

Thailand's Financial Stress Index

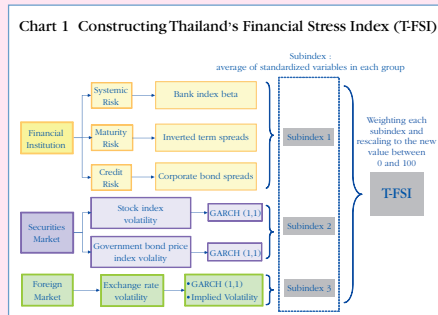
The recent global financial turmoil has prompted policy makers and economists around the world to pay closer attention to the linkages between financial system risks and the real economy. Against this backdrop, the Bank of Thailand has developed Thailand's Financial Stress Index (T-FSI) to monitor the risks in the Thai financial system and to gain a deeper understanding of the causes and consequences of these risks. The current T-FSI is an improvement of an earlier index that appeared in the October 2009 *Inflation Report* with coverage extended to before the 1997 crisis and with compositions that better reflect the structure of the Thai financial system.

Construction of the T-FSI

The T-FSI is calculated from monthly data series dated back to January 1996 that reflect the risk to the functioning of the financial system in six areas: (1) the bank index beta, (2) inverted term spreads, (3) corporate bond spreads, (4) stock index volatility, (5) volatility of the government bond price index, and (6) exchange rate volatility.

Data	Description	Meaning and Purpose
Bank index beta	Covariance between the banking stock index and the overall stock market index relative to overall market volatility	Volatility/risk in the banking sector relative to that in the overall market
Inverted term spreads	Difference between short-term (3-month) and long-term (10-year) yields on government issued securities	A proxy of banks' profitability given economic outlook and ability to issue short-term bonds or deposits for long-term investments or loans; Also a proxy of banks' maturity risk
Corporate bond spreads	Weighed average between AA and BBB corporate bond spreads	A proxy of banks' corporate-sector credit risk
Stock index volatility	Volatility derived from GARCH(1,1)	Financial market risk and uncertainty due to stock market volatility
Government bond price index volatility	Volatility derived from GARCH(1,1)	Financial market risk and uncertainty due to bond market volatility
Exchange rate volatility	Volatility derived from GARCH(1,1) and implied volatility	Financial market risk and uncertainty due to foreign exchange volatility

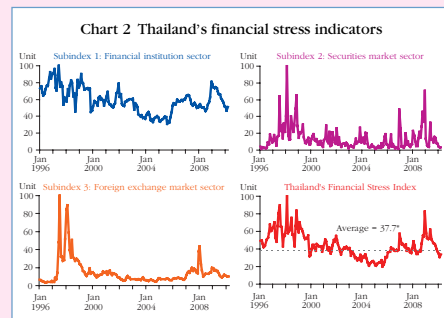
The construction of T-FSI starts with the standardization of each of the above components. In the second step, the standardized components are grouped into three categories - financial institutions, the securities market, and the foreign exchange market. A sub-index for each category is obtained by averaging the respective components. Next, a preliminary T-FSI is computed from a weighted sum of the three sub-indices, with the financial institutions sub-index receiving the largest weight followed by the securities market sub-index and the foreign exchange market sub-index. Finally, the preliminary index is re-scaled to range from 0 to 100, with a higher value indicating increasing stress level.



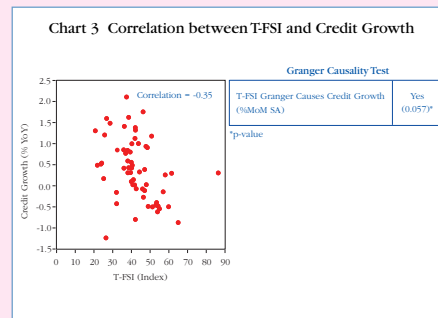
Using the T-FSI

Because each financial crisis may not have the same causes, the T-FSI, which is made up of several risk indicators that affect the functioning of the financial system, can help explain the causes of each crisis in a comprehensive manner. At the same time, the T-FSI may be used to identify the risks to the intermediary role of financial institutions. Indeed, statistical tests show that the T-FSI has significant negative correlation with as well as Granger causes commercial banks' credit growth. Therefore the acceleration of the T-FSI both reflects increasing risks in the financial system and is consistent with a reduction in bank lending.

An examination of the movements of the T-FSI from January 1996 to present shows that the eruption of the global financial crisis in 2008 caused Thailand's financial system stress to increase noticeably from October to December 2008 when the T-FSI peaked at 82.3. Nevertheless, compared with the levels seen during the 1997 crisis, the escalating stress was milder. Since then, Thailand's financial system stress has come down in tandem with the economic recovery and lower uncertainty. At 34.1, the index has now returned to its normal level, standing close to its pre-crisis average of 37.7 between 2000 and 2007.



Note: Average January 2000 - December 2009
Source: Calculations by Bank of Thailand



Source: Calculations by Bank of Thailand

An analysis of the T-FSI sub-indices finds that the impact of the global financial crisis concentrated on the financial institutions system and the securities market. While there were some signs of stress in the foreign exchange market, the impact was very mild which stood in sharp contrast to 1997 when the foreign exchange market was severely affected. In addition, this time the stress occurred first in the securities market before spreading to the financial institutions, which was the exact opposite of the 1997 crisis.

In summary, the T-FSI is a useful tool for measuring financial stress that may disrupt the provision of financial intermediation services by the financial system. In addition, analysis of its sub-indices helps understanding of the causes of financial crises that occur at different times.