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INSIDER TRADING, MARKET EFFICIENCY, AND REGULATION. A LITERATURE REVIEW

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Abstract. The paper reviews the existing studies on insider trading, market efficiency, and regulation. We suggest that insider trading information is useful to escalate the price discovery. However, most of studies on insider trading are concentrated on developed markets. Hence, the paper identifies areas where research is needed. We show that insider trading issue should be evaluated on emerging markets so that proper regulation on insider trading can be framed.

1. INTRODUCTION

It can fairly be said that an investor considering an investment decision (whether to buy, sell or hold stock) in a publicly traded firm acts on the extensive information that is made available by the firm to him or her until the last moment of this investing decision. By this information, he or she tries to determine the fair price of the stock. Even though, the firm more often possesses unpublished material information that can shrink the importance of previous available information to investors (Gilson and Kraakman, 1984), in this scenarios, only one kind of investors can get rewards over others; those are either very close to the firm's operation (corporate officers) or can access the nonpublic price-sensitive information of the firm (large shareholders). These investors are generally recognized as an insider of the firm.

Several aspects of insider trading[1] activities are debatable, for example, is the insider trading rational? Should it be regulated? The literature on law, economics, and finance describes the pros and cons of insider trading regulations[2]. The gurus of insider trading make the two main arguments to support insider trading. First, Manna (1966) suggests that the insider trading should be permitted since this is the most effective way to compensate to insiders for generating new economic information in the firm. Second, insiders are the most informed members in the stock market. Therefore, through trading they communicate the unpublished material information to the stock market, which makes stock prices more informative and in turn, promotes the optimal allocation of resources (Carlton and Fischel, 1983).

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This paper is in final form and no version of it will be submitted for publication elsewhere.

[1]Trading by insiders considered both legal and illegal trading. Legal insider trading occurs when insiders trade their own stocks without having price-sensitive information.

[2]Bainbridge(2000) study summarizes a comprehensive list of papers that discuss about insider trading regulations' pros and cons.

However, another group of scholars (Benabou and Laroqu, 1992) argues that the insider trading may provide an incentive to corporate insiders either to delay information or to manipulate information to the public. Hirshleifer (1973) states that since good information are as good as bad information for insiders to make profit, this profit may not be associated with the economic contribution of insiders in the firm. Despite this, Georgakopoulos (1993) suggests that the restriction on insider trading raise the liquidity[3] of stocks by reducing the cost of transactions that is a burdened on uninformed trader along with little adverse impact on market efficiency.

Another concern relates insider trading with the market efficiency of stock markets. In his classic study, Fama (1970) proposes the Efficient Market Hypothesis, which suggests that stock prices reflect all available information (historical price, public and private) at any given point of time. Even though, voluminous studies (Jaffe 1974a, Finnerty, 1976a, Seyhen 1988, and Cheuk et al, 2006) find that insiders of the firm have access of monopolistic information, and by discounting private information at appropriate times, they are able to earn abnormal returns which contradict the Efficient Market Hypothesis. Apart from insiders, outsiders are also able to earn excess profit if they merely mimic the portfolio of insiders (Seyhun 1986, Rozeff and Zaman, 1988, Lakonishok and Lee, 2001).

The aim of this study is to provide a comprehensive overview of insider trading issues and resent work in insider trading area. We divide our literature review in four sections. First, we present comprehensive review on the issue of insider trading for U.S market. Second, we show the review of study of rest of the world. The main aim of this review is to show that in comparison of the U.S., the research on insider trading issue is immature to rest of the world. We also show the effect of regulatory intervention on insider trades. The study helps the academician to reconcile and rethink about the issue of insider trading.

In the next section, we review the insider trading issues in section 2, followed by section 3, we provide future direction of research, and section 4 we summaries the study findings.

2. LITERATURE REVIEW

The existing empirical studies use two approaches to measure the informativeness of reported insider trading information. One strand of literature measures abnormal returns over 6 to 12 months after trades(Lorie and Niederhoffer 1968, Seyhun 1986, and Lakonishok and Lee 2001), and another strand of literature measures the abnormal returns around insider trades by taking short-term event windows (Meulbroek 2000, Fidrmuc et al 2006, and Cheuk et al 2006), for example, 30 days. In this section, we review insider trading issues in three subsections. First subsection reports the insider trading on the U.S. Second section describes insider trading studies for rest of the world. Third, we join insider trading issues with regulation.

2.1. **Insider Trading in the U.S.** Previous studies document that Insiders are able to predict the future movements of their own stock. For example, Lorie and Niederhoffer (1968) find that insiders are able to make excess profits. Jaffe (1974a) find that insiders are able to predict their own stock's future. Moreover, their short-term prediction power is greater than long-term predication power. Finnerty (1976a) documents that the short-term insiders are able to find profitable opportunities in their own firm's stock.

Seyhun (1986) finds that (1) an insider who is more close to the firm's operation activity has greater predictive ability about the future movements of stock prices than other group of insiders (2) there is negative relationship between the firm size and the predictability of insiders, and (3) for a given firm, the predictability of insiders increases with trade size. Moreover, he finds that insiders' buys are followed by positive abnormal returns and are preceded by negative abnormal returns. Insiders' sells are followed by negative abnormal return and preceded by abnormal positive return. Therefore, it can be implied that if an insider is an active trader, he

[3]Kahan(1992) states "the permitting insider trading increases or decreases liquidity of the stock depends on the extent to which outsiders trade on material non-public information and on the extent to which insider trading by corporate insiders move stock prices to fundamental value more quickly than does trading by outsiders".

buys stock prior to the release of any good news, and sells stock before the release of any bad news. On other hand, if an insider is a passive trader, he refrains from buying stocks before until bad news, and from selling until good news. However, Givoly and Palman (1985) do not find any empirical evidences that support that insiders purchase stocks before any favorable information and sell stocks before any unfavorable information. They conclude that insiders produce abnormal performances by the better knowledge of their firm or because investors perceive that insiders have the superior knowledge and follow the footsteps of insiders. Because of this copycat behavior the price of the stocks moves in the favor of insiders. Fried (1998) argues that the insider can fool the market in the short-term but in the long-run, the market would eventually learn to ignore trading that does not communicate any real information.

We generally assume that insiders' buys provide good signals of the firm's performance while insiders' sells provide bad signals about the firm's performance. Whereas, a number of studies find that the strength of insiders' predictability varies with trade sides- buy or sell (Lakonishok and Lee, 2001, Jeng et al, 2003, and Meulbroek, 2000). These studies argue that over time officers and directors receive stock-based compensations in different forms, such as stock option plans and restricted stocks. Thus, insiders may sell a portion of their holding to diversify their portfolio performance (Ofek and Yermack, 2000) or to achieve liquidity, however, the buy trades more likely to occur when insiders observe price-sensitive information. Lakonishok and Lee (2001) find that the buy trades of insiders are more informative than sell trades. Similarly, Jeng et al (2003) conclude that insiders are able to make abnormal profits on their buy trades but they fail to earn abnormal profits on their sell trades. Meulbroek (2000) measures the informativeness of insiders' trades on internet-based firms. In his study, he argues that since a large part of managers' compensation of internet-based firms is derived from stock-based compensation plans, hence managers more likely to sell a large amount of stocks without any private information. In empirical results, he finds that insiders' sells do not produce negative excess returns on the internet-based firm.

Above studies document that insiders are able to predict future stock movements. However, it is not clear what the sources of insiders' predictability are. Rozeff and Zaman (1988) argue that abnormal returns may be generated by the mismeasurement of the abnormal returns that arise due to the presence of size and earning to price ratio effects. Empirical results after adjusting the effect of size and earning to price ratio do not support that outsiders can make abnormal profits by following the path of insiders. Lakonishok and Lee (2001) suggest that insiders can predict the stock price movements if insiders exploit the mispricing of the stock rather than any private information. By using the most extensive database, they find that insiders' ability to time the market can be explained partially by the mispricing of stocks. Moreover, insiders have better information advantage in the small firm's stocks than the large firm's stocks

Similarly, Piotroski and Roulstone (2005) do an attempt to disentangle the sources of insiders' superior trading performance. They analyze insiders' activity before earnings innovations because it can be expected that being an insider, he would buy (sell trades) more when he expects good news (bad news) regarding earning. In result, they find that insider trades are positively associated with the firm's future earnings innovations and insiders' profits are partially related with information advantage and partially with the mispricing of the stock.

Jenter (2005) finds that insiders are more likely to be net buyers in the value firm and net sellers in the growth firm. Therefore, it can be inferred that a group of insiders acts like a contrarian trader. However, in the most recent study, Jinag and Zaman (2010) find that insiders' predictability is related with the future cash-flow news rather than from adopting a contrarian investment strategy. Few studies that highlight the relationship between the insider trading and the information environment of the firm, for example, Seyhun (1986) finds that insiders on the small firm are more likely to be net buyers while insiders on the large firm are more likely to be net sellers. Frankel and Li (2004) examine the relationship between firms' information environment and insider trading. They consider three proxies to measure the information environment of the firm- financial statements, analysts following, and news coverage, and they find that the intensity of analysts' following helps in reducing information asymmetry between managers and investors. Therefore, a firm followed by the large number of analysts presents a small profitable opportunity for insiders. On the other hand, financial statements and news coverage do not have a significant role to improve the information environment of the firm.

Ravina and Sapienza(2010) compare the trading performance of independent directors and other executives. The finding reveals that independent directors earn higher profit whey purchase their firms stock. Moreover, they also find that this phenomenon is more prominent when corporate governance is weak. Cohen et al. (2012) argue that insiders trade their own stock for variety of reasons; therefore, each insider trading information is not informative. By using a simple empirical strategy, they decode the information in insider trades, and they show that there is predictable, identifiable "routine" insider trading that is not informative for the future of firms, whereas set of information-rich "opportunistic" trades that contains all the predictive power in the insider trading universe.

2.2. **Insider Trading on the Rest of the World.** The evidence of insider trading's profitability has been documented on the U.S. stock market for over 40 years. Baesel and Stein (1979) extend their study on Toronto Stock Exchange and find that the yield of bank directors (CAR 6.3%) is greater than ordinary insiders (4.3%). Eckbo and Smith (2002) state that since in the traditional event study methodology, we fix an event window that may fail to represent the actual holding period of insiders. Therefore, the traditional event study methodology does not produce the estimates of the expected profits from insider's trades. To carry away this problem, they use time varying expected returns with aggregate insiders' stock holdings each month, alike a mutual fund managed by the group of insiders and measure the performance of this fund through time .They conduct this methodology on the Oslo Stock Exchange. Overall, they reject that insiders make abnormal profits by their trades.

Etebari et al (2004) examine a relationship between insiders' trades and abnormal returns in New Zealand. The results of this study show that insiders earn significant abnormal profits on their trades. Fidrmuc et al (2006) state since there are significant differences between U.K and the U.S on insider trading regulation, insiders of U.K may generate more observed profits than insiders of the U.S. Likewise, they find that the magnitude of abnormal returns on U. K is greater than on the U.S. Moreover, the trades of owner-cum-director have more market reaction than any other group of insiders.

Cheuk et al (2006) claim that the results of studies that have been conducted on developed markets might not be applicable on Asian or emerging markets because there are marked differences between these two markets in term of regulations, market transparency and the ownership structure of the firm. For the Hong Kong stock exchange, they find that not only insiders are able to earn above market returns, but outsiders' trades followed by insiders' trades are also able to earn above market returns. Betzer and Theissen (2008) analyze trades by insiders on Germany market, and find that insiders' trades are associated with abnormal profits. The most recent, for Dutch listed firms, Degryse et al (2009) find that during the first 30 days after the trade, insiders' buys are followed by more abnormal profits than by insiders' sales. Moreover, this result is stronger for top executives and for small firms.

2.3. **Insider Trading and Insider Trading Regulation.** Law and economic literature categorize insider trading studies into two categories- the agency theory and the market theory of insider trading. The agency theory of insider trading deals with the impact of insider trading on firm-level efficiency and corporate value (Jensen and Meckling, 1976). On the other hand, the market theory of insider trading analyzes the implication of insider trading on market performance (Bhattacharya and Daouk, 2000) e.g. the cost of capital, the liquidity and the market efficacy etc. For example, Manna (1966) suggests that insider trading allows stock markets to be more efficient. Surprisingly, most of the debates on insider trading are concentrated on the U.S stock markets (Beny, 2005). Whereas, La Porta et al (1998) claim that laws and their level of enforcement vary according to countries' infrastructures. Moreover, differences in laws and their enforcement may explain variations in market structures and stock market practices among different countries. Maug (2002) presents a mathematical model in which a dominate owner has information advantage over small shareholders where insider trading regulations are not properly enforced. Besides, Leland (1992) argues that if insider trading is allowed, stock prices reflect better information at the cost of less liquidity and the magnitude of liquidity decreased varies with the economic environment of a country.

Baiman and Verrecchia (1996) argue that the level of insider trading varies with level of financial disclosure, the culture, and the economics of different countries. Therefore, it can be expected that the impact of insider trading activities on the stock market varies country to country. Bhattacharya and Daouk (2002) address the effect of insider trading regulation and its enforcement on the cost of capital in 51 countries over more than 20 years. They find that insider trading regulation and its enforcement help in reducing the cost of capital of the firm. However, the magnitude of effect varies with the level of enforcement of a country. Moreover, Beny (2005) does attempt to find whether insider trading law matters for the ownership dispersion, the stock price informativeness and the stock liquidity. In empirical results, he finds that ownership dispersion, stock price informativeness and stock liquidity are greater where insider trading law and its enforcement are strict. Moreover, most important aspects of the formal law are penalties and criminal sanctions that are imposed on who violate insider trading law.

Fernandes and Ferreira (2009) argue that insider trading regulation and its enforcement improve the informativeness of stock prices, but this improvement is concentrated in developed markets. For these results, they suggest that borrowing insider trading regulation from a developed market may not be effective if an emerging maker's infrastructure is not complementary to a developed market's infrastructure. In addition, Kerner and Kucik (2010) argue that not only a country's specific factors influence the tightness of insider trading regulation and its enforcement but also the investment factors of international competitiveness, explained by pressures to attract more foreign investors. Because in order to attract foreign investors, a country has to establish an investor-friendly environment- in turn, there is a positive improvement in insider trading regulations and its enforcement. Recently, Chauhan et al. (2012) examine the effectiveness of insider trading regulation while the production of private information via insider trading. They also interact this natural experiment with product market imperfection. For this, they argue that in the absence of effective coordination between product market and stock market to frame the regulation, the outcome of regulation intervention will not be homogenous among heterogeneous firms. In the empirical findings, they find that regulation intervention improve the information content of insider trading. However, the magnitude of improvement varies along with the category of insiders, the position of a firm in product market competition; Firm officers' trades and insider trades in low product market firms produce higher information content compared to other group of firms.

Ebrahim and Black (2013) investigate the impact of corporate governance mechanisms, particularly board independence, on profitability of insider trades before and after the 2002 enactment of Sarbanes-Oxley (SOX). They show that corporate governance mechanisms can be used to reduce the shortcomings of existing regulations or their enforcement mechanisms in reducing the incidents of information-driven trades.

3. THE SCOPE OF FUTURE RESEARCH

Insider trading issue is an area that is widely researched by the researchers. However, a major chuck of studies are concentrated in developed markets, for example, the U.S. Hence, it requires investigating the issue of insider trading in emerging markets where the regulatory intervention is not as tight as developed markets (Fernandes and Ferreira, 2009). Moreover, the study of insider trading on the emerging market is also provide an occasion to address specific issues of the emerging market. For instance, the tunneling is the pre-dominate phenomena in business groups firms, for example, in India (Bertrand et al., 2002) where major shareholders have liberty and opportunity to exploit small shareholders. For example, Bertrand et al., (2002) find that firms affiliated with business groups use cash flow tunneling to exploit small shareholders However, there is no study that measures the equity based tunneling via insider trading in either business group or standalone firms. We believe that in the presence of the cash-flow tunneling, insiders associated with business groups less likely to trade their on stocks because of regulatory issues. However, insiders associated with standalone firms may not have proper opportunity to tunnel the cash, hence, it may be expected that they engage in the equity tunneling activates. As a outcome, insider trades associated with standalone firms should produce more non-public information compared to insider trades affiliated with business groups firms.

One more characteristic of emerging markets is inter-locked board of the firm. When boards are inter-locked then it reduces the independence of independent directors. As a consequence, the exploitation of private information via insider trading. We believe that these board inter-locked phenomena provide a nature experiment to examine the effectiveness of independent directors when they are not independent.

4. CONCLUSION

The issue of insider trading is widely documented in the finance, economic, and law literature. However, Evidence is sorely concentrated on developed markets. Hence, the aim of this study is to review exiting findings on insider trading, and provide future guidance for the research. We find that there is a gap exit to examine the insider trading issues on the emerging markets; it may be reformulation of insider trading issues in the presence of market imperfection.

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