



CHAPTER I

INTRODUCTION

1.1 Background and Problem Review

The effects of macroeconomic announcements on asset returns have been well documented in the empirical literature. For example, Hardouvelis (1987), Wasserfallen (1989), Ederington and Lee (1993), McQueen and Roley (1993), Jones, Lamont, and Lumsdaine (1998), Balduzzi, Elton, and Green (2001), and Kim and Sheen (2001) find the evidence that macroeconomic announcements have significant impacts on asset returns. The effects possibly occur via two channels. The first channel is due to equilibrium adjustments. As macroeconomic announcements reveal new information that was not previously incorporated into asset prices, market participants would realize the differences between the actual value and their expectations, and then adjust their expectation. The second channel is the anticipation of a policy response by central bank; called 'policy anticipation hypothesis', which has been documented in past studies, such as Hardouvelis (1988). Given the injection of new information, market equilibrium must be restored by incorporating the expected future policy response of the central bank. As a result, the response to new information would finally affect risk premium and volatility of asset returns.

The investigations of the source of time-varying risk premium have received attention as it would be useful to define factors that cause time-varying risk premium, and thus use in the asset pricing model. Engle, Lilien, and Robins (1987), Ferson, Kandel, and Stambaugh (1987), and Mayfield and Murphy (1996) introduce the asset pricing model that allows risk premium to vary over time. The results suggest that allowing the time-varying risk premium can improve the ability to explain asset price movements. There are empirical investigations that macroeconomic fundamental factors have significant impact to asset returns (see Chen, Roll, and Ross, 1986, and McElroy and Burmeister, 1988). Schwert (1989) demonstrates the link between macroeconomic variables and stock volatility and conclude that macroeconomic data can help explain

why stock return volatility changes over time. Elder (2002) finds that macroeconomic factors explain time-variation in risk premium of term structure of interest rate.

Studying the impact of macroeconomic announcement is also interesting as it is related to market efficiency issue. Many studies on macroeconomic announcement, such as Jones, Lamont, and Lumsdaine (1998), and Ederington and Lee (1994), investigate how quickly asset prices adjust to new information. If the market is efficient, prices of financial instruments should fully and immediately adjust to new information after such information is announced. Lagged adjustment, on the other hand, suggests market inefficiency.

Previous studies mainly use ARCH or GARCH class model to investigate macroeconomic news effect on asset volatility. For example, Jones, Lamont, and Lumsdaine (1998), Bomfim (2003), Kim, Mckenzie, and Faff (2003) test whether bonds earn positive risk premiums on macroeconomic announcement dates by adding dummy variables of release dates to the mean equation of GARCH model. They conclude that higher conditional volatility is accompanied by higher expected returns. However, this approach is unable to capture the direct effect between risk premium and volatility, which may lead to misspecification. Meanwhile, the GARCH-M model allows the conditional variance to affect mean. In this way, time-varying risk premium can be captured, where the risk is due to unanticipated movements measured by the conditional variance. As a result, changing conditional variance directly affects the expected return.

The impact of macroeconomic announcements on stock and bond returns is widely investigated; however, most studies examine the effect on stock and bond markets separately. In fact, a change in return and volatility due to a change in macroeconomic environment not only impacts the demand and supply for stocks but also affects the demand and supply for bonds. Vitek (2005) provides the evidence that information arrivals have the potential to generate risk premium and volatility transmission across the stock and bond markets. In response to an information arrival

which affects the conditional mean and variance of excess return in at least one market, the principles of optimal portfolio management generally prescribe that the investors adjust their holdings in both markets. Such portfolio reallocation may be expected to give rise to dynamic interrelationship across the conditional means, variances and covariance of excess returns on stock and bond. Arshanapalli, Switzer, and Vezina (2003) investigate the sources of time-varying risk premium for both US stock and bond market simultaneously using multivariate GARCH model.

There has been little evidence of macroeconomic news on stock and bond markets in Thailand. The macroeconomic news investigations in Thailand mainly focus on foreign exchange market, such as Chinprateep (1998) and Chantaraprab (2000). There is also the study of news effect on stock market by Rimdusit (2000), however, he focuses on the impact of political news on stock and exchange rate volatility.

In this paper, I study the impact of scheduled macroeconomic announcements on government bond and stock returns by examining the effect on risk premiums of the Thai government bond index and the SET index simultaneously. This study employs the bivariate GARCH-M model, proposed by Arshanapalli, Switzer, and Vezina (2003). The bivariate GARCH-M model is used to test the hypothesis that risk premium is a function of the conditional variances and covariance as suggested by the standard asset pricing theory literature. This model also allows the investigation of news effect on variance as well as covariance of stock and bond.

The timing of macroeconomic announcements is exogenously predetermined and these announcements are released periodically. Thus, the announcements are widely expected and the unexpected components will boost return volatility.

In addition, this paper also investigates whether stock and bond markets react differently to the information content of announcements. The types of announcements in this paper represent wide areas of the economy such as real economy, inflation, confidence index, and export-import measures. Market participants respond to different news announcements in a variety of sophisticated and rational ways. Kim, McKenzie,

and Faff (2003) find that U.S. financial markets do not seem to respond to any meaningful way of the information released by the government. Rather, it is the news content of these announcements which cause the market to react. They find that expected balance of trade news have the greatest impact on the mean return in the foreign exchange market. For the bond market, news related to the internal economy was found to be important, while consumer and producer price information was found to be important in the stock market.

Finally, this paper examines the efficiency of Thai stock and bond markets by investigating the impact of macroeconomic news on the day following the announcement. In addition, this paper also investigates pre-announcement effect according to Jones, Lamont, and Lumsdaine (1998) and Bomfim (2003). They find that conditional volatility in the treasury market tends to be lower in the days leading up to the economic data announcements, called 'calm-before-the-storm effect'.

1.2 Objectives of the Study

This paper aims to examine the impact of scheduled macroeconomic announcements on bond and stock markets as follows:

1. To test whether macroeconomic announcements have a significant impact on risk premiums of Thai stocks and government bonds.
2. To examine the impact of macroeconomic announcements on variances and covariance of Thai stocks and government bonds.
3. To examine volatilities of Thai stocks and government bonds on the days surrounding the announcements.
4. To examine types of news that affect volatilities of Thai stocks and government bonds.

1.3 Methodology

This paper employs the Bivariate Generalized Autoregressive Conditional Heteroscedasticity in Mean (GARCH-M) model, similar to the study of Arshanapalli, Switzer, and Vezina (2003), to investigate the effect of macroeconomic announcement on risk premiums of government bond and stock simultaneously. This model allows the conditional returns to be a function of variance and covariance. The model also allows to test whether stock and bond earn additional risk premium when they are exposed to macroeconomic risk. In addition, this study uses the Ordinary Least Square method to test the impact of macroeconomic announcement on variances and covariance of government bond and stock.

1.4 Scope of the Study

This paper investigates the impact of macroeconomic announcements on daily returns of Thai stock and government bond during the period of 4 Jan 1999 to 30 Dec 2005. The government bond index from the Thai Bond Market Association (Thai BMA) is used as a proxy of government bond in this study. The SET index from the Stock Exchange of Thailand is used as a proxy of stock. Macroeconomic announcements include the Bank of Thailand's (BOT) press release on economic condition, gross domestic product (GDP) announcement, trade balance announcement, inflation announcement, and consumer confidence index (CCI) announcement.

1.5 Benefits of the study

The study of the impact of macroeconomic announcement on the stock and bond markets provides the implication for a variety of investments, risk management, and hedging decisions. If macroeconomic announcements generate shocks to volatility of the Thai stock or bond markets, there may be additional demand for derivative instruments. There is the evidence that the existence of option market provides investors an opportunity to manage the impact that new information has upon their portfolios (see Nofsinger and Prucyk (1999)). For example, if there is the evidence that asset price will move significantly on macroeconomic announcement dates, investors may take long

position in put and call option, called straddle strategy, in case that they are unsure about directions of asset price movement.

The study of the contemporaneous effect of macroeconomic news on the stock and bond markets is also important for asset allocation. Optimal portfolio allocation by investors across the stock and bond markets depends on the conditional means, variances and covariance of returns on stock and bond, in which potentially respond to information arrivals. Portfolio managers, for example, may shift funds from stocks into bonds when they expect stock market volatility to increase. The risk reduction achieved by this shift depends on the correlation between the stock and bond markets. Investment management firms have also used models that account for common factors in returns to develop systematic approaches for allocating funds across asset classes.

For a theoretical perspective, studies of time-varying risk premium and volatility have implication for asset pricing as well as option pricing models. If macroeconomic announcements cause risk premium to vary over time, the asset pricing model, such as CAPM, should incorporate macroeconomic factors to reflect time-varying risk premium. In most option pricing models that incorporate stochastic volatility, the volatility is typically assumed to be zero or constant. However, there is the evidence that the volatility is non-zero and time-varying and should be incorporated into option valuation models. For example, Nikkinen and Sahlstrom (2004) assume that macroeconomic news announcement occurs during the life of option and calculate the average volatility from the stock return variances on non-announcement and announcement days. Consequently, the theoretical implied volatility is a function of time.

1.6 Structure of the Paper

The paper is organized as follows;

Chapter 1 presents introduction, which comprises of background and problem review, objectives, a brief methodology, scope, and benefits of the study.

Chapter 2 discusses literature review.

Chapter 3 describes methodology, which includes research hypotheses, model specification, and hypothesis testing.

Chapter 4 describes the data employed in this study.

Chapter 5 presents the preliminary analysis and empirical results.

Chapter 6 presents the conclusions and suggestions.