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Financial stress and economic activity in some emerging Asian economies☆

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ABSTRACT

This paper investigates episodes of financial stress and its relationship to economic activity in some Southeast Asian economies. To that end, we use a dynamic factor model to construct a financial stress index for Indonesia, South Korea, Malaysia, the Philippines, and Thailand and examine the relationship between financial stress and economic activity. Our financial stress index consists of riskiness in the banking sector, security market risk, currency risk, external debt and sovereign risk. Empirical results indicate that our financial stress index tracks recessions closely in the sample and impulse response functions suggest financial stress causes significant economic slowdowns.

1. Introduction

The global financial crisis that started in the US spread worldwide and sent shockwaves through the global financial system. Although policy makers have conducted several monetary and fiscal stimulus packages, credit conditions were tightened, the risk premium on interbank borrowing significantly increased and trade credit decreased with falling demand, specifically for the capital goods and the manufacturing sectors in general. As a result, the global financial crisis caused a significant decline in global economic activity and the developed as well as emerging economies suffered a significant slump not seen since the 1930s.

The emerging economies were affected by the global financial crisis through various channels such as contagion, a decline in capital flows, and by trade channels. As a result, financial stress (or financial instability) started to increase and output sharply decreased in a large numbers of emerging economies even in those that lacked a serious fiscal and financial imbalances. These developments in the global economy have emphasized the importance of identifying and assessing the linkages between financial stress and the real economy. In this regard, Lo Duca and Peltonen (2010) and others suggested that financial stress can affect economic activity through various channels. The first channel is called the financial accelerator in which shocks that affect the creditworthiness of borrowers tend to amplify output fluctuations where credit conditions of the financial system affect the willingness to provide credit to the economy. Second, factors that impact lenders' balance sheets can magnify economic downturns mimicking weak bank capital; banks may become more reluctant to provide capital to the real sector, may be forced to deleverage leading to sharper economic downturns. Moreover, the structure and the

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development of the financial system affects how large is the interconnection between real and financial sectors in the economy.

The onslaught of the financial crisis of 2007–2008 and the economic downturn that followed highlighted the importance of the link between the financial sector and real economic activity in an interconnected world. In this regard, it is very important to measure financial stress in the economy by extracting signals from variables that that are thought to capture some aspect of financial stress. How can measuring and monitoring financial stress contribute to the design and implementation of proper macroeconomic policies? While in normal times, the standard evaluation of macroeconomic prospects (maintaining full employment and price stability) is adequate and there are useful policy benchmark rules (such as the Taylor rule), heightened periods of financial stress may call for policy responses that are different than the usual prescriptions. That is because a period of excessive financial stress may produce substantial spillovers that constrain the credit intermediation capacity of the financial sector and hence require policy to be recalibrated. A financial stress index not only is useful in evaluating macroeconomic prospects and designing monetary and fiscal policy measures, it is also useful in assessing financial conditions and fragility of the financial sector. Doing so contributes to a smoothly functioning financial system. For example, in periods of heightened financial stress it may not be sufficient to adjust short term interest rates. When markets suffer from illiquidity, there is increased uncertainty about asset values and lenders are unwilling to accept these assets as collateral; as such, credit intermediation declines and real economic activity is adversely affected. Under these circumstances, policymakers may have to resort to unconventional policy measures to deal with liquidity problems. Therefore measuring financial stress not only is important from the design and implementation of macroeconomic policy but also contributes indirectly to a smooth, robust and more resilient financial system.

Therefore, the identification of states of financial stress is important for optimal policy design and hence a financial stress index can provide valuable benefits for policymakers. Louzis and Vouldis (2012) suggested that a *composite* financial stress index provides insights into the propagation channels of specific events and the extent to which a financial crisis affects segments of the financial system. Grimaldi (2010) emphasizes attractive features of a financial stress index as being based on real time-high frequency data; broadly assessing the level of stress of the overall financial system; and being based on a small group of indicators.

Perhaps due to the 2007–2009 global financial crisis, financial stress has been studied extensively with a wide range of different components of financial stress. For instance, Hanschel and Monnin (2005) developed a financial stress index to measure the degree of stress for the Swiss banking system. Illing and Liu (2006) proposed a financial stress index for the Canadian financial system. Hakkio and Keeton (2009) suggested a comprehensive financial stress index to determine episodes of financial stress in the U.S. Cardarelli et al. (2009) developed a financial stress index for 17 advanced economies. Grimaldi (2010) constructed a financial stress index to determine episodes of financial stress in the Euro area. Louzis and Vouldis (2012) suggested a financial systemic stress index for the Greek economy. Hollo et al. (2012) constructed a financial stress index for the Euro area and they called the index a composite indicator of systemic stress.

Even before the global financial crisis, empirical studies in the literature specifically focused on predicting financial crises in emerging economies by means of early warning indicators (Kaminsky et al., 1998; Demirgüç-Kunt and Detragiache, 1998; Beckmann et al., 2006; Davis and Karim, 2008). However, Balakrishnan et al. (2011) argued that these studies are not appropriate to study episodes of financial stress. In this sense, there is growing literature that focuses gauging financial stress for emerging economies. Balakrishnan et al. (2011) developed a financial stress index where developments in the banking sector, stock exchange market, sovereign debt spreads, and exchange market were considered as components of financial stress. Cevik et al. (2013a) modified and extended the index proposed by Balakrishnan et al. (2011) with specific considerations for the Turkish economy. Similarly, Cevik et al. (2013b) proposed a comprehensive index of financial stress for Bulgaria, Czech Republic, Hungary, Poland and Russia. These studies considered risks in the banking sector, securities and money market, external debt, sovereign spreads and trade finance as indicators of financial stress.

The literature that focuses on financial stress in Asian countries is more recent. The Bank of Thailand (2010) proposed a monthly financial stress index for 1996–2009. Their financial stress index reflects risk to the functioning of the financial system in six areas: the bank index beta, inverted term spreads, corporate bond spreads, stock index volatility, volatility of the government bond price index, and exchange rate volatility. Osorio et al. (2011) proposed a quarterly financial conditions index for 2005–2010 for Asian countries.[1] They considered interest rate market, exchange rate market, domestic credit market and equity market to calculate a financial stress index. Hwa et al. (2012) suggested a monthly financial stress index for the ASEAN-5 countries namely Indonesia, Malaysia, Philippines, Singapore and Thailand for 1997–2009. They emphasize four essential components to gauge financial stress: banking sector, equity markets, foreign exchange market and domestic bond markets. Lee et al. (2013) analyzed the financial stability of Korean banking system for the 2003–2011 period by developing a composite financial stability index.

The main objective of this study is to contribute to the literature by constructing a financial stress index, studying episodes of elevated stress for Indonesia, South Korea, Malaysia, the Philippines, and Thailand. We also examine relationship between financial stress and economic activity for the sample countries. Our sample countries were chosen based on data availability. Our paper has several innovations: first, we consider additional factors such as risks in the banking sector and sovereign risk

[1] Their country selection is based on data availability and the sample includes Australia, China, Hong Kong SAR, India, Indonesia, Japan, Korea, Malaysia, New Zealand, Philippines, Singapore, Thailand and Taiwan Province of China.