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Non-scheduled news arrival and high-frequency stock market dynamics Evidence from the Australian Securities Exchange

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ABSTRACT

An increasing number of market participants utilise news analytics software to comprehend the large amounts of unstructured data flowing through news-wires. Utilising original data from one such tool – Ravenpack – I examine the market reaction of leading Australian stocks to stock-specific news flow over an extended period. Unconditional analysis of key variables around 484,440 news items reveals distinct responses in market activity, volatility, bid-ask spreads and returns. The study confirms previous literature such that indicated relevance of news items is critical when identifying significant effects. In addition, the reaction of market activity, volatility and spreads is greatest for negative news. The findings are confirmed when controlling for market dynamics and cross-dependencies between variables in a high-frequency VAR model.

1. Introduction

Market efficiency suggests that all currently available public, and private, information should be reflected in share prices. Market participants should only respond to new information (news), and

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therefore price movements and trading activity will be strongly influenced by the released of both scheduled and non-scheduled news. However, with the advent of modern technology the flow of news has greatly increased and this makes it costly for market participants to process all asset-specific news. As a result, many participants are starting to rely on pre-processed news analytics provided by news vendors; with such data playing an increasingly important role in the trading of financial assets it seems pertinent to ask whether the indicators of relevance and sentiment are both useful and reliable.

Historically, research in this field has focused on specific and readily quantifiable news events such as scheduled macroeconomic announcements and earnings results. For example, Patell and Wolfson (1984) and Woodruff and Senchack (1988) consider the adjustment of stock prices following earnings and dividend announcements, and find that much of the market adjustment occurs in the first 30 min following the announcement. Ederington and Lee (1993, 1995), Becker et al. (1996), Bernanke and Kuttner (2005), Rigobon and Sack (2004) and Smales (2013) are among the many papers that consider the impact of macroeconomic announcements with the confirmation of a dynamic response to the news (surprise) component of data releases that quickly subsides.

More recently, the quantifying of news language, by researchers such as Antweiler and Frank (2004) and Tetlock (2007), has enabled the identification of common patterns in firm responses and market reactions across a wider range of events. In particular, the relevance and sentiment of news has been tested in a variety of market settings. Tetlock et al. (2008) examine whether a quantitative measure of language can be used to predict firms' earnings and stock returns, and find that negative words in firm-specific news stories forecast low firm earnings. Sinha (2011) gauges the tone of news articles and constructs a measure to predict future returns while Engelberg et al. (2012) find that the negative relation between short sales and future returns is significantly stronger in the presence of news stories containing negative news. Dzielinski (2011) utilises sentiment signed news to directly compare news and no-news stock returns, finding that positive (negative) news results in above (below) average returns whilst the effect of neutral news is non-distinguishable from the no-news average. Interestingly, Tetlock (2011) also reports that investors react to stale news.

In terms of framework, this paper is most similar to Groß-Klußmann and Hautsch (2011) who examine high-frequency news-implied market reactions on 39 liquid stocks traded on the London Stock Exchange over an 18-month period from January 2007. They observe that trading activity reacts significantly to company-specific news items that are identified as relevant, although they do not consider the importance of directional sentiment indicators.

In addition to examining the interdependency of a number of key market variables, this paper primarily asks a single key question: do indicators of relevance and sentiment matter, and if so, does pre-processed data do a good job of assigning such indicators? The paper develops the existing literature in two important ways. Firstly, examination of the Australian market allows the consideration of whether the existing findings are applicable in a broader international context. Secondly, this is the first study to examine the impact of non-scheduled news flow on market activity over such an extended time period; a period which neatly encapsulates the global financial crisis (GFC) of 2007–2009 and thus allows for an initial examination of the impact of crisis on market efficiency surrounding non-scheduled news announcements. Importantly, the ASX sample differs from that of many major markets in two ways. First, during the sample period pre-dates the arrival of Chi-X into the Australian market, and as such there was no rival exchange for trading Australian shares; hence all trading activity surrounding the non-scheduled announcements is captured using the ASX data-set. Second, the ASX is dominated by just two industries with financial services (44.8%) and materials (17.4%) constituting nearly a two-thirds of total market capitalisation as of December 2012.[1]

Using a sample of 33 highly liquid ASX50 stocks over a 12-year time period, high-frequency (30 s interval) market activity around 484,440 non-scheduled news announcements is examined. High-relevance news items induce an increase in market activity, volatility and spreads, whilst

[1] This compares to the S&P500 where the two largest industries (I.T. and financials) make-up 34% of the total index, and the FTSE100 where the two largest (Financials and Oil & Gas) total less than 40% of the index.