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# Monetary Policy and Stock Market Volatility in the ASEAN5: Asymmetries over Bull and Bear Markets

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## Abstract

This paper examines the asymmetric response of stock market volatility to monetary policy over bull and bear market periods in ASEAN5 countries (Malaysia, Indonesia, Singapore, the Philippines and Thailand) using the well-tested pooled mean group (PMG) technique. Bull and bear markets are identified by employing Markov-switching models and the rule-based non-parametric approach. Estimating the models using monthly data from 1991:1 to 2011:12, the results show that a contractionary monetary policy (interest rate increases) has a stronger long-run effect on stock market volatility in bear markets than bulls consistent with the prediction of finance constraints models.

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## 1. Introduction

Stock market volatility has long been of great interest for both policy makers and market participants. Policy makers are interested in the spillover effects of volatility on real activity while the latter are concerned about the effects of stock market volatility on asset pricing. However, it is generally believed that stock market volatility has a negative effect on the recovery of the real economy. One of the determinants of stock market volatility is central bank policies. Monetary policy decisions influence various short-term interest rates which in turn, affect the discounted present value of expected future cash flows and may thus increase or decrease stock prices. Higher (lower) stock prices and consequently higher (lower) stock returns will lead to

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lower stock market volatility as suggested by the “leverage effect”. This effect refers to the asymmetric relation between stock market returns and volatility and has been widely documented in the literature (Gospodinov and Jamali, 2012).

The impact of monetary policy on stock market volatility in the context of developed economies has been widely investigated in the previous literature. See for instance Lobo, 2002; Bomfim, 2003; Chen and Clements, 2007; Farka, 2009; Konrad, 2009 and Vahamaa and Aijo, 2011, among others. The literature has come to a general consensus that stock market volatility is susceptible to monetary policy decisions of the central banks. Several studies have revealed that the response of stock returns and volatilities to monetary policy is asymmetric. In the context of stock returns, Lobo, 2000, Bernanke and Kuttner, 2005 and Chulia et al., 2010 examined asymmetries related to the direction of monetary policy shocks. Guo, 2004, Andersen et al., 2007 and Basistha and Kurov, 2008 studied asymmetries over business cycle. Chen, 2007, Kurov, 2010 and Jansen and Tsai, 2010 looked at asymmetries over bull and bear markets. Bomfim, 2003 investigated the asymmetric response of stock market volatility to positive and negative monetary policy shocks. However, the empirical evidences for the presence of asymmetric response of stock market volatility to monetary policy over bull and bear market periods are limited. To the best of our knowledge the only study is by Konrad, 2009 who discovered that the impact of monetary policy on German stock return volatility is much bigger in bearish periods than bulls.

The studies reviewed so far, examine the impact of monetary policy on stock market returns and volatilities in developed economies especially in the case of US. This research contributes to the existing literature by examining the asymmetric response of stock market volatility to monetary policy over bull and bear markets in the ASEAN5 countries (Malaysia, Indonesia, Thailand, the Philippines and Singapore) as developing and small open economies. The finance constraints models predict that monetary policy is more effective in bear market periods than bulls. According to these models when there is asymmetric information in the financial markets, borrowers may behave as if they are constrained financially. The fact that financial constraints are more likely to bind in bear markets affirms that monetary policy has greater effects in bear markets than bulls (Chen, 2007). Studying this kind of asymmetry is crucially important for central bankers to see in which state of the market does monetary policy decisions have more effects on volatility of the market.

This study examines asymmetries in a panel setting by employing the well-tested pooled mean group (PMG) estimator proposed by Pesaran et al., 1999. Investigating the asymmetries over bull and bear markets requires us to identify these terms. Bull and bear periods are identified by employing two approaches: Markov-switching models and the rule-based non-parametric approach proposed by Pagan and Sossounov, 2003. The empirical results for the period 1991:1 to 2011:12 show that monetary policy is more effective in bear market periods than bulls as predicted by the finance constrain models. The rest of the paper is organized as follows. Section 2 describes the methodology and data description and sources. Empirical results are presented in section 3 and section 4 concludes.

## **2. Methodology**

Investigating asymmetric response of stock market volatility to monetary policy over bull and bear market periods in ASEAN5 countries requires: (1) identifying stock market volatility which is measured with the conditional variance obtained from estimating general autoregressive conditional heteroskedasticity (GARCH) models introduced by Bollerslev, 1986. (2) Identifying bull and bear market periods and (3) estimating the models in a panel setting by employing the PMG estimator of Pesaran et al., 1999.

There are two main approaches for identification of bullish and bearish periods. The first approach is a model-based method and makes use of Markov regime-switching models developed by Hamilton, 1989. The second approach is based on a non-parametric methodology and uses a set of rules to detect bull and bear periods. Pagan and Sossounov, 2003 employed this procedure to identify stock market cycles. In this research,

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