial Sector Components	Sources of Risk	Risk Assessment	Major Risks	Risk Metrics	Risk Mitigation
Financial Institutions <ul style="list-style-type: none"> • Banks • Insurance/Pension Funds • Credit Unions • Securities Firms 	Endogenous Risks	Systemic and Macro-Prudential	<ul style="list-style-type: none"> • Credit • Liquidity • Reputational 	<ul style="list-style-type: none"> • FSIs • EWIs • Stress Tests • Flow of Funds Matrix 	<ul style="list-style-type: none"> • Financial Safety Nets • Crisis Management
Financial Markets <ul style="list-style-type: none"> • Money Mkt. • Forex Mkt. • Capital Mkts (Equity, Debt) 			<ul style="list-style-type: none"> • Counterparty • Asset Price Misalignment • Market • Reputational 	<ul style="list-style-type: none"> • Interdependency Matrix • Interconnect edness Map 	
Financial Infra - Structure <ul style="list-style-type: none"> • Legal/Regulatory Systems • Payments Systems • Clearance Systems • Deposit Insurance 	Exogenous Risks	Micro-Prudential	<ul style="list-style-type: none"> • Payment • Operational • Regulatory • Reputational 	<ul style="list-style-type: none"> • Financial Models (Macro, DSGE) • Network Analysis 	<ul style="list-style-type: none"> • Business Continuity • Robust Network and ICT Platform



2.0 SYSTEMIC RISK: SOURCES AND MEASURES

2.1 Measuring Systemic Risk: Dimensions

TIME DIMENSION:

- ❑ Indicators to monitor Build-up and Unwinding of Financial Imbalances (**Group 1**).

CROSS-SECTIONAL DIMENSION

- ❑ Indicators to Measure Shared Exposures to Risk Factors (**Group 2**).
- ❑ Indicators that capture Interconnections, Contagion and Institutional Contribution to Systemic Instability (**Group 3**).

2.2 Measuring Systemic Risk (Time Dimension)

- ❑ Monitoring and Identifying the **Build-up** and **Unwinding of Financial Imbalances** are quite important and require a mix of hard data and good judgement.
 - Identifying the **build-up** requires setting up some benchmark to judge the actual evolution of the indicator against a “**normal**”, “**natural**”, or “**warranted**” growth path.
 - Identifying **Unwinding** requires market-based information on conditions in the financial system including the level of stress in the financial system.

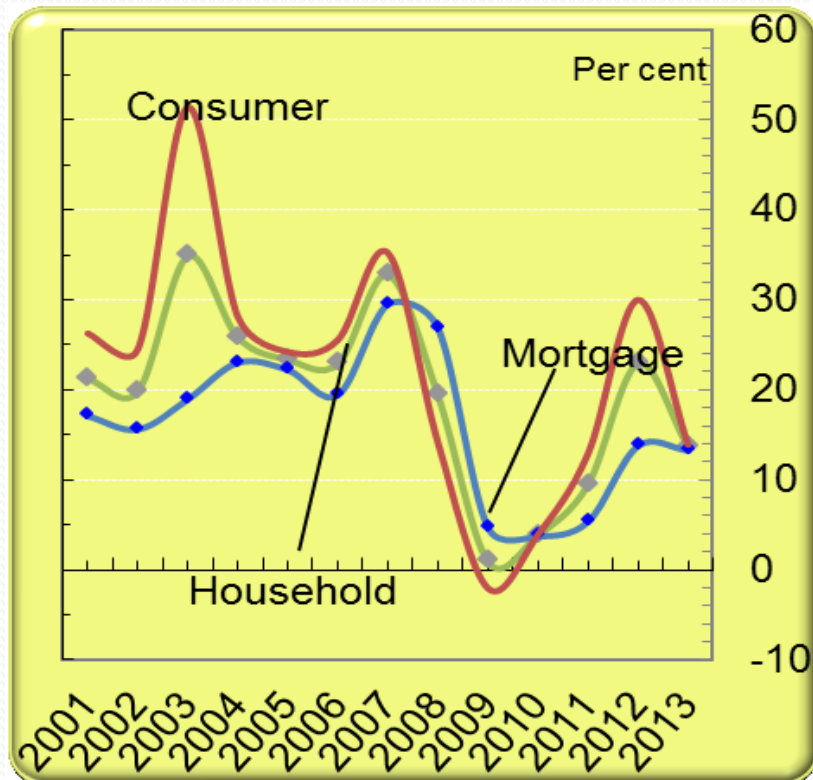
2.2a Common Indicators for Build-Up in Imbalances (Time-Dimension)- Group 1a

Build-up in Imbalances:

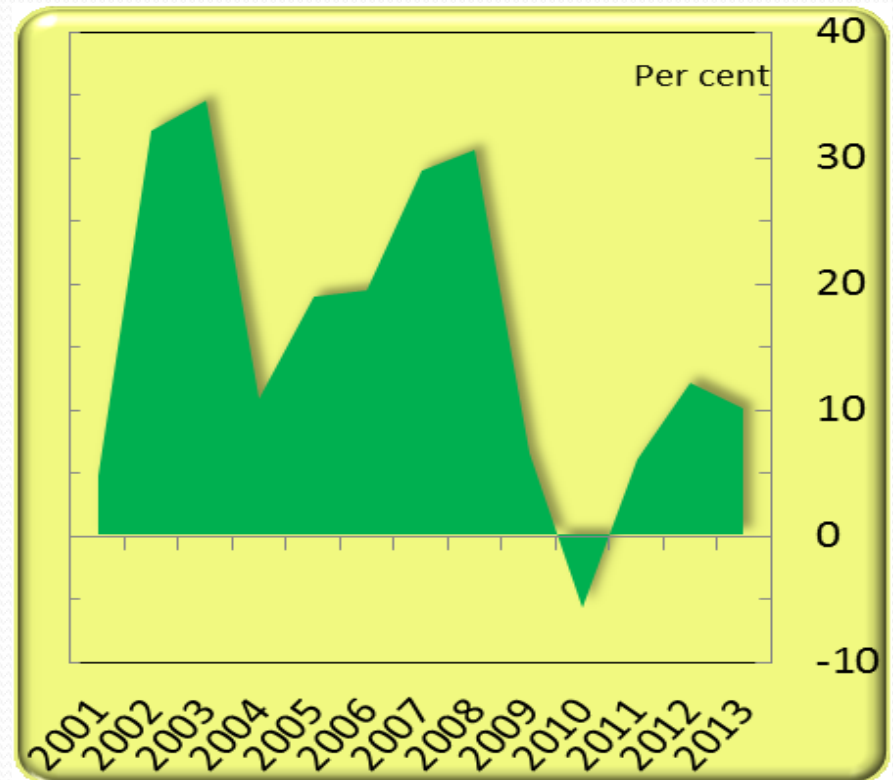
- Growth in Total Credit-to-GDP;
- Growth in Business Sector Credit-to-GDP;
- Growth in Private Sector Credit-to-GDP;
- Growth in Household Debt held by Financial Institutions;
- Growth in Corporate Debt held by Financial Institutions;
- Growth in Public Sector Debt to GDP;
- Growth in Household Debt to Disposable Income;
- Movement in Residential and Commercial Real Estate Prices.

Examples of Indicators from Bank of Jamaica

Growth in h/h debt held by banks



Growth in corporate debt held by banks



Source: Brian Langrin (Bank of Jamaica)

2.2b Some Common Indicators for Unwinding of Imbalances (Time-Dimension) – Group 1b

Unwinding of Imbalances:

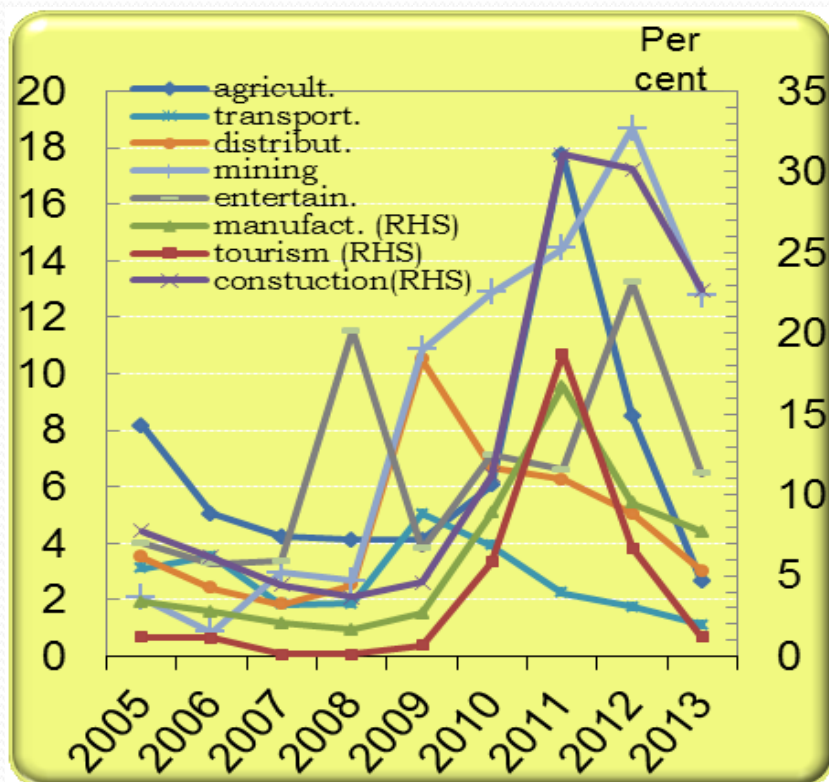
□ Spreads in Financial Markets

- Inter-Bank Market Spreads (Interest Rate);
- Bond Spreads;
- Spreads in FX Markets.

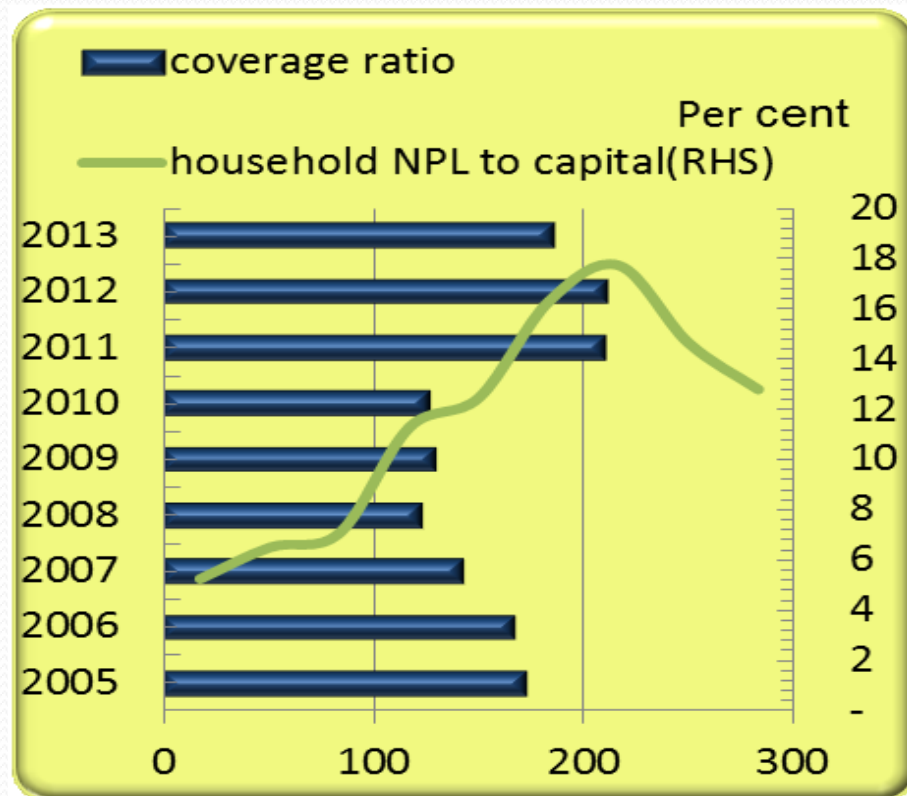
□ Non-Performing Loans to Total Loans;

Examples of Indicators from Bank of Jamaica

Corporate sector NPLs to corporate loans



H/H NPLs to bank capital



Source: Brian Langrin (Bank of Jamaica)

2.3 Measuring Systemic Risk (Cross-Sectional Dimension)

- ❑ Cross-sectional Dimension examines:
 - ❑ (a) how shocks propagate through the system; and
 - ❑ (b) the extent to which failure of a specific institution can jeopardize the system.
- ❑ Several different approaches and models have been proposed to capture contagion and systemic risk.
- ❑ **No firm consensus on preferable measures and models.**

2.3a Some Common Cross-sectional Metrics (Group 2)

- ❑ **Measures of Interdependence (Exposure to Common Macro Shocks):**

- ❑ **Financial Stress Metrics:**
 - ❑ **Joint Probability of Distress (JPoD);**

 - ❑ **Conditional Value at Risk (CoVar):** Measures the degree of risk externalities that a single institution can place on the financial system.

 - ❑ **Systemic Expected Shortfall (SES):** Measures potential for an institution to be under-capitalised when the system is under-capitalised.

 - ❑ **Contingent Claims Approach (CCA):** Computes the likelihood of default (distance to default) for a financial institution using balance sheet data (leverage ratio) and the volatility of returns.

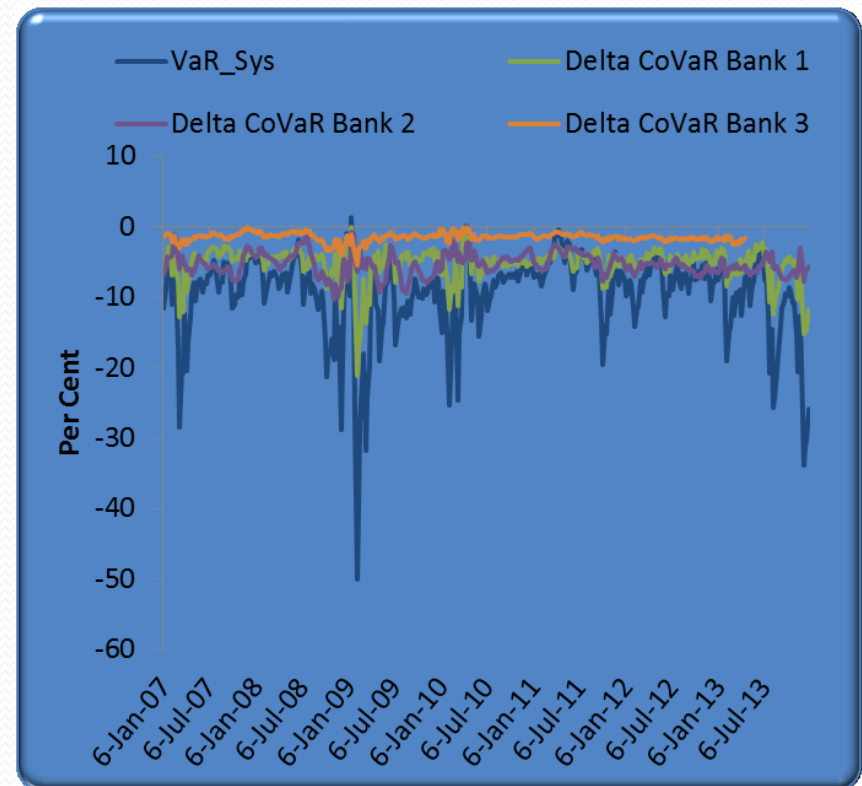
- ❑ **Macro-Stress Tests :** Important for detecting vulnerabilities, judging the spread of shocks and determining shared exposures.

Examples of Indicators from Bank of Jamaica

CCA distance-to-default for banks*



CoVaR for banks**



Source: Brian Langrin (Bank of Jamaica)

2.3b Some Common Cross-sectional Metrics (Group 3)

- ❑ Metrics for Analysis of Interdependency, Interconnectedness and Contagion:
 - ❑ Flow-of-Funds Analysis (**Basic Requirement**)
 - ❑ Interconnection Maps and Network Analysis
 - ❑ Contagion Matrices
 - ❑ Macro-Link Models (DSGE, Economy-wide)

2.3c Flow of Funds Matrix

Flow of Funds data allows us to:

- Looks at the impact of a specific institution's financing on other institutions; on the financial system; and on the real economy.
- Complements the preparation of interconnection maps.
- Complements network analysis.

2.3c Flow of Funds Matrix

		Financial Sector (FS)							Real Sector (RS)					
		CB	BKS	NBKS	INS	PNS	CUS	SubTot	HH	FRM	GOV	ROW	SubTot	Tot AA
FS	CB													
	BK													
	NBK													
	INS													
	PNS													
	CU													
	SEC													
	SubTot							A					B	
RS	HH													
	FRM													
	GOV													
	ROW													
	SubTot							C					D	
Tot FR													F	
Source: Suk Hyun(2010)														

Columns: Fund-raising (FR)(Source of Funds).

Rows: Asset Allocation (AA) (Use of Funds).



3.0 Macro-Prudential Policy: The Caribbean Experience

3.1 Macro-Prudential Policy Elements

KEY AREAS	ACTIONS
1. Legal Regulatory/Mandate	Need to Ensure Legal Mandate for Financial Stability is established.
2. Organisational/Institutional Arrangements	Need for a System-wide Oversight Committee or Regulatory Policy Council that is focused on macro-prudential policy and financial stability.
3. Macro-Prudential Policy Framework	Need to establish a macro-prudential policy framework with <u>clear terms of reference</u> . <ul style="list-style-type: none">• Building capital buffers• Contain build-up of vulnerabilities over time, in sectors and across the system.

3.1 (cont'd) Macro-Prudential Policy Elements

KEY AREAS	ACTIONS
4. Operating Framework for Financial Stability	<ul style="list-style-type: none">• Assessing Systemic Risk (Assess imbalances, Map out linkages in the system)• Design Macro-prudential tools to contain systemic risks (countercyclical capital buffers and provisions, sectoral capital requirements, Loan-to-value limits, Debt-to-income limits, risk-weighting of highly connected sectors, liquidity coverage ratios, net stable funding ratios, reserve requirements,)
5. Financial Safety Net/Crisis Preparedness Plans	<ul style="list-style-type: none">• Design appropriate financial safety net (deposit insurance, financial stability fund or levy)• Preparation of national crisis preparedness plans.

3.2 Macro-Prudential Policy: The Caribbean Experience

Macro-Prudential Policy Framework (as at December 2013)						
COUNTRIES	Financial Stability Mandate in Law	Macro-Prudential Mandate in Law	Macro-Prudential Frameworks			
			Metrics	Policy	Operating	Tools
BAH	x	x	x	x	x	Very Limited
BDS	x	x	√ (Limited)	x	x	Very Limited
BEL	x	x	x	x	x	Very Limited
ECCB	x	x	x	x	x	Very Limited
GUY	x	x	√ (Limited)	x	x	Very Limited
HAT	x	x	x	x	x	Very Limited
JAM	In Progress	In Progress	√	In Progress	x	Very Limited
SUR	x	x	x	x	x	Very Limited
T&T	x	x	√ (Limited)	x	x	Very Limited

Stress-Testing Experience

Stress-Tests (as at December 2013)					
COUNTRIES	Banking	Insurance	Credit Unions	Securities Firms	Entire Financial Sector
	SF	SF	SF	SF	Combined
BAH	√	×	×	×	×
BDS	√	×	√	×	×
BEL	√	×	×	×	×
ECCB	√	×	×	×	×
GUY	√	×	×	×	×
HAT	√	×	×	×	×
JAM	√	√	√	×	×
SUR	√	×	×	×	×
T&T	√	√	×	×	×
SF - Single Factor Stress Tests.					

ITEM 1: Legal Mandates: Caribbean Experience

- Micro-prudential mandate for supervision in the Caribbean is well established in law (especially for banking sector).
- However, **financial stability and macro-prudential mandates** are still in the **early stages of consideration** in most countries.
- Example: The Bank of Jamaica is moving to establish a **mandate in law for financial stability and has prepared a Bill** which will vest it with (in addition to its current mandate and powers) institutional responsibility for financial stability.

Item 5: Crisis Management Plans

- ❑ Draft Regional Crisis Management Plan Exists.
 - ❑ But Plan has to go beyond broad principles to identify scenarios, policy actions and resolutions strategies.
- ❑ National Crisis Management Plans are progressing in various countries (including Tdad&T'go, Barbados, Belize and Jamaica).



4.0 Imperatives for Strengthening Macro-Prudential Policy in the Caribbean.

4.1a Key Policy Takeaways

- **Move to Codify Financial Stability and Macro-Prudential Policy in law to give them a firmer foundation (similar status to monetary policy actions).**
- **Strengthen Macro and Micro-Prudential Policy and Operating frameworks.**
- **Expand Perimeter of financial surveillance to cover systemic and cross-border risks.**
 - **Develop a financial interdependency matrix to map interconnections of SIFIs at both a national and regional level.**

4.1b Key Policy Takeaways

- ❑ **Close Information gaps by expanding reporting regimes and developing workflows and processes to support information gathering, analysis and dissemination.**
 - **Develop FSIs for Credit Unions and non-Deposit Taking Institutions (insurance, securities firms, pensions).**
 - **Build integrated database for regional financial conglomerates and SIFIs and develop a consolidated FSI database for the Caribbean.**
 - **Build national and regional flow of funds tables (medium-term project).**

4.1c Key Policy Takeaways

- **Develop Analytical Capability to Assess Systemic Risk and to Conduct Macro-prudential Analysis:**
 - **Enhance staff training on systemic risk measures and macro-prudential analysis.**
 - **Rebuild and enhance macro-modelling capabilities with a focus on macro-financial linkages (system-wide models, DSGE models).**

4.1d Key Policy Takeaways

- **Enhance Macro-Stress Testing Capabilities:**
 - **Extend macro stress tests beyond banking sector to other key areas, especially insurance, pensions credit unions and the securities market.**
 - **Conduct at least one significant region-wide stress test for banking and insurance sectors.**

5. Concluding Issues

- Macro-prudential policy still remains a relatively under-developed aspect of overall financial stability in the region.
- Developing an adequate macro-prudential framework will need a strong micro-prudential framework to undergird it.
- **Significant work is needed on developing an appropriate suite of macro-prudential indicators for the region.**

5. Concluding Issues

- No single measure or suite of tools is sufficient for systemic risk assessment and policy makers and regulators would need to combine a range of quantitative indicators and methods with sound judgement about the nature of imbalances.
- Regulators need to revisit their reporting frameworks and database systems to ensure that they are capturing essential and relevant information.
- Effective Macro-Prudential Supervision and Surveillance would require investment in new technology and functional and robust IT platforms.



END OF PRESENTATION