THE ECONOMIC CONSEQUENCES OF CORPORATE FINANCIAL REPORTING ON TWITTER

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ABSTRACT

The use of social media has spread into many different areas including marketing, customer service, and corporate disclosure. However, our understanding of the timely effect of financial reporting information on Twitter is still limited. In this paper, we propose to examine the timely effect of financial reporting information on Twitter in Australian context, as reflect in the stock market trading. We aim to find out whether the level of information asymmetry within the stock market will be reduced, after the introduction of Twitter and the use of Twitter for financial reporting purpose[1].

[1] Data supplied by Securities Industry Research Centre of Asia-Pacific (SIRCA) on behalf of ASX.

INTRODUCTION

Twitter is having a significant impact on corporate disclosure in today's interconnected business environment (Blankespoor, Miller, and White 2014). Twitter is a social media tool (Saeed and Sinnappan 2011), which allows users to produce and consume information by following other users or being followed. That is, Twitter allows users to build their own online community or network, then exchange information with others (Magro et al. 2009). Producing 140 characters each time within a post, Twitter has been used for many different purposes, including marketing, customer service, and financial reporting press release (Knights 2007; Fraser 2009; Blankespoor, Miller, and White 2014).

Financial reporting, is a type of corporate disclosure that is used to increase the level of financial information in the market (Healy and Palepu 2001). Such financial information would relate to annual financial performance, merger and acquisition announcement, and shares repurchase offer. There are two types of financial reporting: mandatory reporting and voluntary reporting. Mandatory[2] reporting is regulated by government agencies (such as ASIC, Australian Securities and Investments Commission), and stock market listing bodies (such as the ASX, Australian Securities Exchange).

For financial reporting on Twitter, there are arguments and uncertainties regarding whether financial reporting on Twitter should be considered as mandatory or voluntary reporting(McDermott Will & Emery 2009; Quilter 2013b). Unfortunately, this lack of clear regulation regarding financial reporting on Twitter exists in many major financial markets, including in Australia and the United States of America (the U.S.). As the increasing trend of using Twitter for financial reporting, business owners, investors and regulators are all facing series of challenges from this issue (Polites 2013; Quilter 2013a; Ryan 2012).

An example of this challenge is a recent investigation of Netflix Inc., a provider of on-demand internet streaming media including news, drama and movies etc. that operates in the U.S., was lodged (Securities and Exchange Commission 2013) by the U.S. Securities and Exchange Commission. U.S. Securities and Exchange Commission, or SEC, is the regulatory body of U.S. listed companies. In this case, the Chief Executive Officer (CEO) of Netflix Inc. posted company information on his own Facebook page. The CEO, he himself deemed the post as non-material information. In contrast, the SEC held a different view and lodged an

[2] Common mandatory reporting includes annual financial report, change of directors' interest, and other reporting materials required by relevant legislations.

investigation to inquire if this disclosure was in violation of Regulation Fair Disclosure. Regulation Fair Disclosure, or RegFD, is legislation in the U.S. that requires listed companies to provide fair disclosure to all stakeholders, which means in achieving fairness in available information between investors.

This example shows the different understandings between companies and regulators on the use of social media for corporate disclosure. More importantly, a consensus on the function of Twitter as a corporate disclosure channel must be reached. This could only be achieved by evaluating the extent and impact of the use of twitter on financial reporting. Therefore, it is necessary to investigate whether Twitter is working as an effective corporate communication channel. Based on such findings, relevant guidance (including regulatory framework) on the use of Twitter could be developed to guide the listed companies to comply with RegFD when disclosing financial reporting information on Twitter.

The above Netflix, and other similar situations (see for example, a dramatic drop and rebound in Dow Jones Industrial Average (Kwek 2013)), makes it crucial to examine and understand the process and effectiveness of using social media channels like Twitter in the dissemination of financial information. Previous literature has already confirmed that the information asymmetry between companies' managers and shareholders can be reduced, through corporate disclosure, including financial reporting (Healy and Palepu 2001). Further, numerous literature identifies bid-ask spread and share trading volume as proxies for information asymmetry (Leuz and Verrecchia 2000; Sidhu et al. 2008; Blankespoor, Miller, and White 2014). Therefore, this research proposes to investigate whether financial reporting on Twitter reduce information asymmetry. To be specific, this research examines whether there will be a decrease in bid-ask spread and/or an increase in share trading volume, after listed companies post financial reporting information on Twitter. This paper is organised as follows. The following section reviews the literature on the use of Twitter for financial reporting, followed by the discussion on the study's theoretical approach. Propositions are developed, according to the literature and theoretical framework. At the end, a proposed research methodology will be briefly discussed.

LITERATURE REVIEW

This part of literature review starts with the general business use of Twitter, followed by several specific uses of financial reporting information on Twitter, including using financial information sentiment on Twitter to predict stock market movement, whether enhanced financial reporting on Twitter during earning announcement period can reduce information asymmetry. At the end, a discussion of gap in the literature indicates the necessity of conducting this current research.

Twitter was created in March 2006 as a micro-blogging service. Twitter allows users to share their views by posting such information with the 140-character limit. Different from Facebook and Linkedin, which require a prior existed relationship, Twitter is a good way to establish a new relationship, and communicate between companies and investors (Pinkston 2009). Due to the characteristics of instant sharing and interaction between users, the application of Twitter has expanded to many different fields, including news distribution, marketing/promotion, customer service and human resources (Case and King 2011). As Pizzani (2010) discussed, a global media study conducted among Global 500 companies in 2010 shows that out of the 79 percent of companies that use social media, 65 percent of them have Twitter accounts. Further, this study (Pizzani (2010) also indicates that Twitter is the most frequently used social media channel, comparing with Facebook (54 percent), YouTube (50 percent) and corporate blog (33 percent).

Along with the enhanced research of social media in marketing and consumer service sectors, a few current research focus on how to use existing rich information on social media to predict financial market movement. Under the efficient market hypothesis (Fama 1970), stock market movement represents existing market information. However, it is proved that human mood sentiment, such as whether investors are optimistic or pessimistic, can also create a big challenge as the existence of macro-level mood may affect investment decisions (Rao and Srivastava (2012). Recent studies (Rao and Srivastava 2012; Zhang, Fuehres, and Gloor 2012; Bollen and Mao 2011) investigated the relationship between sentiments of Twitter posts and the performance of the stock market. These studies statistically proved that moods or keywords of Twitter posts can either explain or predict the trend of share price. These previous empirical studies focus on the sentiments of general Twitter posts, which include all types of information on Twitter. More recent studies focus on specific financial information on Twitter, based on the technique of searching tweets that contain the dollar-

tagged ticket symbol of individual stocks (such as $CBA for Commonwealth Bank of Australia). Through the categorisation of 249,553 English-Language stock-related tweets into "Buy" (Positive), "Hold" (Neutral) and "Sell" (Negative) signals, Sprenger et al. (2014) discover inter-correlation between the level of "Bullishness" (Positive signal, which is "Buy") and the current market trading volume. Further, similar effects are shown in the variables of tweet volume and stock price volatility.

Although the above literature focus on the impact from either general information or specific financial information from Twitter posts on stock market movement, it does not reveal the mechanism of how these tweets affect the stock market performance. For example, does financial information disclosure on Twitter only represent sentiments, which predict the trend of market movement? In contrast, do these financial information disclosures actually provide useful information to investors, then encourage their further actions?

A few studies have investigated the effectiveness of financial reporting related information using Twitter, by considering how these tweets reduce the level of information asymmetry. For example, in a study of United States (U.S.) information technology firms, Blankespoor, Miller, and White (2014) found that greater tweeting behaviour during the earning announcement period was associated with lower bid-ask spread and greater market depth. However, effects of tweeting on information asymmetry only applied to low visibility firms, which traditionally do not attract too much media attention because they are not big firms. This reduction of information asymmetry is represented as greater share trading volume.

These recent studies use event methodology to examine the effectiveness of financial reporting disclosure on Twitter in reducing the level of information asymmetry. However, these studies fail to distinguish whether such effects belong to the sentiment of tweets or the actual information within tweets. There are two potential functions of media coverage. From the viewpoint of information, media coverage provides investors valuable information. However, from the salience (or signalling) view, media coverage increases investors' attention through conspicuous, not necessary by information itself (Solomon, Soltes, and Sosyura (2014). In the study about investors' allocation of mutual fund investment, Solomon, Soltes, and Sosyura (2014) discover a strong positive relation between fund flows and the salience of media-covered holdings. In contrast, there is little relation between fund flows and the level of information that holdings disclose to market.

Therefore, it is important to clarify what kinds of influence financial reporting information from Twitter impose on the stock market. If the existence of financial reporting information from Twitter only functions as increasing investors' attention, regulations should focus on refrain listed companies and major shareholder manipulating the level of information on Twitter. However, if financial reporting information from Twitter provide extract or new information to investors and investors trade stock market base on such information, regulation will need to pay more attention on the content of financial reporting information on Twitter. According to the author's knowledge, there is no research in Australia that focuses examining the information content of financial reporting tweets that are issued by Australian listed companies.

Therefore, the research problem of this study is to investigate whether financial reporting tweets that are disclosed by Australian listed companies reduce information asymmetry, through the comparison of the information content of these tweets. To be more specific, the research question will be to examine if the bid-ask spread decrease or the share trading volume increase after posting the tweets that contain financial reporting information.

THEORETICAL FRAMEWORK

This part of theoretical framework starts with the explanation of Efficient Market Hypothesis (EMH), followed by the mechanism of share trading under the EMH theory. The research methodology is developed based on this section of theoretical framework.

EMH states that the share price will reveal existing information (both private and public) depending on the level of market efficient (Fama 1970). The Efficient Market Hypothesis (Fama, 1970) suggest that there are three types of efficient markets, a strong, a semi-strong, and a weak efficient market. As Fama (1970) discusses, future price cannot be predicted through the analysis of historical price and share price follows random walk, in weak efficient market. In a strong efficient market, the share price would reveal all available information, and there is no existence of private information. In this case, the Australian stock market is a semi-strong stock market, as discussed below.

Under the Australian continuous disclosure regime, listed companies are required to lodge material information with Australian Stock Exchange prior to disclose such information in any other corporate disclosure channel. However, this continuous disclosure regime also

provides grounds for listed companies to argue why some material information should remain confidential, for example, during a process of merger and acquisition. Therefore, the Australian share market should be deemed as semi-strong efficient share market. This situation means that new information, which has not been revealed to the share market, will impact on the share price movement.

As EMH outlines how share price represents information in different market settings, market microstructure explains the process of how the share price is formed (O'Hara 1999). There are many different market microstructure models and trading processes (Garman 1976), yet the focus of this current study is to reveal the information content of financial reporting tweets. Generally, during the trading process, buyer and seller post their expected prices of the trading product. The share price represents the expectation of listed firm's future performance from investors. It is normal for investors to have different expectations of future performances of firms, that is, different expected share price due to the different levels of information held by various investors. The difference between the buying and selling prices is called the bid-ask spread, which has been widely used as a proxy for information asymmetry (Leuz and Verrecchia 2000; Sidhu et al. 2008; Blankespoor, Miller, and White 2014).

In semi-strong stock market, new information that flows into the market impacts the trend of share market movement, since the levels of information between investors change. Therefore, the change of bid-ask spread is considered as a valid tool to detect the effectiveness of disclosure channel in disclosing such information. In the case of Twitter, when listed companies post financial reporting information on Twitter, followers of this Twitter account will receive this information when they next time refresh their Twitter homepage, or log in their Twitter account. The aim of this study is to examine the information content of financial reporting on Twitter, therefore, this research method is developed based on the assumption that investors read such financial reporting information on Twitter then conduct trading according to this information.

When new information flows in, it will diminish the information gap between buyers and sellers, especially in the case that such information has already been leaked to some investors and reflected in investors' proposed trading prices. Therefore, the difference between the bid price and ask price, or bid-ask spread, will decrease. In the case of Twitter, after reading financial reporting information on Twitter, investors will adjust their propose trading prices accordingly, based on such information. Besides, this study will also use trading volume as

the proxy for information asymmetry. Based on the mechanism of microstructure, it is reasonable to argue that the increased level of disclosure will enrich the amount of information in the share market, which encourages more investors to trade on a larger scale (Healy and Palepu 2001).

The existence of continuous disclosure regime in Australia makes the ASX announcement an important control variable as investors may obtain the same financial reporting information from the ASX central announcement platform, prior to reading it on Twitter. However, it is also possible for many other investors that do not subscribe to ASX central announcement platform, then read the financial reporting information on Twitter for the first time then conduct trade based on this information.

As further explained in the Research Methodology section, this study will apply event methodology to examine whether the disclosure of financial reporting information on Twitter reduces information asymmetry.

Proposition

- Listed companies' bid-ask spread will decrease when companies post financial information tweets.
- Listed companies' share trading volume will increase when companies post financial information tweets.

Proposed Research Methodology

This part of research methodology discusses the event methodology, followed by the main research approach that we develop from a previous study (Frino, Lecce, and Segara 2011). Furthermore, we will discuss the potential challenges of applying this research method and how we plan to accommodate them.

Event methodology constitutes as the basic of this study. Event methodology focuses on the comparison of variables before and after the event (see Figure 1). After isolating other impact factors, event methodology allows the detection of potential effectiveness of an event. Event methodology had been widely used in peer-reviewed research (See for example, Leuz and

Verrecchia 2000; Reddy and Gordon 2010; Blankespoor, Miller, and White 2014; Bushee et al. 2010).

The aim of this current study is to examine, whether financial reporting information that are disclosed by Australian listed companies on Twitter will trigger investors trading action. Therefore, the event will be the financial information tweet. In application of event methodology, a pre-event window and post-event window will be identified. Variable data, such as bid-ask spread and share trading volume during these two windows will be collected for further comparison. Figure 1 shows how pre-event and post-event window is selected.

The selection of time period for event window is diverse, as well as the actual implication of using the event methodology. In Blankespoor, Miller, and White (2014)'s study, they use 3-day event window. Instead of setting pre-period and post-period windows, they capture the difference between pre-period data and event window data. Further, they compare these differences of bid-ask spread and market depth between firms disclose tweets that contain links to financial reporting information, and the firms that do not do so. The 3-day event window across the earning announcement season.

The potential challenge of using an extensive long event period is failing to capture the effect of the information content of the financial reporting tweet. The advantage of Twitter is fast speed spread and small key point content. Instead of clicking the link in the financial reporting tweet to read a 140-page annual report, investors are able to receive key content, such as profit figure, dividend ratio etc. purely from the financial reporting tweet itself. In this case, a short event window is more appropriate, to capture the immediate action from investors, after they read the financial reporting tweet.

Therefore, a new method is developed from a prior study (Frino, Lecce, and Segara 2011) that detects the trading halt effect on bid-ask spread and share trading volume. Each individual financial reporting tweet will be considered as a separate event. A same-day, same-time interval of the same company without similar tweet disclosure will be selected as the control period. This way, I compare whether the distribution of financial reporting tweet changes the degree of information asymmetry. I control for all other factors at the abstract level (same time and day). Below is a practical example.

A Practical Example

The first step is to identify the related financial reporting tweet. As shown below, a tweet was posted from Rio Tinto (RIO) Twitter account on May 05 2011 11:40:49 (Sydney local time).

> Chairman reflects on 2010 including record earnings of US$14b - http://www.riotinto.com/agm2011
>
> May 05 11:40:49 +0000 2011

The immediate bid-ask quotes are identified before and after the disclosure time of this tweet, which are on 11:40:48.185 and 11:40:49.075 (see Table1).

A control period is then selected later, based on this event period (from 11:40:48.185 to 11:40:49.075). According to Frino, Lecce, and Segara (2011), a good way to control the influence of extra information is to select a control period that hosts the same level of information. The level of information is determined by the ex-market return. As shown in the Table 1, the midpoint of the bid-ask spread immediately before and after the tweet announcement states the same. Therefore, the return of RIO between 11:40:48.185 and 11:40:49.075 is 1. This means that there is no return if an investor invests money on RIO between this interval. However, according to Table 2, the market return is 1.000270416 (=4808.7/4807.4), which means that investors are likely to gain money, if they invest in the market index (ASX ALL ORD) during 11:40:34 and 11:41:03. Due to the limitation of database, it only returns the market index data every 30 seconds, instead of milliseconds for each individual stock. Therefore, the ex-market return of RIO between 11:40:48.185 and 11:40:49.075 is -0.00027042 (1-1.000270416).

The next step is to find a control period holds a similar level of information asymmetry without a tweet disclosure for comparison, in order to examine the timely effect of the financial reporting tweet. Frino, Lecce, and Segara (2011), recommend a same-day same-time interval will be ideal for this purpose, therefore, a corresponding control time period will be on March 31 2011, from 11:40:47.738 to 11:40:50.445. March 31 2011 is on the same day of Thursday as May 05 2011. Most importantly, it holds the similar level of information asymmetry (similar level of ex-market return) as the event window period. As Table 3 indicates, there is no change of bid-ask spread midpoint during this period so the return of RIO during this period is 1. The market return (see Table 4) is 1.00026477 (=4911.3/4910), which constitutes an ex-market return of -0.00026477 for RIO during this control period. This ex-market return indicates a 2.1% difference from the sampling period (5% is the max acceptable range).

Then, a weighted bid-ask spread is computed based on the holding time of each bid-ask spread before and after the effect window (see Table 5). To determine whether trading halt reduces/creates an information asymmetry, Frino, Lecce, and Segara (2011) places eight 15-minute intervals each before and after the trading halt to detect the change of information asymmetry. Similarly, this research will choose eight 15-minute intervals to detect the change of information asymmetry. The potential problem of this method would be collecting over-night bid-ask spread and introduce market open/close effect.

A Wilcoxon Signed-Rank Test is conducted, after gathering data of all samples, based on each individual interval. The idea of Wilconxon Signed-Rank Test is to discover if the treatment change participants' behaviours, based on the statistic before and after treatment. In this current study, each tweet disclosure is considered as a "treatment", similar to the effect of trading halt in Frino, Lecce, and Segara (2011). Through the comparison of bid-ask spread between two periods, which are holding similar level of information (determined by ex-market return), this research can examine the timely effect of financial reporting tweets, through controlling the same-day same-time effect, as well as the company and market effect.

Conclusion

It is important to understand the timely effect of financial reporting on Twitter. This study proposes to examine whether the financial reporting through corporate Twitter accounts reduce the level of information asymmetry. This study further proposes to critique whether the current legislation fulfil the requirement of financial reporting on social media in the Australian context.

We plan to conduct a pilot study in April 2015 and will present the findings at AFAANZ 2015. We look forward to receiving valuable feedback from the conference that will help us craft the main study.

REFERENCE

Blankespoor, E., G. S. Miller, and H. D. White, 2014, The role of dissemination in market liquidity: evidence from firms' use of twitter™, *Accounting Review* 89, 79-112.

Bollen, J., and H. Mao, 2011, Twitter mood as a stock market predictor, *Computer* 44, 91-94.

Bushee, B. J., J. E. Core, W. Guay, and S. J. W. Hamm, 2010, The role of the business press as an information intermediary, *Journal of Accounting Research* 48, 1-19.

Case, C. J., and D. L. King, 2011, Twitter usage in the fortune 50: a marketing opportunity?, *Journal of Marketing Development and Competitiveness* 5, 94-103.

Fama, E. F., 1970, Efficient capital markets: a review of theory and empirical work, *The Journal of Finance* 25, 383-417.

Fraser, E., 2009, Twittering on the trading floor, *Buy - Side Technology*, 30.

Frino, A., S. Lecce, and R. Segara, 2011, The impact of trading halts on liquidity and price volatility: Evidence from the Australian Stock Exchange, *Pacific-Basin Finance Journal* 19, 298-307.

Garman, M. B., 1976, Market microstructure, *Journal of Financial Economics* 3, 257-275.

Healy, P. M., and K. G. Palepu, 2001, Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature, *Journal of accounting and economics* 31, 405-440.

Knights, M., 2007, Web 2.0, *Communications Engineer* 5, 30-35.

Kwek, G., 2013, How a fake tweet sent stockmarket into free fall, *The Age-BusinessDay*.

Leuz, C., and R. E. Verrecchia, 2000, The economic consequences of increased disclosure, *Journal of Accounting Research* 38, 91-124.

Magro, M. J., S. D. Ryan, J. H. Sharp, and K. A. Ryan, 2009, Using social networking for educational and cultural adaptation: an exploratory study, Paper presented at the AMCIS 2009, San Francisco, CA.

McDermott Will & Emery, Informal corporate disclosure in the age of twitter [Internet Document] (McDermott Will & Emery, Australia) [created 20 May 2009; cited 20 June 2013], available from http://www.mwe.com/info/news/wp0509b.pdf

O'Hara, M., 1999, Making market microstructure matter, *Financial Management* 28, 83-90.

Pinkston, M., 2009, CPAs embrace Twitter: brief messages leave powerful impression, *Journal of Accountancy* 208, 30+.

Pizzani, L., 2010, Social media and public companies, *CFA Magazine* 21, 38-39.

Polites, H., Should ASIC consider social media disclosures? [Internet Document] (Technology Spectator, Australia) [created 5 April 2013; cited 16 August 2013], available from http://www.businessspectator.com.au/article/2013/4/5/social-media/should-asic-consider-social-media-disclosures

Quilter, M., Continuous disclosure: social media and the two sides to trading halts [Internet document] (The Conversation Media Group, Australia) [created 21 January 2013; cited 21 August 2013], available from http://theconversation.com/continuous-disclosure-social-media-and-the-two-sides-to-trading-halts-11624

———, Explainer: contunuous disclosure obligations [Internet document] (The Conversation Media Group, Australia) [created 20 August 2013; cited 20 December 2013], available from https://theconversation.com/explainer-continuous-disclosure-obligations-16894

Rao, T., and S. Srivastava, 2012, Modeling movements in oil, gold, forex and market indices using search volume index and twitter sentiments, *arXiv preprint arXiv:1212.1037*.

Reddy, K., and L. W. Gordon, 2010, The effect of sustainability reporting on financial performance: an empirical study using listed companies, *Journal of Asia Entrepreneurship and Sustainability* 6, 19-42.

Ryan, P., Social media to shape disclosure law changes [Business News] (ABC News), [created 11 July 2012; cited August 16 2013], available from http://www.abc.net.au/news/2012-07-11/asic-reviewing-david-jones-bid/4123874

Saeed, N., and S. Sinnappan, 2011, Adoption of Twitter in higher education–a pilot study, *Changing Demands, Changing Directions. Proceedings ascilite Hobart*, 1115-1120.

Securities and Exchange Commission, Report of investigation pursuant to section 21(a) of the Securities Exchange Act of 1934: Netflix, Inc., and Reed Hastings [Regulator Report] (Securities and Exchange Commission, Washington, D.C.) [created 2 April 2013; cited 2 August 2013], available from http://www.sec.gov/litigation/investreport/34-69279.pdf

Sidhu, B., T. Smith, R. E. Whaley, and R. H. Willis, 2008, Regulation fair disclosure and the cost of adverse selection, *Journal of Accounting Research* 46, 697-728.

Solomon, D. H., E. Soltes, and D. Sosyura, 2014, Winners in the spotlight: Media coverage of fund holdings as a driver of flows, *Journal of Financial Economics* 113, 53-72.

Sprenger, T. O., A. Tumasjan, P. G. Sandner, and I. M. Welpe, 2014, Tweets and trades: the information content of stock microblogs, *European Financial Management* 20, 926-957.

Zhang, X., H. Fuehres, and P. A. Gloor, 2012, Predicting asset value through twitter buzz, in J. Altmann, U. Baumöl and B. Krämer eds, *Advances in Collective Intelligence 2011* (Springer, Berlin Heidelberg) 23-34.

Tables and Figures

Table 1

Descriptive statistics for a selected tweet sample

Panel A: Summary statistics for the selected sample	
Company name	Rio Tinto
Tweet time	May 05 11:40:49 2011

Panel B: Distribution of bid-ask quote around the time of posting tweet sample

Date	Time	Record type	Bid price	Bid size	Ask price	Ask size
20110505	11:40:46.857	QUOTE			80.79	2
20110505	11:40:47.313	QUOTE	80.77	281		
20110505	11:40:47.882	QUOTE			80.79	3
20110505	11:40:48.026	QUOTE	80.77	185		
20110505	11:40:48.184	QUOTE			**80.78**	**100**
20110505	**11:40:48.185**	**QUOTE**	**80.77**	**160**		
20110505	**11:40:49**	**TWEET DISCLOSURE TIME**				
20110505	**11:40:49.075**	**QUOTE**	**80.77**	**147**		
20110505	11:40:49.984	QUOTE			**80.78**	**101**
20110505	11:40:50.064	QUOTE			80.78	1
20110505	11:40:51.808	QUOTE			80.78	101

Table 2

Descriptive statistics for the market index during sample period

Panel A: Summary statistics for the Index			
Index name	Australia All Ordinary Index		
Event time	May 05 11:40:49 2011		
Panel B: Distribution of index price around event period			
Date	Time	Record type	Price
20110505	11:37:33 AM	INDEX	4811.7
20110505	11:38:03 AM	INDEX	4811.4
20110505	11:38:33 AM	INDEX	4810.7
20110505	11:39:03 AM	INDEX	4809.9
20110505	11:39:31 AM	INDEX	4809.3
20110505	11:40:03 AM	INDEX	4808.3
20110505	**11:40:34 AM**	INDEX	**4807.4**
20110505	**11:40:49 AM**	**TWEET DISCLOSURE TIME**	
20110505	**11:41:03 AM**	INDEX	**4808.7**
20110505	11:41:32 AM	INDEX	4808.9
20110505	11:42:03 AM	INDEX	4808.7

Table 3

Descriptive statistics for selected control period

Panel A: Summary statistics for the selected control period						
Company name	Rio Tinto					
Control period date	31 Mar 2011					
Panel B: Distribution of bid-ask quote of control period						
Date	Time	Record type	Bid price	Bid size	Ask Price	Ask size
20110331	11:40:47.179	QUOTE	84.38	3615		
20110331	11:40:47.321	QUOTE			84.39	281
20110331	11:40:47.738	QUOTE			**84.4**	**136**
20110331	11:40:48.383	QUOTE	84.38	3610		
20110331	11:40:48.387	QUOTE	84.38	1753		
20110331	11:40:48.747	QUOTE	**84.38**	**2583**		
20110331	**11:40:49**	**TWEET DISCLOSURE TIME**				
20110331	11:40:50.445	QUOTE			**84.4**	**667**
20110331	11:40:51.289	QUOTE			84.4	580
20110331	11:40:51.634	QUOTE	84.39	24		
20110331	11:40:51.710	QUOTE			84.4	160

Table 4

Descriptive statistics for the market index during control period

Panel A: Summary statistics for the index			
Index Name	Australia All Ordinary Index		
Control period date	31 Mar 2011		
Panel B: Distribution of bid-ask quote around the time of control period			
Date	Time	Record type	Price
20110331	11:37:34 AM	INDEX	4912.3
20110331	11:38:03 AM	INDEX	4911.1
20110331	11:38:31 AM	INDEX	4911.8
20110331	11:39:03 AM	INDEX	4910.4
20110331	11:39:33 AM	INDEX	4909.5
20110331	11:40:03 AM	INDEX	4909.9
20110331	**11:40:32 AM**	INDEX	**4910**
20110331	**11:40:49**	**TWEET DISCLOSURE TIME**	
20110331	**11:41:03 AM**	INDEX	**4911.3**
20110331	11:41:33 AM	INDEX	4911.4
20110331	11:42:03 AM	INDEX	4911.4

Table 5

Descriptive statistics for the bid-ask spread around tweet disclosure time

Panel A: Summary statistics for the selected time period	
Company name	Rio Tinto
Tweet time	May 05 11:40:49 2011
Control period date	31 Mar 2011

Panel B: Distribution of bid-ask quote of control period				
Time (from)	Time (to)	Period	Sample Date	Control Date
10:10::03 AM	10:25:48 AM	-6	0.0002126	0.000247
10:25:48 AM	10:40:48 AM	-5	0.0002245	0.000286
10:40:48 AM	10:55:48 AM	-4	0.000212	0.000302
10:55:48 AM	11:10:48 AM	-3	0.0001698	0.000222
11:10:48 AM	11:25:48 AM	-2	0.000226	0.00021
11:25:48 AM	**11:40:48.185**	-1	0.0002395	0.000272
11:40:49 AM		**0**	**Tweet Disclosure Time**	
11:40:49.075	11:55:49 AM	1	0.0002276	0.000222
11:55:49 AM	12:10:49 AM	2	0.0002811	0.000182
12:10:49 AM	12:25:49 AM	3	0.0002019	0.000228
12:25:49 AM	12:40:49 AM	4	0.0002056	0.000238
12:40:49 AM	12:55:49 AM	5	0.0001727	0.000202
12:55:49 AM	13:10:49 AM	6	0.000169	0.000179

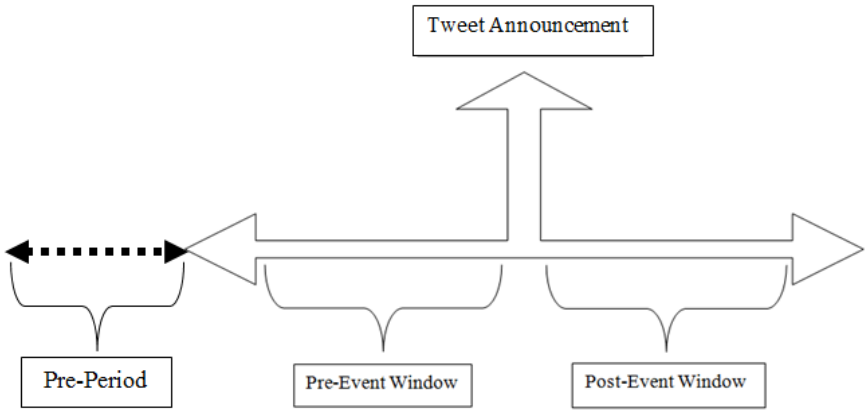

Figure 1 Event Methodology Illustration