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Information attributes, information asymmetry and industry sector returns

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ABSTRACT

We examine whether the probability of informed trading ('PIN') is a determinant of stock returns in Australia, an alternative market with considerably different information attributes to the U.S. Uniquely, we contrast PIN's price effect for the country's historically dichotomous sectors, resources and industrials. Using data for the period from 1996 to 2010, we find a significantly positive relationship between PIN and expected returns among industrials sector stocks, providing evidence in support of Easley and O'Hara (2004). We observe no PIN premium among resources sector stocks and among those with no record of operating revenues, both notable for their speculative nature and uncertainty about true asset values. Our results are consistent with previous empirical evidence that documents strong investor behavioural biases in valuing extremely uncertain stocks or hard-to-value stocks (Kumar, 2009). Our findings shed light on the existing mixed evidence that a strong PIN premium exists in NYSE and AMEX but not in NASDAQ where high-tech stocks are prevalent, and suggest that caution is needed when applying PIN in the pricing of highly speculative stocks.

1. Introduction

The probability of informed trading ('PIN'), a microstructure measure of information asymmetry developed by Easley et al. (1996), has ignited great interest among researchers, and has opened up extensive avenues for empirical studies in asset pricing, corporate finance and market microstructure. One of the most topical issues is whether PIN is a determinant of asset returns.

Easley and O'Hara (2004) propose that, holding other things identical, an asset with more private information and less public information is regarded as more risky and therefore investors (particularly

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uninformed investors) will require a higher expected return. Thus PIN, as a proxy for the risk of privately informed trade, is a determinant of stock returns. Easley et al. (2002) ('EHO') document the existence of a premium for this risk among stocks listed in New York Stock Exchange (NYSE), observing that those stocks with higher PIN have higher expected returns. Extending EHO's sample by including the stocks listed on American Stock Exchange (AMEX), Easley et al. (2010) provide further empirical evidence that PIN is an important determinant of asset returns controlling for the effects of the Fama-French (1992) three risk factors as well as momentum and liquidity factors. On the other hand, Mohanram and Rajgopal (2009) find that the PIN premium only exists for one 5-year period within the EHO sample, and Duarte and Young (2009) show that PIN is priced because of its illiquidity component rather than its information asymmetry component. Fuller et al. (2010) find little evidence that excess returns are increasing in PIN for the stocks listed on the NASDAQ, a stock exchange noted for its predominant high-tech sector. They suggest that the weak PIN-price effect may be the result of differences between the NYSE and NASDAQ in market structure or in the characteristics of their component stocks. The mixed evidence of PIN's influence on asset returns in U.S. markets calls for further empirical studies using alternative markets and motivates us to examine the price effect of PIN in Australia, a market distinguished by its sizeable resources sector, by different trading mechanisms and by different information attributes from the U.S. markets. Furthermore, we benefit from using Australian data to conduct this kind of empirical study because, in Australia, there is no market maker and no on-market trades occur inside the spread. Therefore trade direction (buyer-initiated versus seller-initiated), which is required for the PIN estimate, is identified without introducing estimation biases that generally exist in the empirical studies for the U.S. markets (Odders-White, 2000; Boehmer et al., 2007).

The Australian Stock Exchange (ASX) has more listed stocks from the extractive industries, Metals & Mining and Oil & Gas, than any other major exchange in the world including those in the U.S.[1] Some 45% of listed stocks, comprising approximately 25% of the total market by value, relate to firms in these industries and together form the resources sector. The remainder of the listed firms comprise the industrials sector and are on average larger, more liquid and less risky, than resources sector stocks.

The sector distinction extends to attributes of the information environment relevant to our study. Notably, mining, exploration and gold stocks are identified by market players as being among those where insider trading is most likely (Tomasic and Pentonoy, 1988). Insider trading is the typical example of the 'informed trade' which PIN is intended to capture. Despite regulations that prohibit insider trading and compel the disclosure of value-relevant news, the high sensitivity of prices to news of 'discovery' among exploration firms, likened to an out-of-money option (Brown and Burdekin, 2000), provides greater incentive for privately informed traders, and recent evidence suggests that privately informed trade is more prevalent in this sector. For example, mining stock prices almost fully anticipate the value effect of public announcements (Bird et al., 2013), and directors of resources stocks gain from selling down their own-firm share holdings ahead of price declines (Brown et al., 2003).[2]

In addition, the resources sector comprises many junior (exploration stage) miners, and there is considerable evidence that asset values and the value-effect of information disclosures among these firms are more uncertain. For example, relative to financial disclosures, regulatory disclosures pertaining to mining project progress are full of technical jargon, are less scrutinised by analysts and researchers (Ferguson et al., 2011b) and, across very lengthy exploration time lines, have more uncertain bearing on longer term value. The concern that disclosure rules pertaining to Mining, Oil and Gas companies are somewhat open to interpretation, has prompted a recent review of listing rules with the aim of improving consistency and transparency (ASX, 2011). The Easley and O'Hara (2004) theory predicts that the expected return is not only increasing in the proportion of information that is private, but also decreasing in the precision of prior beliefs about firm value referred to as '*prior precision*'. Those authors explain that greater prior precision exists where investors are more familiar with a firm. Thus the greater the

[1] "Revenue Watch's research included the 31 largest non-U.S. stock exchanges by market capitalization, as ranked by the World Federation of Exchanges, as well as the Oslo Børs of Norway and the NYSE, AMEX and NASDAQ exchanges of the United States."(Voorhees, 2011).

[2] Note also that a study that examines the '*Please Explain*' notices issued by the Australian Stock Exchange ('ASX') in response to significant price changes that appear unrelated to any public disclosure, find that 222 of 911 notices relate to mining firms that were at exploration stage (Neagle and Tsykin, 2001).