EARNINGS ANNOUNCEMENTS AND FACTORS DETERMINING ABNORMAL RETURNS: A STUDY OF MARKET EFFICIENCY IN INDONESIA EQUITY MARKET

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EARNINGS ANNOUNCEMENTS AND FACTORS DETERMINING ABNORMAL RETURNS: A STUDY OF MARKET EFFICIENCY IN INDONESIA EQUITY MARKET

by

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LIST OF SYMBOLS

β_i The slope of firm and market returns in the estimation window.

α_i The intercept of firm and market returns in the estimation window.

BTM   Firm's book-to-market value at the date of the announcement.

B   Book equity during the earnings announcement.

M   Market equity one day before the announcement date

R_m Daily market index returns

$R_{i,t}$ Daily stock returns

LIST OF ABBREVIATIONS

AR	Abnormal Return
Ask	The average ask price of the stock
Bid	The average bid price of the stock
BidAsk	Bid-ask spread of the stock
B/M	Book-to-Market Value
CONS	Ownership concentration
FAM	Family Ownership
GOV	Government ownership

**PENGUMUMAN PENDAPATAN DAN FAKTOR-FAKTOR YANG
MENENTUKAN PULANGAN ABNORMAL:
KAJIAN KECEKAPAN PASARAN DI PASARAN EKUITI INDONESIA**

ABSTRAK

Isu utama dalam kajian ini ialah bagaimana pasaran bertindak balas terhadap maklumat yang diberikan semasa pengumuman pendapatan dan mengaitkannya dengan pulangan tidak normal. Objektif kajian ini adalah untuk mengenalpasti samada pasaran ekuiti Indonesia (IDX) bersifat kecekapan pasaran separa-kuat semasa pengumuman pendapatan. Kajian ini menggunakan population syarikat tersenarai di Bursa Saham Indonesia semasa pengumuman pendapatan pada tahun berakhir 31 Disember 2018, dan tetingkap acara 30 hari sebelum dan selepas tarikh pengumuman. Kajian ini meneliti samada pengumuman pendapatan memberikan purata pulangan terkumpul tidak normal yang significan semasa sebelum dan selepas pengumuman pendapatan. Kajian ini seterusnya meneliti teori asimetri maklumat (buku ke pasaran dan kesan berita baik dan berita buruk), teori agensi (kepekatan kepemilikan, identiti kelaurga, dan kerajaan) dan kecairan pasaran (jumlah perdagangan dan *bid-ask spread*) pada kumulatif pulangan abnormal. Dapatan kajian ini melaporkan pulangan abnormal yang tidak signifikan sebelum pengumuman pendapatan menunjukkan bahawa kebocoran maklumat tidak berlaku. Kajian menunjukkan bahawa pasaran IDX menangguhkan reaksi ketaranya terhadap keluaran pengumuman pendapatan sehingga dua hari, yang menunjukkan bahawa pasaran tidak cekap dalam menghantar maklumat pengumuman pendapatan kepada pelabur. Penemuan ini juga menunjukkan pemeriksaan pasca-pendapatan yang signifikan sehingga 30 hari, yang menunjukkan adanya anomali terhadap bentuk kecekapan pasaran yang separuh kuat. Oleh itu, kajian menyimpulkan

bahawa pasaran IDX tidak beroperasi dalam bentuk kecekapan pasaran yang separa kuat. Hasil kajian menunjukkan bahawa pasaran bertindak balas ke arah yang seiring dengan kandungan berita baik dan buruk. Namun, ia menunjukkan kepekaan yang lebih tinggi terhadap berita buruk daripada berita baik. Kajian ini juga menyimpulkan bahawa kecairan, yang disebabkan oleh jumlah dagangan dan *bid-ask spread* mempunyai hubungan yang signifikan dengan pulangan abnormal kumulatif, tetapi hanya dalam jangka masa yang dekat dengan tarikh pengumuman. Kajian struktur pemilikan syarikat melaporkan bahawa kawalan agensi juga dapat mempengaruhi kecekapan pasaran dalam kajian ini menyimpulkan bahawa pasaran ekuiti Indonesia tidak beroperasi dalam bentuk kecekapan pasaran separa kuat di syarikat dengan pemilikan tertumpu, keluarga, dan kerajaan, yang ditunjukkan oleh tidak adanya pulangan abnormal yang signifikan semasa pengumuman pendapatan. Berdasarkan penemuan di atas, kajian menunjukkan bahawa regulator pasaran Indonesia dapat mengurangi volatiliti pasar saham dengan meningkatkan mekanisme likuiditas pasar untuk meminimumkan masalah informasi asimetris sebelum dan setelah pengumuman pendapatan. Kajian ini juga mengesyorkan agar regulator Indonesia juga merumuskan peraturan dan lingkungan yang lebih baik untuk pengungkapan maklumat lebih awal, informasi simetris, dan menjatuhkan hukuman khusus kepada syarikat dengan volatiliti pasaran saham yang signifikan selama pengumuman pendapatan.

EARNINGS ANNOUNCEMENT AND FACTORS DETERMINING ABNORMAL RETURNS:
A STUDY OF MARKET EFFICIENCY IN INDONESIA EQUITY MARKET

ABSTRACT

The main issue in this study is how the market reacts to the information provided during the earnings announcement and relates it to the abnormal returns. The objective is to examine whether the Indonesia equity market (IDX) operates semi-strong form of market efficiency during earnings announcements. It uses the population of Indonesia Stock Exchange's listed firms' earnings announcements for the year ended 31 December 2018 and the event windows of 30 days before and after announcement dates. The study examines whether the event provides a significant cumulative average announcement return during the pre- and post-earnings announcements. The study further examines the information asymmetry theory proxied by the book to market, signaling theory– good and bad news effects, agency theory–ownership concentration, family and government ownership, and market liquidity proxied by trading volume and bid-ask spread on the cumulative abnormal returns during the event. The finding reports an insignificant abnormal return in the pre-earnings announcement period, indicating that information leakage is unlikely to happen. The study shows that the IDX market delay its significant reaction to the earnings announcement release up to two days, which indicate that the market is inefficient in transmitting the earnings announcement information to the investors. The finding also exhibited significant post-earning drifting up to 30 days examination, which indicate an anomaly to the semi-strong form of market efficiency. Therefore, the study conclude that the IDX market does not operate in a semi-strong form of market efficiency. Assesment to the changes in book-to-market value illustrate that the market has a higher sensitivity to bad news than good news.

Another assessment to market liquidity proxied by trading volume activity and the bid-ask spread indicate a significant relationship with the cumulative abnormal returns, but only in periods close to the earnings announcement dates. The finding also reports insignificant abnormal returns in the firms with concentrated, family, and government ownership, which indicate information asymmetry in the market due to agency problem. Based on the above findings, the study suggests that the Indonesian regulator may reduce the stock market volatility by enhancing the market liquidity mechanism to minimize the asymmetric information problem in the Indonesia Stock Exchange. The study recommends that Indonesian regulators formulate better rules and regulations to nurture the early information disclosure and impose a specific penalty on firms with significant stock market volatility during earnings announcements.

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Market efficiency hypothesis is an essential concept for understanding the functions of capital markets. Over the last three decades, the subject has become the center of finance research, attracted many researchers' attention, and contributed to corporate finance theory development. Despite several critics and anomalies (e.g., Massey & Thaler, 2013; Malkiel, 2003; Schwert, 2002; Jensen, 1978), many researchers believe that the prices incorporated in the stock market reflected the rapid changes of the information available in the market (Chordia & Miao, 2018; Dimitrov & Jain, 2018; Fama, 1998).

Introduced by Fama et al. (1969), the efficient market hypothesis (EMH) produces valuable evidence on how stock prices respond to information. The study of market efficiency suggests that an ideal market is a market in which firms can make production-investment decisions. Investors can choose among the securities representing their ownership of the firms' activities. The primary assumption is that security prices at any time fully reflect all available information. In other words, a market satisfies information efficiency when new information quickly influences the current stock prices. A later study by Fama and Fisher (1970) suggests three types of market efficiency: weak form, semi-strong form, and strong form. The classification is defined based on the degree of share price response to the stock market information (Yen & Lee, 2008). The market efficiency theory states that the stock returns are serially uncorrelated with a constant mean in their weak form. In other words, a market is in a weak form if its current prices fully reflect all information contained in historical

data but not the public and private. The condition implies that investors cannot devise a trading rule based solely on past price patterns to earn abnormal returns. A market is semi-strong efficient if the stock prices instantaneously reflect any new publicly available information; meanwhile, the strong-form market efficiency prices reflect all types of information, whether available publicly or privately.

This study tests the semi-strong form of market efficiency in the Indonesia equity market (IDX) by taking firms' earnings announcements as the publicly available information. The main issue is investigating how the market reacts to the information provided during the earnings announcement and relates it to abnormal returns. A study on how a particular market reacts to the new information provided during earnings announcements is essential, considering many opposite views regarding the EMH, some of them rejecting it, others supporting it. Several researchers supported the hypothesis and suggested that investors tend to overreact to information which causes the stock price to change abnormally for a short period and back to its fundamental value over time (Parveen et al., 2020; Mackey & Bacon, 2017; Wael, 2004). However, there are also many opposing views to the hypothesis, both empirically and theoretically. They argued that the market could not be perfectly efficient because there might be mistakes in investors' collective judgments, and anomalous behavior may occur in a capital market (Kaestner, 2006; Malkiel, 2003; Hirshleifer et al., 2011). An anomaly happens when the empirical results indicate inconsistent outcomes with the maintained theories (Schwert, 2003), and its presence implies the need to carry out a particular examination to study the evidence and the causes.

In addition to the reasons above, the study also considers the argument of Naseer and Tariq (2015), which stated that theoretical and empirical literature on EMH offers mixed evidence. A study by Sehgal and Bijoy (2015), when assessing the Indian

equity market, reported significant pre-event abnormal returns during the earnings announcement period and rejected the semi-strong form of EMH. Kong and Taghavi (2006) reported a similar pattern in the China market, which documented the market movement several days before the announcement. However, the different tests may provide mixed results even in a similar market like the US. Mendenhall (1991) reported underreacted movement; in contrast, De Bondt and Thaler (1990) document overreaction to earnings announcements. These findings conclude that it is essential to continue the empirical studies in this area to decide whether particular markets are or are not informational efficient (Titan, 2015).

Several studies have examined the semi-strong form market efficiency hypothesis in Indonesia. They assessed the issue from several views, such as merger announcement (Ikram & Nugroho, 2014), economic indicators (Rizkianto & Surya, 2014), warrant listing announcement (Nelmida, 2020), right issue (Pathonah et al., 2021). Other studies investigated it from the view of earnings announcements. Sulistiawan and Hartono (2014) reported that earnings announcements produce market reactions, both before and after the announcement. Muttaqin (2017) reported that the market reacts significantly toward earnings announcements, both for bad and good news. However, Triady and Koesrindartoto (2013) reported that abnormal returns were only for positive surprises but not for firms with adverse reports. These findings indicate mixed evidence about the market; hence, further investigation is relevant.

Lako (2004) argued that empirical studies on testing informational and decisional semi-strong from market efficiency are relatively rare in Indonesia, and continuous study is necessary. Despite few studies examining the issue of market reaction during earnings announcements in the IDX market, this study explores a few gaps leading to further investigation. The primary agency issue which leads to the

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information asymmetry problem is the conflict between firms' management, controlling, and minority shareholders. As the firms' leadership tends to favor controlling shareholders, firms' management may provide information to the controlling shareholder in signals or other clues before the earnings announcement (Shleifer & Vishny, 1986). However, empirical studies that relate agency control to market efficiency during earnings announcements are rarely found in the current literature, especially in the Indonesia equity market context.

In addition to the above, the study considers some empirical studies made to assess the good and bad news information content. Ball and Brown (1968) reported the relationship between the unexpected change in the accounting information and the abnormal changes in stock prices by using three models, namely market models for changes in net income, earnings per share (EPS), and a naive random walk expectations model for EPS. Their study concluded that the market reacts in the same direction as the unexpected change, as reported in the earnings announcement. However, a market is also sensitive to non-financial information and is often less appreciative of the firm's book value as announced during the event. Investors pay more attention to growth stocks as they expect to outperform more than value stocks. Consequently, market values are frequently higher than the book value. The puzzle arises because even though firms periodically announce their book value, the market consistently puts a higher market value than the book value.

1.1.1 Market Efficiency and Abnormal Returns

Fama (1970) defined market efficiency as a condition where stock prices fully reflect all relevant information. The definition implies that new information instantaneously affects the stock price. Considering that the market reacts to new

information and reflects price adjustments (Fama et al., 1969), Fama (1970) explains that abnormal returns occur when a market operates in a less efficient form of market efficiency.

Testing market efficiency from the abnormal returns view offers a robust platform to explain whether the market reacts instantaneously and rationally to the earnings announcement's financial information. Several researchers discussed the importance of earnings announcements on the stock price. Ball (1978) summarizes twenty studies and concludes that systematic abnormal returns exist during earning reports. Moser (1986) suggests that the reported financial statements systematically influence the investors' predictive earning judgment. Ball and Brown (1968) added that earnings announcements may provide new earning surprises leading to stock price adjustments. Other researchers also supported the conclusions by reporting abnormal returns during the earnings announcement (e.g., Sehgal & Bijoy, 2015; Forner et al., 2009). Busse and Green (2001) argue that the stock price reacts within 15 minutes after the news release in an efficient market.

However, the financial information relevant to the stock price valuation also attracted controversies. Several researchers suggested that financial statements outlining past economic conditions cannot expect a firm's future return. In their study, Hirshleifer et al. (2011) disclosed limited investors' attention and the stock market's miss-reaction to accounting information. Bollen et al. (2011) added that free and informal information, such as social media mood, could affect investors' buying decisions, and emotions could profoundly affect individual behavior and decision-making.

Another area is the stocks' tendency to drift continuously toward earnings surprises for several weeks or months after the earnings announcements. These positive (negative) post-earnings announcement drift scenarios may cause price volatility following the earnings announcement. Brown (1968) documented that it may affect the stock prices three months after the reports. The anomaly takes longer in an inefficient market as the investors need more time to digest the information, take advantage of the mispricing opportunities, and eliminate the drift.

1.1.2 Information Content and Earnings Announcements Abnormal Returns

Information provided during the earnings announcement may contain good or bad news on the stock prices. Several studies examined this issue by investigating the relationship between reported earnings and stock prices (i.e., Ball & Brown, 1968; Saleem & Yalaman, 2017). Other studies used earnings per share as the proxy (i.e., Patell, 1976; Hayn, 1995). These studies consistently reported that the market responds to the earnings announcement contents and the stock prices move positively or negatively according to the announcement's direction, either good or bad.

However, a market is also sensitive to non-financial information and is often less appreciative of the firm's book value as announced during the event. Investors pay more attention to stock growth as they expect to outperform more than the value stocks. Consequently, market values are frequently higher than the book value. The puzzle arises because even though firms periodically announce their book value, the market consistently puts a higher market value than the book value. Therefore, this study assesses good or bad news information content from the view of book-to-market changes. It suggests the model considering that besides the net earning, this assessment also includes the changes in all equity accounts, current market value, and other

valuation factors affecting price adjustments following the earnings announcements. Therefore, the upward changes in book-to-market may be considered the good news, and vice versa, the downward as the bad news indicator. Information provided during the earnings announcement may contain good or bad news on the stock prices. Several studies examined this issue by investigating the relationship between reported earnings and stock prices (i.e., Ball & Brown, 1968; Saleem & Yalaman, 2017). Other studies used earnings per share as the proxy (i.e., Pattel, 1976; Hayn, 1995). These studies consistently reported that the market responds to the earnings announcement contents and the stock prices move positively or negatively according to the announcement's direction, either good or bad.

A book-to-market represents the gap between accounting value and market value. A high market-to-book or a low book-to-market ratio indicates that investors pay more attention to future earnings expectations (Penman, 1996) than the reported earnings announcement. Investors may view the report as a historical value than growth opportunities and changes in the investors' required rates of returns (French & Poterba, 1991). This view implies that investors may consider that the book value reported during earnings announcements is irrelevant to the stock prices.

In addition to the above reason, the market may neglect book value on stock pricing development due to the bias and lag reasoning (Beaver & Ryan, 2000). They argued that the book value bias might happen due to the combined effects of accounting standards and the economic environment. They suggest that the book value lags when book value recognizes unexpected future incomes over time rather than immediately, indicating that the book-to-market ratio is temporarily lower (higher) than its mean. These parameters can reduce investors' attention to the importance of

book value in the firms' valuation and the basis of their investment strategy consideration.

Several studies have investigated the relationship between book-to-market value to stock prices. Fontiff and Schall (1998) suggest that book-to-market can predict future returns. Fama and French (1995) explain that a high book-to-market signal of poor stock earnings, while a low one indicates strong earnings. However, these studies did not test this issue in the specific earnings announcement context. Correspondingly, another study area is the relationship of book-to-market value to abnormal returns during earnings announcements.

When an earnings announcement formally declares the firm's book value, rationally, investors compare the market price to the reported book value, adjust the stock price following the book value changes, and an earnings announcement abnormal return will likely happen. However, Lev and Gu (2016) claimed that financial reports have become less valuable and relevant to capital market decisions. This consideration leads this study to test the relationship between book-to-market value changes on abnormal returns during the earnings announcement to examine whether the good or bad news provided during the earnings announcement affects stock prices.

1.1.3 Ownership Structures and Earnings Announcement Abnormal Returns

Faulkender and Petersen (2012) argued that firms' capital sources associate with firms' characteristics. Siregar and Utama (2008) supported the argument by stating that ownership structure might create an imbalance in access to the firm and relates it to the earning management. Jiang et al. (2011) reported that the shareholders' composition positively correlates with information asymmetry observed around an

earnings announcement. Hence, this study suggests that a specific type of ownership may formulate a different market efficiency level. This study assumes that firms' ownership structures and characteristics influence the market reactions toward earnings information. It addresses that different ownership types might cause different market responses to the earnings announcement due to several information asymmetry issues.

The studies of ownership structure and its effect on abnormal returns during earnings announcements are relatively limited. Akerlof (1970) suggests that information asymmetry is essential in the pricing issues leading to stock returns. Jiang et al. (2011) stated that in an emerging market, where information asymmetry is higher due to higher ownership concentration, investors could make private gains by having special access to the inside information. Their finding may indicate that earnings announcements in firms with concentrated ownership no longer provide new information to the market, as shareholders have had access to the firms' financial information long before the earnings announcement.

Another study by Leano and Pedraza (2018) suggests that ownership concentration reduces stock trading activities. In a similar context of block ownership, Brockman et al. (2009) concluded that there would be a lack of trading in firms with block ownership. In this scenario, the market where ownership concentration prevails will become less liquid, hinder trading effectiveness, and affect the stock pricing equilibrium. Therefore, earnings announcements and ownership concentration will provide a platform for studying abnormal returns during earnings announcements.

This issue is becoming more attractive as a high-concentration control structure portrays higher information asymmetry (Byun et al., 2011), a wider bid-ask spread, and a lower trading volume (Jacoby & Zheng, 2010). The literature argues that earnings announcements reduce information asymmetry and the bid-asking spread (Yohn, 1998). However, Fan and Wong (2002) suggested that agency conflict between large controlling and minority shareholders reduces earnings informativeness as ownership concentration prevents the leakage of important information to the public. Therefore, looking at abnormal returns against concentrated ownership issues is interesting.

Besides share concentration issues, another issue is how ownership identity will affect earnings announcement returns. This study assumes that different ownership identities of family and government ownership have specific characteristics and challenges. Therefore, different ownership types might cause unique market behavior toward market efficiency. In an emerging market like East Asia, family ownership controls more than two-thirds of market shares (Claessens et al., 2000). Family owners are typically associated with family legacy and hold shares for a relatively long period (Jabeen & Shah, 2011). Compared with non-family firms, family firms can follow firms' strategies through difficult circumstances and over periods because of their knowledge and long-term investment view (Stein, 1988).

However, firms with significant family control tend to disclose less information and increase information asymmetry (La Porta et al., 1998). Family members or relatives generally hold positions in top management and on the board (Chen et al., 2008) to maintain their family interests. This type of firm is often associated with less effective leadership and a lower level of professionalism (Martínez et al., 2007). They tend to hire management and employees because of their

family relationships (Kellermanns & Eddleston, 2004). Family firms obtain a private gain from the firms and the market at the cost of other minority interests by having special access to the inside information (Fama & Jensen, 1983; Doidge et al., 2009). Consequently, as the controlling party of the firms, family owners are perceived to report accounting information for their interests, which will reduce information credibility to outside investors (Fan & Wong, 2002).

Another ownership identity that might have specific characteristics is government ownership. Unlike private ownership firms, government-owned firms, commonly known as State-owned Enterprises (SOEs), are considered unique, as government stakeholders are not necessarily committed to value maximization. SOEs may act from commercial considerations or have non-commercial priorities (Kowalski et al., and Egeland, 2013). Dewenter and Malatesta (2001) perceived SOEs as less efficient, less profitable than private firms, hiring politically connected management than the qualified (Krueger, 1990), and tend to be overcapacity (Boycko et al., 1996).

The literature also argues that government-controlled firms' market reaction depends on the market's trust level in a particular country's government. Dewenter and Malatesta (1997), when comparing the market reaction during the IPO, revealed that SOEs in the United Kingdom underpriced IPOs significantly more than private firms. However, the study reported the opposite result in Canada and Malaysia. Another study by Bailey et al. (2004) compared the trading patterns during the earnings announcement of China, Indonesia, and Singapore. They concluded that the results are subject to a particular country's political environment. From that perspective, this study tests the significance of abnormal returns post-earnings announcements in firms with Indonesian government ownership.

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1.1.4 Market Liquidity and Earnings Announcement Abnormal Return

Market liquidity and market efficiency are not compatible (Bernstein, 1987). However, various arguments and empirical evidence have suggested that market liquidity closely relates to financial market efficiency. Chordia et al's study (2008) revealed that liquidity facilitates efficiency by accommodating the order flow.

An efficient market illustrates a liquid market with a high trading volume and value and reflects stock activities (Fama & Fisher, 1970). Investors are concerned about market liquidity because illiquid security involves a higher price to buy and a lower price to sell. A liquid market enables investors to fund investments that require a long-term commitment to wealth while retaining the opportunity to access that wealth when needed. On the other hand, when markets are less liquid, the bid-ask spread will be more expansive, and investors cannot buy and sell at a small price concession (Foucault et al., 2013).

Market liquidity refers to a financial market's ability to absorb large trades without causing excessive price movements. A capital market is liquid when agents can sell or buy with little price spread (Johnson, 2007) and a narrow bid-ask spread (IOSCO Emerging Markets Committee, 2007). In a liquid market, the flow of funds is faster, and capital resource mobility is sufficient for investors' interest. Hence, a capital market sees market liquidity from the view of trading volume and trading frequency.

The International Organization of Security Commission (IOSCO) Emerging Markets Committee (2007) report states that market liquidity is crucial to the financial system's stability as a liquid market can better absorb systemic shocks. For instance, a liquid market can cushion the price volatility of sudden shifts in the investors' risk

appetite. Consequently, this helps limit the potential adverse knock-on effects on the rest of the financial and broad economies.

Investors need a liquid market. Holden et al. (2014) said that stock market liquidity has significant consequences for actual economic activities and financial stability. They argued that low stock market liquidity might increase the cost of equity and induce high leverage by increasing the prices. The condition discourages equity activities as the stocks are difficult to trade, increasing the risk that equity valuations may become less aligned with the fundamentals. A liquid market provides fair trading opportunities for buyers and sellers. In contrast, the less liquid market implies information asymmetry and abnormal returns to the buyers and sellers who possess additional information.

The fundamental issue of market liquidity is information asymmetry. As information becomes publicly available during an announcement, it reduces private pre-announcements, and therefore stock price volatility and trading volume would increase significantly during the earnings announcement period (Sehgal & Bijoy, 2015). In a study involving 46 countries, Barber et al. (2013) concluded that uncertainty over the earnings announcement would lead to earnings premiums. Ma et al. (2018) provided evidence that market liquidity plays a vital role in affecting market volatility and stock returns throughout the sample of firms in 41 countries. Other studies have examined the effect of liquidity on stock market returns (Faff et al., 2010; Narayan & Zheng, 2011). Jun et al. (2002) used data for 27 emerging equity markets between January 1992 to December 1999 and documented that stock returns in emerging countries were positively correlated with aggregate market liquidity as measured by turnover ratio, trading value, and turnover. Similarly, Amihud (2002) reconfirmed this conclusion by reporting a significant relationship between liquidity

and expected stock returns, even in the presence of size, beta, and momentum. Hasbrouck (2006) said a negative relationship between liquidity volatility and the expected returns, and investors require higher returns to cover the risk.

Several studies examined the stock price movement during earnings announcements (Morse, 1981; Cready, 2010; Palmrose et al., 2004), which consistently disclosed that stock prices react to the earnings announcement. Most studies focused on the stock prices in a short window around event dates and widely used stock prices as a reliable indicator of firms' value (Bartov & Bodnar, 1994). However, before the market establishes price equilibrium (Fama, 1970), its response to the earnings announcement will be first reflected in trading volume (Kim & Verracchia, 1994; Pagano, 1989; Chordia & Subrahmanyan, 2001) and bid-ask spread (Roll, 1984; Amihud, 1989; Lee, 1996). This premise provides a platform to measure market liquidity's relationship to abnormal returns during earnings announcements.

The advantage of using trading volume indicators compared to other parameters in investigating earnings announcement returns is capturing the stock market reaction (Haw et al., 2000) in the form of trading quantities or values. Kim and Verachia (1991) proposed an unusual amount of trading volume around an earnings announcement reflecting the event's market reaction. They argued that earnings announcement changes market beliefs and induces traders to execute the trading transaction. Investors adjust their position based on the private prior information and respond differently to the report, which leads to positive or negative trading volume. Similarly, Holthausen and Verrecchia (1990) said that trading volume arises due to differences in interpreting the announcement across traders.

Another market liquidity indicator is the bid-ask spread (Amihud, 1986). The bid represents the price the market is willing to buy, while the ask is the price the market is ready to sell. In other words, this study views market reaction from the supply and demand perspective by which the selling and buying prices react quickly and establish a new price equilibrium (Jacoby et al., 2000). Pastor and Stambaugh (2003) agreed with the above conclusion and suggested that expected stock returns are cross-sectionally related to liquidity risk. Chordia et al. (2005), who performed empirical analyses on stock and bond market liquidity, confirmed that market liquidity and stock price volatility positively and significantly correlated across stock and bond markets. In other words, as market liquidity suggests, bid-ask prices facilitate stock price movements, leading to the determination of stock returns.

1.2 Problem Statement

Nasser and Tariq (2015), when providing a critical review of EMH literature, conclude that there are scattered pieces of evidence of stock price movements inconsistent with the market efficiency theory. This review shows that studies on earnings announcements and abnormal returns provide gaps, anomalies, and inconsistencies in several areas, which opened up further investigation. Therefore, a specific investigation to examine the pattern of market return surrounding earnings announcements in the Indonesia equity market is necessary, considering that Indonesia is developing its capital market regulation to ensure stability and attractiveness to its investors.

A few issues in the Indonesia financial market lead to the study. **First,** how financial information relevant to the stock price valuation still attracted debates by which researchers are divided. Several researchers argued and suggested that financial

statements outlining past economic conditions cannot expect a firm's future stock return (Hirshleifer et al., 2011; Lev & Gu, 2016; Bollen et al., 2011). On the other hand, other researchers suggested the importance of earnings announcements and assumed that historical data provided by the accounting information could predict stock performance (Dougal et al., 2012; Moser, 1986).

Previous empirical outcomes on market reactions to earnings announcements show mixed evidence and inconsistencies. Husnan, Hanafi, and Wibowo (1996) conducted a study to see the impact of financial statement announcements on the variability of the rate of return in the Indonesia equity market and reported no significant effect of financial statements on the variability of the rate of return. On the other hand, research conducted by Docking and Koch (2005) shows that the market is experiencing high volatility in its stock price during earnings announcements, indicated by the high standard deviation of market returns and the low average market return.

Ineffective disclosure or weak reporting could affect share prices during earnings announcements. Over the years, the Indonesia capital market has illustrated inconsistency and volatility in transaction value and trading volume, indicated by the fluctuations in trading volumes from 2012 to Q2 of 2019 (Research and Development Division of Indonesia Stock Exchange, 2019). These could be primarily due to the information transmission between firms and shareholders (provide details). From this perspective, the study on earnings announcements could address the issue of public information and market efficiency. The issue of earnings announcement in Indonesia were addressed by Sulistiawan and Hartono (2014), Muttaqin (2017), and Triady and Koesrindartoto (2013), who examined the abnormal return during post-earnings

announcement periods. Despite the above studies, pre-earnings announcement studies are still limited for the Indonesian market.

According to market efficiency theory, the information provided during a specific event quickly affects stock prices (Fama et al., 1969). By referring to this standard definition, the stock market's stock prices are reflected soon after the market information during the earnings announcement. However, information asymmetry issues may lead to an irrational response to market prices. Information leakage in the form of a signal or other clues may happen before the announcement, leading to pre-earnings announcement abnormal returns. When the market realizes the earnings announcement before the earnings announcement, the news provided from the earnings statement is no longer new, and abnormal returns shall not occur after the event.

Second, besides the earnings announcement itself, another open area measures the earnings announcement's information on the stock prices, either good or bad news. In reviewing the market efficiency issue, Ball and Brown (1968) used three models: market models for changes in net income, earning per share (EPS), and the naive random walk expectations model for EPS, as the proxy of the good or bad news information content of an earnings announcement and concluded that the market reacts in the same direction as the unexpected change, as reported in the reported earnings announcement. This model focuses on performance indicators but does not consider the equity account changes due to other factors, current market value, and other valuation factors affecting price adjustments following the earnings announcements. Therefore, this study suggests using book-to-market value changes to proxy the earnings announcement information content using upward changes as the proxy of good news and downward as the bad news indicator.

The market may see market efficiency differently from a book-to-market perspective. The puzzle arises because even though firms periodically announce their book value, the market consistently puts a higher market value than the book value, which indicates that investors pay more attention to the growth stocks as they expect to outperform more than the value stocks. Lev (2001) reported that the average book-to-market value ratio for the S&P 500 index firms ranged from around 0.5 to 0.29, implying that investors paid 2.0 to 3.5 of the net assets worth stated in the book value. This ratio increased from 3.5 to 7.5 during the technology boom period from 1996 to 2000. Hulten and Hao (2008) made it more complicated by presenting more exciting puzzles. According to their tables, a $1 increase in the book value of equity increases market value by an expected $3.59.

The above facts imply that book value changes differ from market value changes. Following the pattern, the Indonesia equity market statistical report of June 2018 documented a ratio of market-to-book value of 2.65, which implies that investors had paid Rp. 2.65 for each rupiah of the net assets stated in the book value (IDX Research and Development, 2018). In other words, the stock prices in Indonesia stock equity had significantly grown above the firms' book values, indicating that investors in the market pay more attention to the expected future returns than to the accounting valuation.

Another IDX report reveals an increase in book value of 0.44% from Q3 to Q4 of 2018, followed by an increase in the market value of 7.72% (IDX Research and Development, 2019). The ratio implies that an increase of Rp. 1 in book value in the IDX market may lead to Rp. 16.43 of the market value. This ratio is even bigger than Hulten and Hao's (2008) finding, which reported that a $1 increase in the book value of equity increases market value by an expected $3.59 in the US market. That

information implies that changes in book value may cause more significant changes in market value. Therefore, this examines how the IDX market identifies changes in book-to-market value indicate stock market mispricing (Farhi & Panageas, 2004) and relates it to the market efficiency theory.

Third, the primary agency issue which leads to the information asymmetry problem is the conflict between firms' management, controlling, and minority shareholders. As the firms' leadership tends to favor controlling shareholders, firms' management may provide information to the controlling shareholder in signals or other clues before the earnings announcement (Shleifer & Vishny, 1986). However, empirical studies that relate agency control to market efficiency during earnings announcements are rarely found in the current literature, especially in the Indonesia equity market context.

A study by Jiang et al. (2011) stated that in an emerging market like Indonesia, where information asymmetry is higher due to higher ownership concentration, investors could make private gains by having special access to the inside information. However, this study needs to address the issue from the earnings announcement perspective explicitly. When a particular investor can access the financial information before the earnings announcement, the earnings announcement is no longer new to the market. Therefore, the earnings announcement may provide no significant unexpected news to the shareholders. Accordingly, this study assumes that market reaction to the earning information may vary based on the firm's ownership structure and examine the market efficiency from share concentration, family, and government ownership view.

Fourth, Indonesia's market is often classified as less liquid (Andrianto & Mirza, 2016; Ikram & Nugroho, 2014), where market anomalies might frequently

occur. Rowter (2016) includes market liquidity as one of the main issues in the IDX market. According to his report, market liquidity in the market is low, with only 0.14% of market capitalization daily trading in 2015. However, a survey by Rhee and Wang (2009) analyzed data from January 2002 to August 2007 and reported that the Jakarta Stock Exchange's liquidity improved substantially, with more than half of the average bid-ask spread and more than double the average depth.

A study on the US capital market by Kim & Verracchia (1994) disclosed that more information asymmetry occurred during earnings announcements, which increases bid-ask spreads, suggesting that market liquidity decreases at an earnings announcement. However, Listiana and Prabowo (2011) reported different outcomes in the IDX market. Their study, which examined the abnormal return, abnormal volume, trading volume, and effective bid-ask spreads by event study methodology for 28 quarterly earnings announcements, reported an insignificant difference in bid-ask spread surrounding the interim earnings announcement release. Therefore, this study sees the relationship of market liquidity to earning abnormal announcement returns in the annual earnings announcement as an open area for an investigation to explore more empirical evidence on the issue.

1.3   Research Questions

Based on the problem statements, this study tests Indonesia's market efficiency from the earnings announcement perspective and formulates the following research questions.

i.   Is there any abnormal return on the Indonesia equity market pre and post-earnings announcements?

ii. How does the book-to-market effect influence abnormal returns post-earnings announcements?

iii. How do the agency problems by way of ownership structures influence the abnormal returns post-earnings announcements?

iv. How does market liquidity affect abnormal returns post-earnings announcements?

1.4 Research Objectives

Following the research questions, this study formulates the following research objectives.

i. Assess the existence of abnormal returns pre- and post-earnings announcements in the Indonesia equity market.

ii. Examine the influence of the book-to-market effect on the existence of abnormal returns post-earnings announcements.

iii. Examine the agency problems' impact by way of ownership structures on the abnormal returns post-earnings announcements.

iv. Examine the relationship between market liquidity and abnormal return post-earnings announcement.

1.5 Significance of the Study

This study examines the stock market efficiency during earnings announcements, specifically in Indonesia's equity market, an emerging market with a more volatile stock market among its Southeast Asia counterparts. Although few

studies have been addressing the issue in the IDX market, this study provides contributions and uniqueness to the literature in the following areas.

1.5.1 Theory Perspective

This study explores how agency theory may relate to the market efficiency theory from the earnings announcement perspective, which is rarely discussed in previous studies. It examines the impact of high share concentration, family, and government ownership on abnormal earnings announcement returns, particularly in Indonesia's equity market. In other words, the study compares the abnormal returns from the asymmetric information theory due to ownership structures. Information asymmetry explains that specific ownership structures may have better access to the firms' information as they have authority over firms' management to access the data before the earnings announcement. When a particular investor can access the financial information before the earnings announcement, the earnings announcement is no longer new to the market. Therefore, the earnings announcement provides no significant unexpected news to the shareholders.

In addition to the above contribution, this study recognizes that existing studies have examined market efficiency from the view of the earnings announcement. In reviewing the market efficiency issue, Ball and Brown (1968) used three models: market models for changes in net income, earning per share (EPS), and the naive random walk expectations model for EPS, as the proxy of the good or bad information content of an earnings announcement. However, this study suggests using book-to-market value changes to proxy the earnings announcement information content using upward changes as good news and downward as the bad news indicator. It suggests the model considering that besides the net earning, this assessment includes the movements in all equity accounts, current market value, and other valuation factors

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affecting price adjustments following the earnings announcements. Therefore, this study shows whether the market is rational to the earnings announcement contents proxied by book-to-market value and adjusts the price according to their direction.

1.5.2   Practical Perspective

The study examines the stock market efficiency during earnings announcements, specifically in Indonesia's equity market, an emerging market with a more volatile stock market than its Southeast Asia counterparts. The outcomes help the investors, firms' management, regulators, and other researchers understand market behavior and trading in an emerging market, specifically in the Indonesia equity market. The finding provides input to investors concerning the risks and opportunities at earnings announcements. It provides valuable insights and recommendations to firms' management as the primary agency to understand the stock price movement in response to their reported financial information during earnings announcements. The study also references other academicians and future researchers on earnings announcement issues.

1.6   Definition of Terms

Abnormal returns: An abnormal return is a difference between the expected return and the stock's actual return during a specific event (Strong, 1992).

Cumulative average abnormal returns: A cumulative average abnormal return (CAAR) is the average sum of abnormal returns during a specific event (Adnan & Hossain, 2016).

Agency theory: Agency theory is a theory that explains the relationship between principals and agents in the business (Samsudin & Ismail, 2013). In this study, the

principal is the shareholders as the firm's legal owner, while the agent is the firm's management as the legal executor of the firm's decisions.

Earnings announcement: An earnings announcement is an official public announcement of the firm's financial statements for a specific period (Chambers & Penmann, 1984). This study uses the year-end report for its measurement.

Event study: An event study examines stock return behavior during a particular event window (Dyckman et al., 1984).

Indonesia Stock Exchange (IDX): Indonesia Stock Exchange (Indonesian: *Bursa Efek Indonesia*) is a stock exchange based in Jakarta, Indonesia.

Information asymmetric theory: Asymmetric information theory is the theory that explains that transaction failure may happen due to asymmetric information in a market (Akerlof, 1970). Asymmetric information occurs when one party to an economic transaction possesses more material knowledge than the other party.

Market efficiency: Market efficiency refers to how market prices reflect all available information. If markets are efficient, stock prices quickly incorporate information; hence there is no way to outperform the market because no mispricing is available in the securities (Fama, 1970).

Market efficiency—weak form: A weak form of market efficiency is a market in which stock prices already reflect all historical public information (Fama, 1970). Historical prices cannot predict future prices in weak-form efficiency, meaning no pricing patterns.