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Spillover effect of US monetary policy to ASEAN stock markets: Evidence from Indonesia, Singapore, and Thailand



Lu Yang^{a,1}, Shigeyuki Hamori^{b,*}

^a Graduate School of Economics, Kobe University, 2-1 Rokkodai, Nada-Ku, Kobe 657-8501, Japan

^b Faculty of Economics, Kobe University, 2-1, Rokkodai, Nada-Ku, Kobe 657-8501, Japan

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ABSTRACT

In this paper, we investigate the spillover effect from US monetary policy to selected ASEAN stock markets by employing Markov-switching models. Based on univariate Markov-switching models, we confirm the existence of two distinct regimes for both US monetary policy and the stock markets. By applying multivariate Markov-switching models, we find that US interest rates have a negative effect on the selected ASEAN stock markets during economic expansion periods. However, this kind of effect disappears during economic crisis periods. Our empirical results indicate that the spillover effect from US monetary policy influences the ASEAN stock markets only during the tranquil period. These results have important implications for the transmission mechanisms of asset price, such as the credit channel, trade channel, and balance sheet channel.

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1. Introduction

Over the past decades, the stock markets in the Association of Southeast Asian Nations (ASEAN) have increasingly matured as they integrated into the world capital markets. However, most countries in the ASEAN are still emerging economies. Since most of them have the properties of a small open economy, their stock markets are more easily affected by changes in US monetary policies. Traditional economic theory suggests a relationship between stock market performance and information (e.g., Fama et al., 1969;

* Corresponding author. Tel.: +81 78 803 6832.

E-mail addresses: kudeyang@gmail.com (L. Yang), hamori@econ.kobe-u.ac.jp (S. Hamori).

¹ Tel.: +81 80 4016 4406.

Mitchell and Mulherin, 1994). Shocks (information) from changes in monetary policy play an important role in the stock market since it is designed to impact the macro-economy, which in turn affects the stock market indirectly.

As the world economy globalizes and world financial markets integrate, the shocks from developed markets like the US affect other markets through various transmission mechanisms such as the credit channel, balance sheet channel, and trade channel. The main objective of this paper is to analyze the impacts of the US interest rate and excess liquidity on the ASEAN stock markets. Kim and Nguyen (2009) investigated the spillover effect from the U.S. Federal Reserve System's (FED) and the European Central Bank's (ECB) target interest rate news on the market returns and return volatilities of 12 stock markets in the Asia-Pacific. They found that a majority of stock markets showed significant negative returns in response to unexpected rate rises, and return volatilities for these markets were higher in response to the interest rate news.² Even though our paper uses a totally different frequency of data and methodology, the contributions of Kim (2003) and Kim and Nguyen (2009) showed that the US interest rate had a direct impact on the ASEAN stock markets.

Methodologically, most existing studies focusing on excess liquidity analysis³ are based on vector autoregression (VAR) models. Bagliano and Morana (2012) found that financial disturbances were transmitted to foreign countries through US house and stock price dynamics, as well as excess liquidity creation. Moreover, they found that the trade channel was the key transmission mechanism of real shocks. However, Brana et al. (2012) found that excess liquidity at the global level had spillover effects on output and price levels in emerging countries but had little impact on real estate, commodity, and share prices in emerging countries.

In contrast to previous literature, we analyze the spillover effect based on state-dependent models.⁴ Specifically, we select the 3-month Treasury bill rate as the Federal fund rate and return on US stock price index as the measure of excess liquidity. There are abundant studies that refer to excess liquidity measurement and effects. Generally, excess liquidity can be identified by rising asset prices (Belke et al., 2010, 2013). Since asset prices are good indicators of general price in global financial markets, in this paper, we utilize them to measure excess liquidity effect. Particularly, we select US stock market to be our measure of the excess liquidity effect and to be the transmission intermediary. Moreover, by employing state-dependent models, we can investigate the spillover effect in different regimes based on this backdrop.

In this paper, we focus on three questions. First, we determine whether the monetary policy in the US influences the ASEAN stock markets in this paper. Second, if so, we determine whether the spillover effect differs across the regimes? Finally, we also determine whether there are differences of empirical results between the ASEAN countries? The remainder of this paper is organized as follows. Section 2 discusses the methodology we used in this paper. Section 3 describes the data and statistical issues. Section 4 provides the empirical results, and Section 5 concludes.

2. Specifications of Markov-switching models

In this paper, the multivariate Markov-Switching Intercept Autoregressive Heteroscedasticity (MSIAH) model (Guidolin and Timmermann, 2006; Ang and Timmermann, 2012) is applied to analyze the linkage between US monetary policy and the ASEAN stock markets. The model can be defined in a general form as follows:

$$\mathbf{y}_t = \boldsymbol{\mu}_{s_t} + \beta_{s_t} \mathbf{y}_{t-1} + \boldsymbol{\varepsilon}_t \quad (1)$$

where \mathbf{y}_t refers to a matrix including the return on equity index, return on gold price index, and 3-month Treasury bill rate, which we examine. $\boldsymbol{\mu}_{s_t} = (\mu_{1s_t}, \mu_{2s_t}, \mu_{3s_t})'$ is a vector of means in state S_t , and β_{s_t} is 3×3 a matrix of autoregressive coefficients in state S_t . Assuming that the unobservable state-dependent

² For an earlier discussion of this issue, refers to Kim (2003).

³ For the theoretical analysis, refer to Agénor and Aynaoui (2010).

⁴ For applications of Markov-switching models, refer to Chan et al. (2011) and Simo-Kengne et al. (2013).

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