Measuring the Level of Financial Stability in the Bahamas

Authors

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Outline

* Importance of Financial Stability Measures
* Literature on Financial Stability Indices
* Construction of Index for The Bahamas
* Interpretation of Results
* Conclusion and Next Steps

Importance of Financial Stability Meassures

Why is financial Stability Important

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- Helps insulate economy from certain external shocks
- **Important** for economic growth and development
- Given interconnectedness of the financial system, a collapse of one firm could adversely impact the entire system

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Why Develop a FSI

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- Central Bank is charged with monitoring the financial system and encouraging financial stability
- Currently, several separate indicators are used to assess the stability of system, as opposed to one comprehensive indicator
- Natural progression from creation of Financial Stability report (Dec. 2013)

FSI Literature		
Author & Country	Indices used	Note
Cheang and Choy (2011): Macao	• Financial Soundness indicator (60%) • Financial Vulnerability Index • Regional Economic Climate Index • FVI+RECI (40%)	
Morales & Estrada (2010): Columbia	Indicators: Return on assets, return on equity, net loan losses to loan portfolio, intermediation spread, liquid liabilities to liquid assets, interbank funds to liquid asset, uncovered liabilities ratio and number of institutions with high stress levels	Three different weighting methods were attempted but they all gave similar results. Qualitative response approach was used to estimate the weight of each variable within the index.
Morris (2011): Jamaica	• Financial development index (25%) • Financial vulnerability index (25%) • Financial soundness index (25%) • World climate index (25%)	-a single quantitative measure and forecast of the stability of the financial system - the method of equal weighting was used among indicators and each indicator was normalized to allow for comparability across variables
Petrovska and Mucheva (2013): Macedonia	• Insolvency risk (25%) • Credit risk (25%) • Profitability (20%) • Liquidity risk (25%) • Currency risk (0.05%)	

Construction of a FSI for the Bahamas

➢ Several macroeconomic and banking indicators were selected based on previously mentioned sources and the authors' assessment

➢ Variables were then used to create several sub-indices:

Financial
Soundness
Index
20%

Financial
Development
Index 25%

**Financial
Stability
Index**

Economic
Climate
Index 25%

Financial
Vulnerability
Index
30%
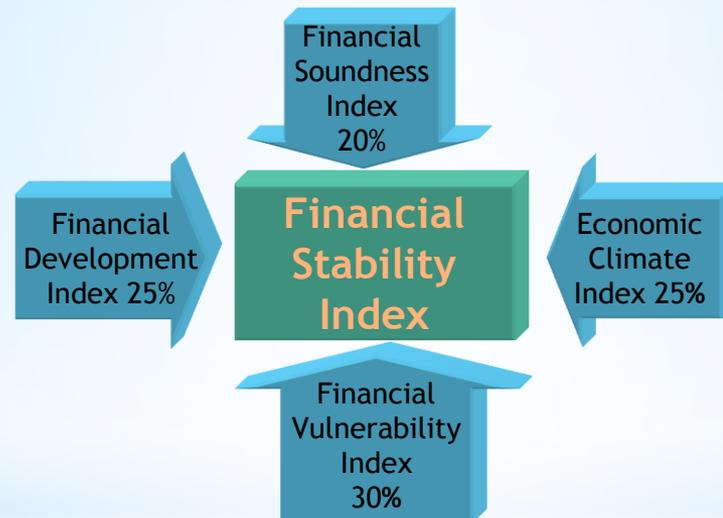
➢ Indices weighted based on relative importance to the Bahamian financial system, as well as the work of other authors

➢ Quarterly data for all indicators obtained from internal sources with exception of Nominal GDP-quarterly statistics obtained from annual data using Chow Lin technique

Construction of a FSI for the Bahamas Cont'd

Table 1 List of Individual Indicators Used in Financial Stability Index (FSI) 2002 – 2013		
Category	**Indicator**	**Weight**
Financial Soundness Index (fsi)	Non-performing loan ratio*	0.20
	Ratio of Liquid Assets to Total Assets	
	Loan-to-Deposit Ratio	
	Return on Assets (ROA)	
	Interest Margin to Gross Income Ratio	
	Interest Rate Spread	
Financial Development Index (fdi)	Ratio of Credit to the Public Sector to GDP	0.25
	Ratio of Private Sector Credit to GDP	
	Change in Private Sector Credit	
	Stock Market Capitalization to GDP*	
Financial Vulnerability Index	Current Account Deficit to GDP	0.30
	Foreign Investment to GDP	
	Fiscal Deficit to GDP	
	Direct Charge to GDP	
	National Debt to GDP	
	Central Government External Debt to GDP	
	Ratio of External Reserves to Base Money	
	Ratio of External Reserves to M2	
Economic Climate Index (eci)	US GDP Growth	0.25
	US Consumer Confidence Index	
	Growth in Air Arrivals	

* These indicators were not included in the initial FSI due to data gaps

Construction of an Index for The Bahamas (cont'd)

➢ All indicators normalised by placing them on a scale in the interval from 0 to 1, using Equation 1:

$$I_{it}^n = \frac{I_{it} - Min(I_i)}{Max(I_i) - Min(I_i)} \times -1$$

➢ Where necessary, individual indicators inverted and multiplied by -1 to ensure that an increase in one indicator led to an improvement in the FSI and vice versa.

➢ The aggregate financial stability index (FSI) is equivalent to the weighted sum of the values for the individual sub-indices, as is shown in equation 2:

$$FSI = 0.20 \times fsi + 0.25 \times fdi + 0.30 \times fvi + 0.25 \times eci$$

Measure of Economic Climate

* Chart 1 shows that a lot of the variability of the FSI index was driven by movements in the ECI, as global conditions changed.

* This was especially notable in 2008 and the first quarter of 2009, where the index was the lowest over the study period.

Chart 1

Economic Climate Index (eci)
(25%)
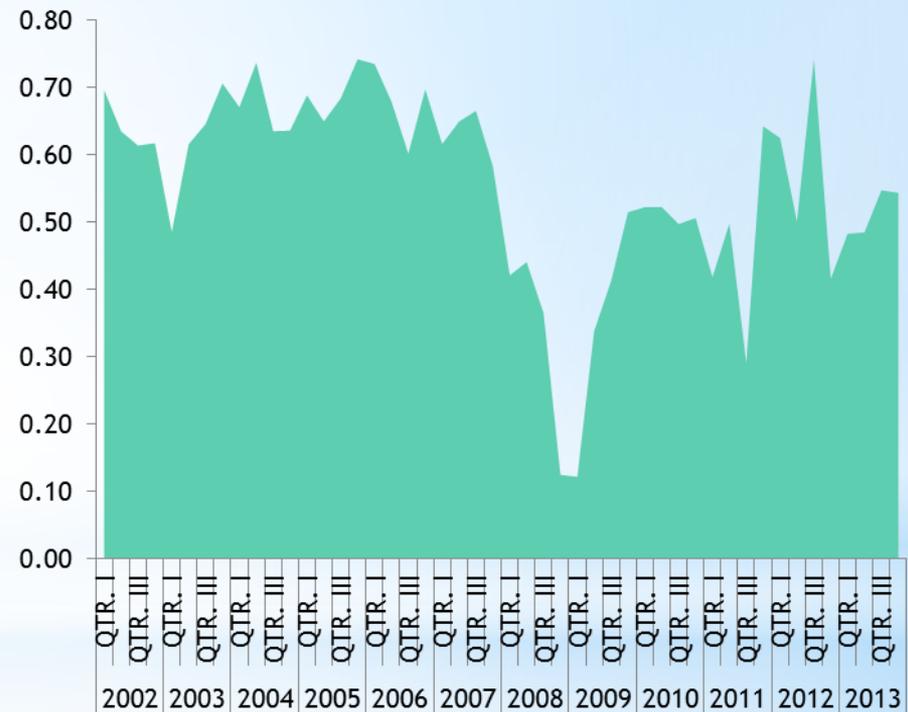
Measure of Financial Soundness

*FSI, the level of financial soundness, has been steadily improving over the entire sample period.

*This is partly attributable to the conservative nature of the domestic banking system and the build-up in assets, particularly Government debt and balances at the Central Bank

Chart 2

Financial Soundness Index (fsi) (20%)
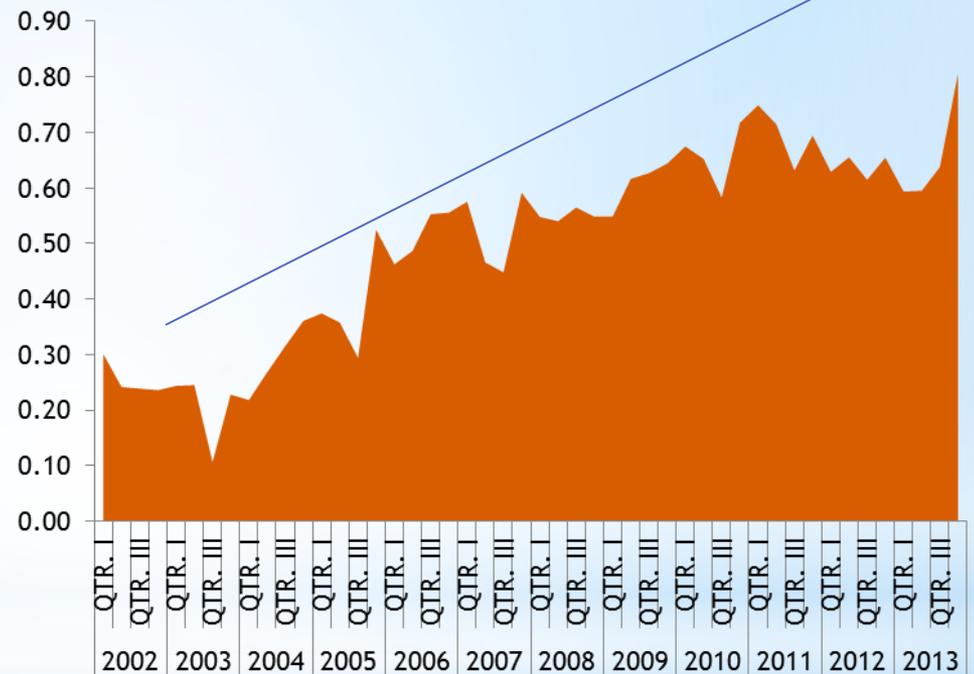
Measure of Financial Vulnerability

* FVI generally showed stability, with a slight decline over time.

* The oscillations in vulnerability were mainly due to conditions within the fiscal sector (such as deteriorations in the Government's fiscal position and the build-up in national debt)

Chart 3

Financial Vulnerability Index (fvi)
(30%)
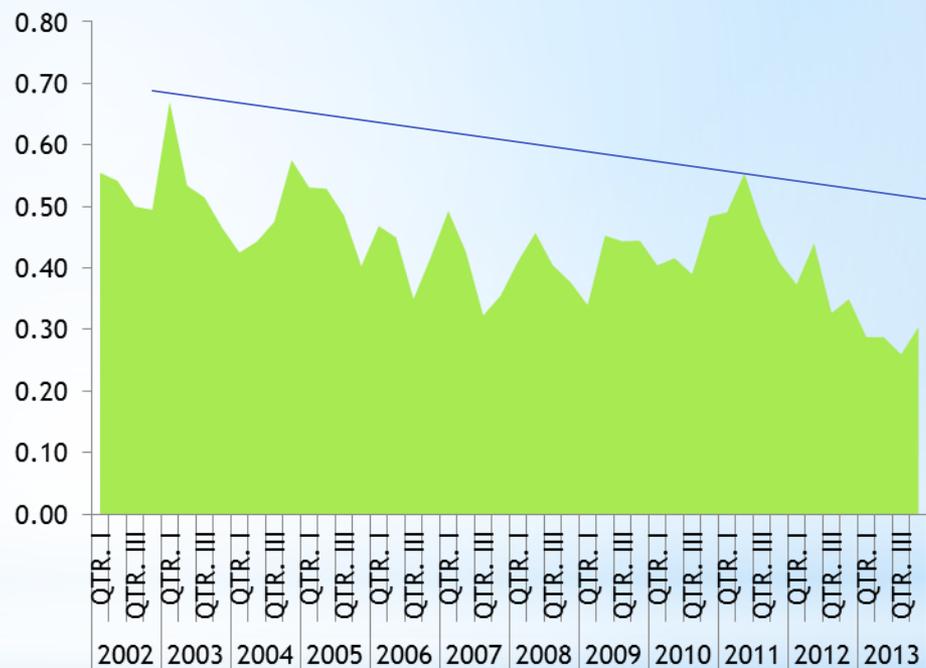
Measure of Financial Development

* FDI has moved steadily higher over the 2003 to 2010 period, in line with the increase in access to loans and other forms of credit by the private sector.

* However, a slight reduction in the index was noted over the remaining years, as the level of lending to the Government by the domestic banking sector increased.

Chart 4

Financial Development Index (fdi)
(25%)
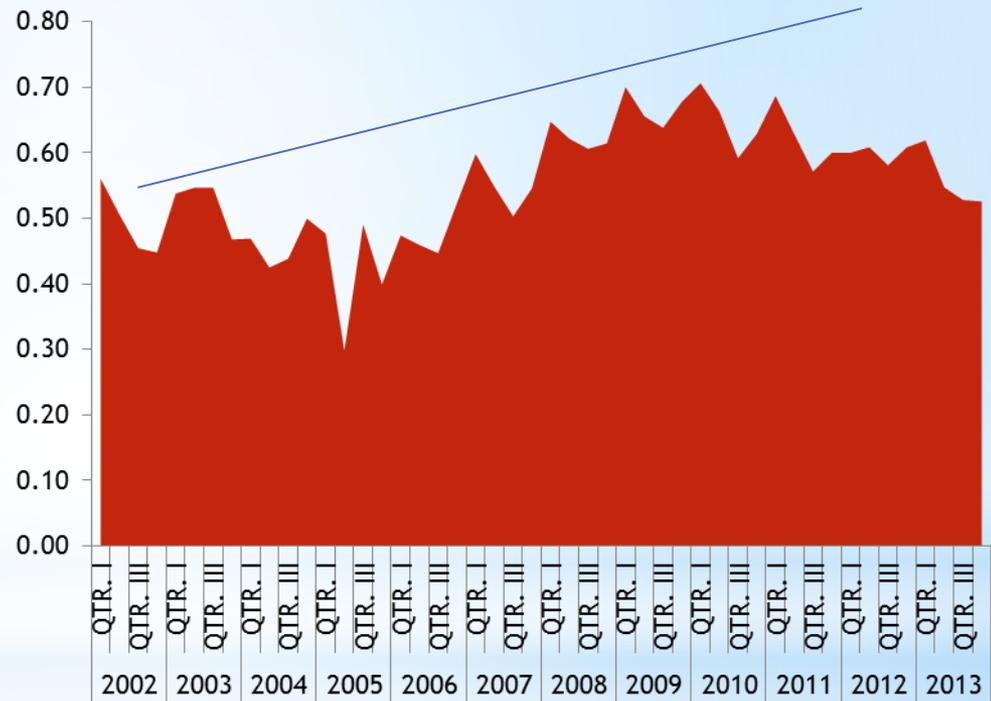
Overall Results

* The results for the combined FSI, show three distinct periods in the evolution of financial stability.

* The first stage, from Q1 2002 to Q3 2008, showed a period of relative stability with the overall index values averaging 0.53

* However, in the latter potion of 2008 – with the global financial recession- the index fell sharply over the next two quarters.

* Period 3 showed a recovery in the index, and it surpassed the prior years' levels over the next three years, before returning to trend in 2013.

Chart 5
Financial Stability Index (FSI)

Legend: Financial Stability Index (FSI)
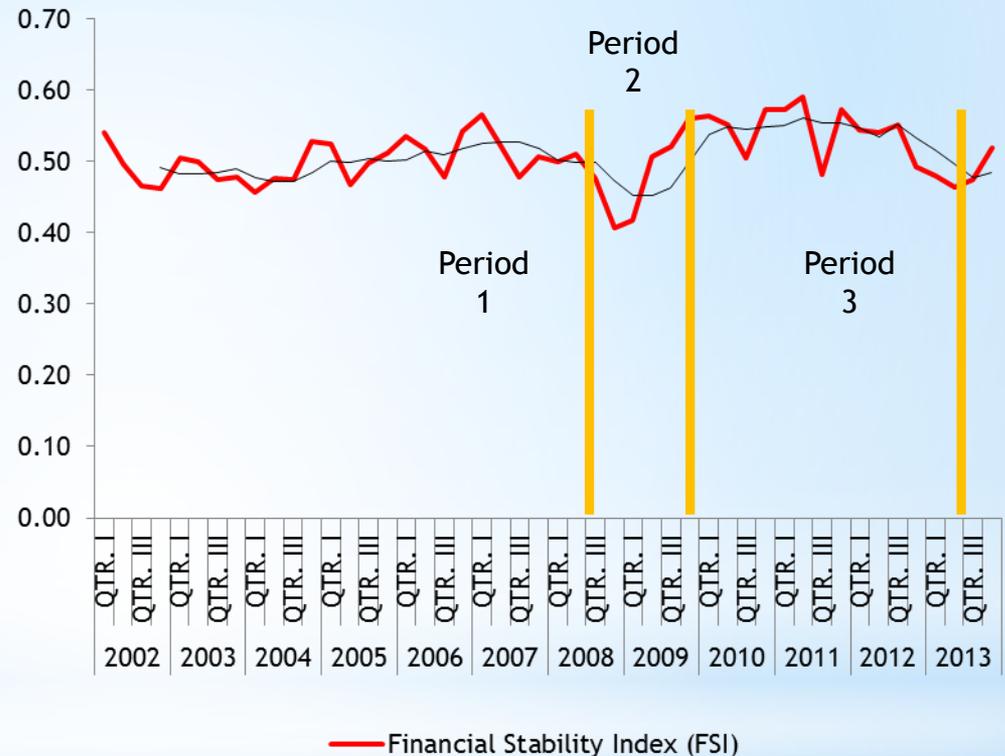
Results cont'd

* Due to data shortages the initial FSI did not include Non-performing loans (nonp) and capital market capitalization (cap) in the financial soundness and financial development indices respectively

* FSI_2 and FSI_3 were calculated to include these indicators:

  * FSI_2= 0.20 *fsi_nonp + 0.25*fdi + 0.30*fvi + 0.25*eci (3)

  * FSI_3= 0.20 *fsi_nonp + 0.25*fdi_cap + 0.30*fvi + 0.25*eci (4)

* When included, the results show no change in in the evolution in financial stability over the period

  * However, during the first period of the evolution, FSI_2 is higher than FSI, in period 2, a both indices are inline, while the third period shows slightly lower stability, which is likely due the elevation of NPL's

Chart 7
Graphs of FSI, FSI_2 and FSI_3

— Financial Stability Index (FSI)
- - Financial Stability Index_2 (FSI_2)
- - - Financial Stability Index_3 (FSI_3)
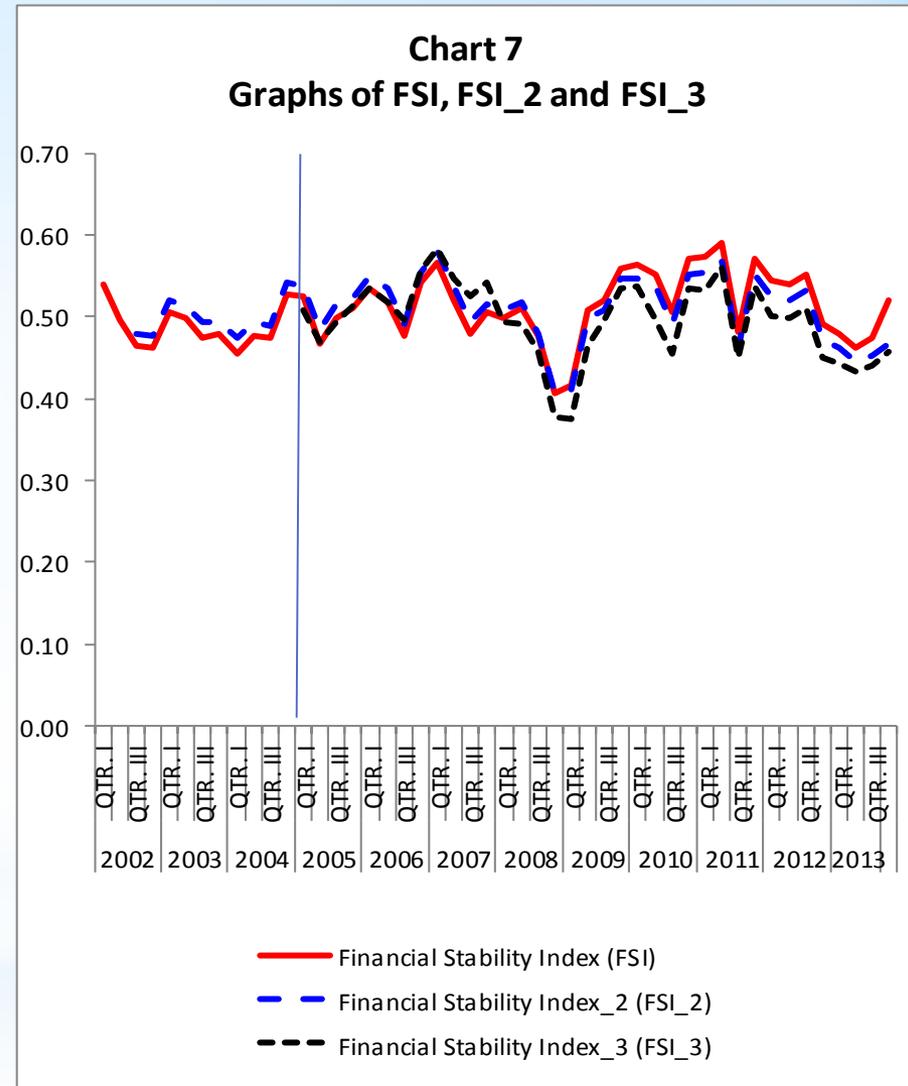
Conclusion & Next Steps

* This study focused on developing a financial stability index for the Bahamas based on a series of variables which have been identified as important factors in assessing financial stability

* The aim of the study was to provide a tool for policy makers to track and assess the level of financial stability over time, and not as a forecasting tool

* The results of the study showed that overall, the financial system has been relatively stable, with the exception of the 2008-2009 period where it fell sharply in response to the global recession

* The stability of the financial system can be attributable to
    * Stable economic conditions
    * The conservative nature of domestic banking system
    * High adherence to domestic and international prudential requirements

* Going forward, as additional data on non-bank financial intuitions becomes available, the comprehensiveness of the FSI will be enhanced.

THANK YOU