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Minute-by-minute dynamics of the Australian bond futures market in response to new macroeconomic information

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Abstract

This paper investigates the response efficiency of the 10 year Australian Commonwealth bond futures market to the news content of the Australian scheduled information release from January 1993 to July 1997. Using Money Market Services market expectations data to generate the news component of announcements, we find that the futures price falls in response to higher than expected current account deficit, inflation, GDP and retail sales announcements, whereas an unexpected rise in unemployment raised it. In addition to the price response, there is strong evidence of elevated volatility of the price and of trading volumes following all five news announcements. More importantly, most of the market adjustments (of price and volatility) to new information were completed during the first minute following each news announcement suggesting market efficiency of the Australian futures market. The trading volumes, on the other hand, continue to respond to news for 1 h following the news release. This suggests that, after the new equilibrium price has been quickly established and its volatility dispersed, volume trading persists for the purposes of portfolio re-balancing by liquidity traders and for establishing a complete consensus amongst traders. © 2001 Elsevier Science B.V. All rights reserved.

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1. Introduction

There is an extensive literature on the role of scheduled information releases in the financial markets. The information contents of scheduled announcements of macro-economic variables by relevant government authorities have been widely investigated for their significance in pricing financial assets. The effects of announcement news (as measured by the difference between the actual announced value and the expected value obtained from Money Market Services) on various asset price returns were investigated by Engel and Frankel (1984), Hardouvelis (1988), Thornton (1989), Hogan et al. (1991), Aggarwal and Schirm (1992, 1998), etc. for various US macroeconomic announcements; Goodhart and Smith (1985), Hakkio and Pearce (1985) for the UK announcements; and Singh (1995), Karfakis and Kim (1995), Kim (1996) for Australian information releases.

The common theme amongst these studies is to explain the economics of price movements of financial assets following scheduled economic announcements. In addition to the news effects on the price movements, the responses of various measures of returns volatility also received attention. These include Madura and Tucker (1992), Bonser-Neal and Tanner (1996), Hung (1997) who used option price implied volatilities for the US Dollar exchange rates to look into the news effects on the volatilities. Kim (1998) implemented the GARCH methodology to analyze the news effects on the Australian dollar exchange rate volatility, and Kim and Sheen (2000) estimated a bivariate GARCH model for Australian and US interest rates (short-term and long-term) and showed that Australian and US macro news have local as well as international effects (in the case of the latter) on both conditional means and volatilities. These studies report, in general, an elevated volatility of asset returns in response to new information.

Both types of research utilize daily price and volatility movements to investigate the news effects. Typically, changes in prices and volatilities are measured over two successive days of market closing observations and they are regressed on the news components of economic announcements. Thus, the primary focus is on the discovery of existence and direction of inter-daily movements in price and volatility of financial assets. These studies shed some light on the process of price formation of financial assets and on market expectations of government policy reactions to announcement news. The efficiency of markets in making use of relevant information is analysed by examining responses to the expected component of any macroeconomic announcement.

However, with regard to the speed of arbitrage processes, inter-daily changes are inadequate for revealing microstructural aspects of the price adjustment mechanism. Ederington and Lee (1993, 1995) made an important contribution in this regard by utilising tick data from eurodollar futures prices and showing that most of the price adjustments to the US macroeconomic announcement news are concluded within the first min of an information release. Fleming and Remolona (1997a) studied a year's worth of tick data from the 5 year US treasuries