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Initial Effects of Mandatory XBRL Adoption Across The Indonesia Stock Exchange's Financial Information Environment

Abstract

This research aims to investigate the initial effects of mandatory eXtensible Business Reporting Language (XBRL) across the Indonesia Stock Exchange's financial information environment. Financial information environment is measured by event return volatility, absolute cumulative abnormal return, change in standard deviation of returns, abnormal bid-ask spread, and abnormal trading volume. Comparing the effects of pre- and post- XBRL period, we provide evidence that there is no significant implication in the first year of XBRL adoption. It is showed that event return volatility, changes in the standard deviation of returns, and abnormal bid-ask spread was not reduced in the post- XBRL period. On the other hand, it was able to intensify the stock trading volume which noted by the increased abnormal trading volume after mandatory XBRL policy was enacted.

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Abstrak

Riset ini bertujuan untuk meneliti implikasi awal pengadopsian eXtensible Business Reporting Language (XBRL) *secara mandatory terhadap lingkungan informasi keuangan di Bursa Efek Indonesia. Lingkungan informasi keuangan diukur dengan variabel* Event Return Volatility, Absolute Cumulative Abnormal Return, Change in Standard Deviation of Returns, Abnormal Bid-Ask Spread, *dan* Abnormal Trading Volume. *Dengan membandingkannya antara periode sebelum dan sesudah* XBRL, *kami menemukan bahwa* XBRL *di Indonesia pada tahun pertama belum memberikan implikasi yang signifikan terhadap peningkatan kualitas lingkungan informasi keuangan. Hal tersebut didukung dengan tidak direduksinya* Event Return Volatility, Change in Standard Deviation of Returns, *serta* Abnormal Bid Ask Spread. *Akan tetapi* mandatory XBRL *di Indonesia mampu mengintensifkan aktivitas perdagangan saham dimana variabel* Abnormal Trading Volume *meningkat setelah kebijakan* XBRL *diberlakukan.*

Kata Kunci: *Lingkungan Informasi; Implikasi Awal; Kewajiban Teknologi Pelaporan;* XBRL

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Increasingly the dynamics of the business development reveals a phenomenon that the "IT transition" is a challenge that must be faced by the companies today. It`s impossible for winning the business competition if the companies are not using an IT in their business activities. Based on the context of information flow, world wide web dominant used by the companies today because it is very fast, reach wider, saving time and cost (Debreceny & Gray, 2001; Lymer & Debreceny, 2003). Furthermore, the information on the Web also designed for human review (Yoon, Zo, & Ciganek, 2011),then unidentifiable customers can process such information which indicates the information distribution is extended (Momany & Alshorman, 2006), and the information is more dynamic with the audio & video features built-in (Debreceny, Gray, & Rahman, 2002). However, various advantages of the web are still not much different with the traditional content (paper-based), because web information is just a "digitation" process of the printed document information (Perdana, 2011).

Each company has different information system so that the data output also containing various file format data. It gives the difficulties to the information distribution process (Perdana, 2011). Consequently, stakeholders must convert the data format before it is ready to be used. Converting process is based on the personal data interests of each stakeholder.

XBRL (eXtensible Business Reporting Language) is an XML (eXtensible Markup Language) for the business purposes (Perdana, 2011). XBRL is a computer-readable language that wraps the business data. If the computer recognizes them, it can exchange the business data and will enhance the stakeholder's analysis (Hoffman et al., 2010; O'Riain, Curry, & Harth, 2012). XBRL is like a barcode on every account within the element of the financial statement. Thus, the presented data becomes more interactive.

XBRL characterized as a universal data platform. Using XBRL, data uniformity can be achieved with the minimal efforts (Kim, Lim, & No, 2012), reducing the manual process so the users just focus on the analysis tasks (Apostolou & Nanopoulos, 2009), and enhancing the disclosures quality that impact to the decision accuracy (Chowdhuri et al., 2014; Efendi, Park, & Subramaniam, 2016). The presence of XBRL gives positive expectations on improving the financial information quality.

The Indonesia Stock Exchange (IDX) designed XBRL taxonomy in 2013, socialized in 2014, and the mandatory implemented by the third quarter of 2015 (Amran, 2015; Izzalqurny, 2016). We argue that it is a courageous policy. On the other hand, United States initiated XBRL Voluntary Filing Program (VFP) since 2005-2009 before the mandatory policy was executed (Bartley, Chen, & Taylor, 2011). In addition, Canada, Malaysia, Scandinavian Region, and the European Capital Market Authorities (ESMA) experiment the XBRL first, tested the errors level, and weighed the costs and benefits of XBRL adoption over the long voluntary period (Yoon, Zo, & Ciganek, 2011; Li, Ni, & Lin, 2012; Ilias & Ghani, 2015; Nitchman, 2016; Liu, Luo, & Wang, 2017, Tohang & Lan, 2017).

It can be concluded that Indonesian XBRL is implemented in a short time. There are little chances for the listed companies to tried XBRL voluntarily. Furthermore, Rahwani, Sadewa, & Andriani (2015) stated XBRL taxonomy in Indonesia is inconsistent with the Indonesian Generally Accepted Accounting Principles (GAAP/PSAK) No. 101 that companies which using sharia-based funding will have difficulties when submitting the XBRL-based balance sheet, especially on temporary *syirkah* fund (*musharaka*) account. Thus, XBRL in Indonesia can improve the financial reporting quality is still an empirical question that needs to be further investigated.

Good financial reporting quality implicates good information provided. This condition is better for decision making by investors. Qualified accounting information will reduce one of the common problems in agency cases, that is information asymmetry (Krismiaji, Aryani, & Suhardjanto, 2016). There are strong correlations between XBRL technology adoption and minimizing information asymmetry. Previous studies provide mixed results between the mandatory and voluntary XBRL adoption context. In the context of voluntary, XBRL can reduce the information asymmetry (Tan & Shon, 2009; Efendi, Park, & Subramaniam, 2010). The companies which published the XBRL-based reporting also signaling the superiority of corporate governance (Premuroso & Bhattacharya, 2008; Alles & Piechocki, 2012). On the mandatory context, XBRL can improve the quality of financial information environment and to increase the decision accuracy among the users (Yoon, Zo, & Ciganek, 2011; Kim, Lim, & No, 2012; Bai, Sakaue, & Takeda, 2014; Efendi, Park, & Smith, 2014). Yoon, Zo, & Ciganek (2011) specified that information asymmetry reduction is greater for large-scale enterprises than the S&M enterprises in South Korea.

In contrast, Blankespoor, Miller, & White (2014) argue that information asymmetry is increased over the post-mandatory XBRL in the first year period. Large investors are familiar with similar high technology than small investors. The presence of mandatory XBRL in the U.S. widens the gap of information among investors. Thus, the context of mandatory XBRL results in inconsistent findings.

Mandatory XBRL requires greater costs than voluntary context (Li, Ni, & Lin, 2012). But the magnitude of these costs compensated instability of the new technology adoption (Liu, Luo, & Wang, 2017), as well as no impact on the progress of company's internal processes at the beginning of implementation (Dzinkowski (2008) in Bai, Sakaue, & Takeda, 2014). Even the accountants and financial analysts have not fully mastered with XBRL (Hannon, 2004).

Its implication is very complicated and complex, there are few major errors, but many minor errors and the company with over large extensions reduces the quality & comparability of XBRL-based information (Debreceny et al., 2010; Bartley, Chen, & Taylor, 2011; Roohani & Zheng, 2013).

IDX preferred mandatory XBRL policy for the listed companies in a relatively short time adoption is still a heated debate. Although the Board of Commissioners of the Financial Services Authorities (OJK) stated that XBRL is one of the 15 main strategies of national economic development (Nitchman, 2015), it needs to be re-examined that how XBRL works for national economic and its initial implication after this policy was enacted. Afterward, this discussion resulting evaluations for IDX.

Nevertheless, we believe this paper will contribute greatly because Indonesia is one of the leading countries adopting XBRL in ASEAN. The empirical results in this paper could be potential to be a reference for other ASEAN countries before implementing the XBRL-based financial reporting policy.

The benefit of this paper is to examine whether IDX's mandatory XBRL policy has succeeded in improving the quality of the financial information environment in the capital market. By comparing the various measurements between pre- and post-XBRL, it can be seen how the initial implications occur.

This paper is structured with the following stages: the next section will be discussed about the literature review and development of hypotheses. The third section presents the data obtained, the variables, and the regression analysis model used. Section four and fifth, we discuss the results of research and conclusions.

HYPOTHESES DEVELOPMENT

A good financial information environment reflects an efficient capital market. There are four ideal conditions to achieve it (Haugen, 1997): (1) the existence of an active-rational investors; (2) infor-

mation is freely available, fast, and small cost to obtain it; (3) information is random & unaffected by other announcements; and 4) quick investor's response after new information is announced.

Financial information environment quality is closely related to the level of information asymmetry. To measure it, Kim, Lim, No (2012) using event return volatility, information efficiency, & change of standard deviation of daily stocks proxies. While Bai, Sakaue, & Takeda (2014) using five proxies, event return volatility, absolute cumulative abnormal returns, change of standard deviation of daily stocks, abnormal bid-ask spreads, and abnormal trading volume. On the other hand, Yoon, Zo, & Ciganek (2011) measured information asymmetry with relative spreads proxy, then Liu, Luo, & Wang (2017) using liquidity proxy.

According to Penler (2003) in Perdana (2011), XBRL can present detailed & transparent information, reducing information cost, and minimizing manual process for specific data purposes. SEC (2009) also believes that XBRL provides rich interactive data, uniform data due to standardized taxonomy, so the data becomes easy to compare. Thus, the value information of XBRL-based reporting is increased than conventional models.

Event return volatility (ERV) describes the range of distribution or dispersion on the absolute arithmetic value of abnormal returns during the event period. The higher accessibility and value of information will reduce the market uncertainty as well as minimizing the systemic risks in the capital market. XBRL information makes the data equally distributed, the value of information quality is increasing, and the uncertainty of information at each submission date can be reduced (Heflin, Subramanyam, & Zhang, 2003; Kim, Lim, & No, 2012). Thus, we believe that ERV in the post-XBRL is smaller than before.

H$_1$:   mandatory XBRL's financial reporting negatively affects the event return volatility

The presence of mandatory XBRL in Indonesia is interesting to analyze because previous research in the mandatory context resulted in inconsistent findings. Investors will be easy with XBRL but to get the benefits, it will take some cost like learning and training costs to master an XBRL technology.

There are two possibilities. First, large investors are familiar with similar the analytical technology; maybe they are not so interesting to use XBRL. Thus, the reduction of information asymmetry depends on the willingness of small investors using XBRL technology. Second, large investors with a wealth of information owned, the emergence of XBRL will further shape the superiority of information. If this case occurs, small investor will be more inferior, especially they reluctant to invest time and cost to learn XBRL technology.

The gap between large and small investors shows the distribution of information levels. The bigger gap means, the higher information asymmetry. Hodge, Kennedy & Maines (2004) andJanvrin, Pinsker, & Mascha (2011) argue that non-professional investors can not directly get the XBRL benefits even though XBRL itself has increased information transparency. However, according to Pinsker & Wheeler (2009), non-professional investors who are willing to learn XBRL are believed to be more accurate perceptions of analysis than traditional investors. XBRL is transparent and interactive. We believe that investors are going to use it so that the gap can be reduced. If XBRL is used, the information will spreads evenly at once reducing the gap between them (Heflin, Subramanyam, & Zhang, 2003; Kim, Lim, & No, 2012; Bai, Sakaue, & Takeda, 2014). Then the second hypothesis that can be compiled is:

H$_2$:   mandatory XBRL's financial reporting negatively affects the absolute cumulative abnormal return

In the voluntary context, investors and companies can learn and apply an XBRL in a sustainable and comprehensive way. Proven by previous studies, the stock exchange in several countries have designed, compiled, tested, and refined XBRL taxonomy to become complete and ready to use. Indonesia's XBRL taxonomy that has been compiled since 2013 but still limited to the basic taxonomy: (1) taxonomy of financial statements consisting of the statements of financial position, income statement, statement of changes in equity, & cash flow statement; (2) taxonomy of disclosures that are being expanded in the form of notes to the financial statements, disclosure obligations, & corporate actions information (IDX Taxonomy, 2014). Although XBRL's mandatory policy has been rolled out, only the taxonomy of financial statements (No.1) could be used by issuers.

Whether Indonesia's XBRL which only uses basic financial statement taxonomy affects the frequency of information distribution in the capital market is still an empirical question that needs to be further investigated. However, Kothari, Li, & Short (2009), Kim, Lim, & No (2012), and Bai, Sakaue, & Takeda (2014), states that if the company discloses information dynamically, informatively, and interactively, it will going to reduce market uncertainty. Reduced market uncertainty leads to minimize extreme stock return deviations.

The change in Standard Deviation of the Daily Stock Return (STDEVRET) describes the difference in standard deviation of stock returns at 30 days after the submission date by 30 days before the submission date. The value of this difference reflects the frequency of information distribution at each submission date. The announcement of new information has the potential to cause market turmoil. Smaller STDEVRET means lower information asymmetry (Kim, Lim, & No, 2012; Bai, Sakaue, & Takeda, 2014).

Disclosure taxonomy in Indonesia not yet is applied although the mandatory XBRL has rolled out since the third quarter of 2015. However, we believe that XBRL-based financial reports can reduce market uncertainty because XBRL is a dynamic technology, transparent, interactive, high interoperability, and produces data uniformly. Thus, XBRL expected to reduce market uncertainty, where the STDEVRET value in the post-XBRL is smaller than the pre-XBRL period. The third hypothesis that can be compiled is:

H_3: mandatory XBRL's financial reporting negatively affects change in standard deviation of daily stock return

Mandatory XBRL requires a large amount of time and cost. Mandatory XBRL is an official reporting business that must be timely issued. Mandatory XBRL is different from voluntary XBRL because it is seen as a complement to financial statements, not as an obligation for the listed companies (Li, Ni, & Lin, 2012). Although the findings of mandatory context by Yoon, Zo, & Ciganek (2011), Kim, Lim, & No (2012), Bai, Sakaue, & Takeda (2014), and Efendi, Park, & Subramaniam (2014), resulted inconsistent finding with Blankespoor, Miller, & White (2014) on whether XBRL was able to reduce information asymmetry, in this paper we will re-analyze the context of the Indonesian capital market. It is believed that XBRL in Indonesia can reduce information asymmetry because XBRL technology is a transparent technology, fast data distribution, and search-facilitating feature (Kim, Lim, & No, 2012), universal, high interoperability, and the taxonomy that has been referring to accounting standards in Indonesia. In addition, IDX gives three eases to input XBRL for listed companies, including(1) using online web form; (2) using Excel spreadsheet offline then uploaded and validated by IDXnet-XBRL; (3) sending document instances for companies that already have their own XBRL applications (Amran, 2015; Kasih, 2016).

Abnormal Bid-Ask Spread (ASPREAD) is a proxy used by Yoon, Zo, & Ciganek (2011), Bai,

Sakaue, & Takeda (2014), and Blankespoor, Miller, & White (2014), to measure the magnitude of information asymmetry. ASPREAD is composed of the difference between means of bid-ask spread in the event window using the bid-ask spread on estimate window. The magnitude of this difference is expected a decrease in the post-XBRL period. We expect mandatory XBRL in Indonesia can reduce the information asymmetry, then the hypothesis that can be compiled is:

H_4:   mandatory XBRL's financial reporting negatively affects the abnormal bid-ask spread

The increasing volume of trading shares (trading volume activity/TVA) is reflected by the intensification of stock supply and demand activities. This will affect the fluctuation of stock price itself, impact on stock return.

According to Miller (2010) and Blankespoor, Miller, & White (2014), Abnormal Trading Volume (AVOL) describes the difference in the average of stock trading volume during an event window with the average of stock trading volume during an estimate window then divided by standard deviation of stock trading volume along the estimated window. We noted that every financial report submission date has its AVOL value. The higher AVOL means an increase in certain submission date and a higher level of stock trading activity.

Certainly, investors have limited resources and time to process and analyze huge amounts of data. XBRL provides significant ease for investor related to big data processing. If the stock exchange has implemented mandatory reporting of XBRL-based format, it is expected that investors will be more active in trading their shares. Thus, the presence of XBRL can increase the activity level of trading volume of shares in the capital market. The hypothesis that can be compiled is:

H_5:   mandatory XBRL's financial reporting negatively affects the abnormal trading volume

METHODS

Based on the sample selection process in Table 1, the population in this study are listed companies in Indonesia Stock Exchange (IDX) and entered into the category of Kompas100 index through the period 2013-2016. We argue that its population has a high level of liquidity, larger market capitalization and well- fundamental stocks performance.

Table 1. Samples Procedure

Explanation	Total
Companies consistently incorporated in the Kompas100 index for 6 times review by index committee, from 2013 to 2016 period	544
Selected Kompas100 companies which do not separate XBRL document on their submission achieves (unify XBRL data into XLS files)	(128)
The extreme value of company`s daily stocks data	(120)
A total sample of Kompas100-XBRL	296

Not all listed companies become a member of the Kompas100 index. The selection of listed companies categorized by the index committee. The selection process is conducted twice a year (every semester). So we first determine the companies that are able to maintain the position as a member of the index throughout this observation period. The sample is determined by using purposive sampling method in which the selected sample is based on the characteristics and criteria that we have been set. The criteria are: (1) registered as listed company and entered into the Kompas100 index for three years and consistently passed for six times review process by the index committee; (2) the sample company has published complete financial reports both quarterly and annually; and (3) the sample company has separated their XBRL document rather than unify it into XLS file. We examine the user's capability using an XBRL program rather than Ms. Office XBRL add-on. We obtained financial report data, histori-

cal data, submission date data, and XBRL data from Indonesia Stock Exchange (www.idx.co.id) and Google Finance (www.google.com/finance).

The characteristics of outlier data are the most different & extreme value compared with others (Ghozali, 2011). If the outlier data is not removed, it will disrupt the analysis process that will impact on the bias of the research results. We define outlier data by using Microsoft Excel application, with standardizing limits <-3 or> 3.

Timeline of pre- and post-XBRL periods can be seen in Diagram 1. It is important to note that mandatory XBRL in Indonesia has been rolled out since the third quarter of 2015. Thus the post-XBRL timeline is determined on August 1st, 2015 to June 30th, 2016. While pre-XBRL determined on August 1st, 2013 through June 30th, 2014, matches the same months by two years difference before post-XBRL period. Our timeline refers to the research by Kim, Lim, & No (2012) and Bai, Sakaue, & Takeda(2014) to determine the Estimation Window for 200 trading days (-255, -55), while the Event Window is determined one day before, date event, and one day after the date submission (-1,1).

Each company has a different submission date. The submission date is an event date, so the day before and after the event is an event window period. We included 255 days before the event date; then we formed estimation window for 200 days trading stocks. The date of submission based on the date recorded by IDX system both quarterly and annually For more details, the timeline of this research can be seen in Diagram 1.

Event Return Volatility (ERV) is a calculation of return volatility during the event window (-1,1). To get the value of return volatility, firstly to calculate daily Abnormal Return (AR) (Jogiyanto, 2008). We use AR based on the market model method (Mackinlay, 1997). The estimation window determined by 200 days of trading stock and event window for three days, i.e., one day before, one-day
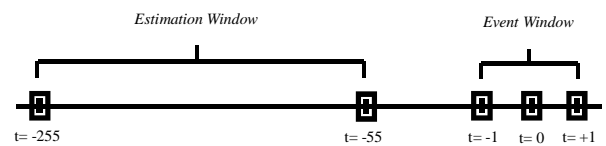
event, and one day after. Expected return to calculate AR, we using Kompas100 market index return.
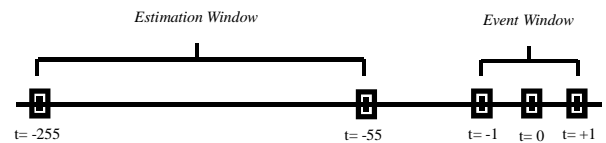
$$AR_{i.t} = R_{i.t} - E[R_{i.t}]$$

Where $E[R_{i.t}]$ is estimated using market model with the formula below:

$$R_{i.j} = \alpha_i + \beta_i . R_{Mj} + \varepsilon_{i.j}$$

a. Pre-XBRL period (August 1st, 2013 – June 30th, 2014)

(b) Post-XBRL period (August 1, 2015 – June 30, 2016)

Diagram 1. Timeline Pre-XBRL and Post-XBRL
Note: t = 0, is an event date when the company publishes quarterly and annual financial reporting

Heflin, Subramanyam, & Zhang (2003) define ERV as the arithmetic sum of absolute AR values during the event window.

$$ERV = \sum_{t=-1}^{1} |AR_t|$$

Then we form the dependent ERV regression model

$$ERV = \alpha_0 + \alpha_1 XBRL + \alpha_i \sum_{k=i}^{n} CONTROLS + \varepsilon \quad \text{...............(1)}$$

It is expected that ERV on post-XBRL is smaller than in ERV pre-XBRL period (Heflin,

Subramanyam, & Zhang, 2003; Kim, Lim, & No, 2012).

Just like an ERV, to calculate Absolute Cumulative Abnormal Return (ACAR), firstly known an AR - Market Model daily value. Kim, Lim, & No (2012) revealed that the greater the ACAR indicates, the wider gap between large and small investors.

$$\text{ACAR} = |\Pi_{t=-1}^{1}[1 + AR_t] - 1|$$

Then the following is the regression model on the dependent ACAR:

$$\text{ACAR} = \alpha_0 + \alpha_1 XBRL + \alpha_i \sum_{k=i}^{n} CONTROLS + \varepsilon \ldots\ldots(2)$$

The gap between large and small investors shows extreme information distribution. XBRL is transparent and interactive platform that widening the information distribution. If implementing an XBRL, the gap between them will decrease and equally distributed. ACAR on post-XBRL is smaller than ACAR on pre-XBRL period (Kim, Lim, & No, 2012; Bai, Sakaue, & Takeda, 2014).

According to Kim, Lim, & No (2012) and Blankespoor, Miller, & White (2014), the Change in Standard Deviation of the Daily Stocks Return (ÄSTDDEVRET) calculates the difference between 30 days stock return deviation after the event date (each submission date quarterly & annually) then 30 days stock return deviation before the event date. It is to find out how much risks of market uncertainty that occurred after the XBRL was implemented in the stock market.

$$\Delta\text{STDDEVRET} = \sqrt{\frac{1}{30}\sum_{t=0}^{30}(R_t - \bar{R}_t)^2} - \sqrt{\frac{1}{30}\sum_{t=-30}^{0}(R_t - \bar{R}_t)^2}$$

Market uncertainty leads to extreme stock return deviations. XBRL with its dynamic, interactive, transparent and general platform, is able to increase the frequency of information distribution while reducing market uncertainty at the same time. The dependent regression model is ÄSTDDEVRET:

$$\Delta\text{STDDEVRET} = \alpha_0 + \alpha_1 XBRL + \alpha_i \sum_{k=i}^{n} CONTROLS + \varepsilon \ldots(3)$$

Thus, it is expected that the value of ÄSTDDEVRET on the post-XBRL becomes smaller than pre-XBRL which means that the risk of market uncertainty can be minimized after the XBRL policy.

Bid-price is the highest price offered by the buyer to the seller, while Ask-price is the lowest price offered by the seller to the Buyer. Spread is the difference between Bid-price and Ask-price. Information asymmetry increases if Bid-Ask Spread increases. Abnormal bid-ask- spread (ASPREAD) according to Blankespoor, Miller, & White (2014) & Yoon, Zo, & Ciganek (2011) is:

ASPREAD = average daily spread (*event window*) – average daily spread (*estimation window*)

So here is a regression model on dependent ASPREAD:

$$\text{ASPREAD} = \alpha_0 + \alpha_1 XBRL + \alpha_i \sum_{k=i}^{n} CONTROLS + \varepsilon \ldots(4)$$

Given the limitations of accessing bid-offer data, we consider using the Corwin & Schultz (2012) Bid-ask spread estimator model through the calculation of historical daily high-low stock data. The calculation generates the spreads of the bid and asks data afterward it is able to calculate ASPREAD (abnormal bid-ask spread).

The desire to hold or trade the stocks is a domino effect of information announcement. It can be noted that TVA is a reaction by investor's decisions who participate in the capital market. According to Miller (2010) and Blankespoor, Miller, & White(2014), abnormal trading volume (AVOL) is derived from the calculation:

AVOL = (average daily trading volume at event window – average daily trading volume at estimation window) / standard deviation of daily trading volume at estimation window.

Then the regression model on the dependent AVOL model is:

$$AVOL = \alpha_0 + \alpha_1 XBRL + \alpha_i \sum_{k=i}^{n} CONTROLS + \varepsilon ....(5)$$

XBRL will reduce the information processing cost and make it easier for investors to manage big data through less effort. As expected, the trading volume activity will increase after an XBRL was mandated.

Mandatory XBRL is an independent variable of this paper. The XBRL variable is a dummy variable, where 1 indicates the company publishes XBRL's financial statements while 0 is otherwise.

The control variable is used to control independent variables. The purpose of this variable is to make sure that the analysis results are not reflected by the company's specific characteristics. We refer this variable from the research by Kim, Lim, & No (2012) and Bai, Sakaue, & Takeda (2014), including firm size (SIZE), market-to-book ratio (MBR), earning-to-price ratio (EPRATIO), leverage (LEV), loss indicator (LOSS), Return Volatility (RETVAR), negative sign of cumulative abnormal return (NEGAR), and cumulative absolute abnormal return (CAAR).

SIZE is a natural logarithm of market capitalization in each quarter. Generally, the larger company will disclose more information. Hence, size is negatively correlated with information asymmetry (Bai, Sakaue, & Takeda, 2014). MBR represents the ratio between market capitalization to total equity in each quarter. MBR is a proxy for company's growing profitability. The higher earnings growth will produce the greater stock price responses to the market (Skinner & Sloan, 2002). Thus, MBR is positively correlated with information asymmetry (Bai, Sakaue, & Takeda, 2014). Earning-to-price ratio (EPRATIO), the same as MBR, the higher the EPRATIO stimulates bigger stock price responses. EPRATIO is positively correlated with information asymmetry (Skinner & Sloan, 2002). LEV is a long-term debt ratio to the total assets. Companies with high LEVs tend to disclose more detailed information in order to maintain the creditors and public trust (Kothari, Li, & Short, 2009). LEV is negatively correlated with information asymmetry (Heflin, Subramanyam, & Zhang, 2003). LOSS is a dummy variable in which 1 is the company experiencing a negative net income at the end of the quarter, whereas 0 is the otherwise. LOSS is indicated as a control variable because Heflin, Subramanyam, &

Table 2. Summary of Operational Definition Variables

Variables	Operational Definition
ERV	Arithmetic sum absolute value of AR along the event windows period.
ACAR	Cartesius AR throughout the event window period.
ΔSTDDEVRET	The standard deviation of daily stock return between 30 days before & after the submission date.
ASPREAD	Difference between average bid-ask spread at event window period and average bid-ask spread at estimation window period.
AVOL	Difference between the average trading volume at the event window period and estimation window divided by the standard deviation of daily stock trading volume along the estimation window period.
XBRL	The company issued XBRL's financial report got a score of 1, while the otherwise is 0.
SIZE	The natural logarithm of market capitalization in each quarter of submission date.
MBR	The ratio of market capitalization to the total equity of the firm in each quarter.
EPRATIO	The closing price of the stock to the company's earnings per share in each quarter.
LOSS	*Dummy*, 1 if the quarterly net income is negative; 0 otherwise.
RETVAR	The standard deviation of AR along the estimation window at each submission date.
NEGCAR	*Dummy*, 1 if the c reduce cumulative AR at estimation window is negative; 0 otherwise.
CAAR	Cumulative AR at 30 days before and 30 days after, the submission date.

Zhang (2003) found that negative net income inhibits the forecasting accuracy. Thus, LOSS is positively correlated with information asymmetry (Bai, Sakaue, & Takeda, 2014). Return volatility (RETVAR), is the standard deviation of AR along the estimated window at every submission date. RETVAR is positively correlated with information asymmetry (Bai, Sakaue, & Takeda, 2014). The negative sign of cumulative AR (NEGCAR), Heflin, Subramanyam, & Zhang (2003) states that the downward stock price movements are greater than the upward stock price movements. NEGCAR is a dummy variable that is used to control stock price variability (Bai, Sakaue, & Takeda, 2014). We noted 1 if the stock's cumulative AR along the estimation window is negative, then 1 is otherwise. Cumulative absolute AR (CAAR) measures the information

flow. The larger company will produce, the greater information flow. It will reduce wide the information gap between the investors (Heflin, Subramanyam, & Zhang, 2003) at 30 days before and 30 days after the submission date.

RESULTS

Descriptive Statistics

Table 3 presents the descriptive statistics on each variable. Among the five dependent variables, AVOL significantly increased to ERV, ACAR, ÄSTDDEVRET, and ASPREAD. This is not consistent with the previous studies that XBRL is able to improve the quality of information environment & reduce the information asymmetry. In Indonesia context, this result could not be realized because

Table 3. Descriptive Statistic

Variables		PRE-XBRL					POST-XBRL				
		Obs	Min	Max	Mean	Std. Dev	Obs	Min	Max	Mean	Std. Dev
ERV	overall	296	0.005	0.120	0.044	0.025	148	0.003	0.159	0.051	0.033
ACAR	overall	296	0.000	0.099	0.027	0.022	148	0.000	0.122	0.029	0.024
STDEVRET	overall	296	-0.023	0.010	-0.003	0.006	148	-0.020	0.020	-0.001	0.007
ASPREAD	overall	296	-0.041	0.036	-0.008	0.014	148	-0.032	0.046	-0.001	0.015
AVOL	overall	296	-1.267	3.406	0.002	0.719	148	-1.133	6.396	0.234	1.146
XBRL	overall	296	0.000	0.000	0.000	0.000	148	1.000	1.000	1.000	0.000
SIZE	overall	296	28.632	33.330	30.979	1.191	148	28.235	33.471	30.896	1.309
MBR	overall	296	0.387	52.287	3.568	7.149	148	0.167	70.325	3.307	9.260
EPRATIO	overall	296	-38.950	82.430	18.035	14.344	148	-91.050	327.900	27.648	50.130
LEV	overall	296	0.013	0.878	0.307	0.267	148	0.023	0.866	0.330	0.247
LOSS	overall	296	0.000	1.000	0.020	0.141	148	0.000	1.000	0.074	0.263
RETVAR	overall	296	0.012	0.059	0.025	0.007	148	0.008	0.038	0.023	0.006
NEGCAR	overall	296	0.000	1.000	0.399	0.491	148	0.000	1.000	0.426	0.496
CAAR	overall	296	0.533	2.004	1.091	0.312	148	0.292	2.420	0.961	0.299

Notes:
ERV = Event Return Volatility, ACAR =Absolute Cumulative Abnormal Return, STDEVRET = Change in Standard Deviation of Daily Stocks Return, ASPREAD = Abnormal Bid-Ask Spread, AVOL = Abnormal Trading Volume, XBRL = Extensible Business Reporting Language Financial Statement, SIZE = company size, MBR = market-to-book ratio, EPRATIO = earning-to-price ratio, LEV = leverage, LOSS = loss indicator, RETVAR = return volatility, NEGCAR = negative absolute cumulative abnormal return, CAAR = cumulative absolute abnormal return for each submission date

the dependent model variables i.e. ERV, ACAR, ÄSTDDEVRET, &ASPREAD are increased after the mandatory XBRL policy was enacted. All of the control variables are difference significantly between the pre-XBRL and post-XBRL period. It is indicated that financial health and stock price variability have increased in the post-XBRL period, except SIZE, RETVAR, and CAAR.

The pre-XBRL period, minimum ERV of 0.005 is owned by Indofood Sukses Makmur Tbk, and maximum ERV of 0.120 is owned by Indofood CBP Sukses Makmur Tbk. The average ERV is 0.044 while the standard deviation is 0.025. In the post-XBRL period, the minimum ERV is 0.003 owned by PT Bumi Serpong Damai Tbk and maximum ERV of 0.159 owned by Media Nusantara Citra Tbk. The average ERV is 0.051 while the standard deviation is 0.033. Pre-XBRL Period, the minimum and maximum value of ACAR dependent model are 0.00 and 0.099. The minimum is owned by Panin Financial Tbk and otherwise is owned by Agung Podomoro Land Tbk. The average ACAR is 0.027 while the standard deviation is 0.022. In the post-XBRL period, the minimum and maximum ACAR are 0.00 and 0.122. The minimum is owned by Panin Financial Tbk and the maximum is owned by Holcim Indonesia Tbk. The average ACAR is 0.029, while the standard deviation is 0.024.

In the pre-XBRL period, the minimum & maximum value of STDEVRET dependent model is -0.023 and 0.010 respectively. The minimum is owned by Adhi Karya (Persero) Tbk, and the maximum is owned by United Tractors Tbk. The average value of STDEVRET is -0.003 while its standard deviation is 0.006. In post-XBRL, the minimum STDEVRET dependent models are -0.020 and owned by Astra Agro Lestari. Then the maximum is 0.020 and owned by Vale Indonesia Tbk. The average value of STDEVRET is -0.001 while its standard deviation is 0.007.

In the pre-XBRL period, ASPREAD's minimum and maximum value-dependent model is -0.041 and

0.036 owned by Adhi Karya (Persero) Tbk and Lippo Karawaci Tbk, respectively. The average ASPREAD is -0.008 while the standard deviation is 0.014. In the post-XBRL period, minimum ASPREAD of -0.032 owned by Lippo Karawaci Tbk and maximum ASPREAD of 0.046 is owned by Indofood Sukses Makmur Tbk. The average ASPREAD is -0.001 while the standard deviation is 0.015.

The AVOL dependent model, its minimum value is -1.267, owned by United Tractors Tbk. The maximum value of AVOL is 3.406 and owned by Agung Podomoro Land Tbk. Its average is 0.002 while the standard deviation of AVOL is 0.719. The post-XBRL period, minimum AVOL significantly increased by 1.133, and a maximum of AVOL is 6.396. That value is owned by Lippo Karawaci Tbk and Bank Danamon Indonesia Tbk respectively. Average of AVOL is 0.234 while its standard deviation is 1.146.

Table 4. Data Panel Model

Dependent	Model Data Panel
ERV	Fixed Effect Model
ACAR	Random Effect Model
STDEVRET	Fixed Effect Model
ASPREAD	Fixed Effect Model
AVOL	Random Effect Model

Hypothesis Test Results

The analysis was performed using an Eviews v.9.5, which finding the fitted-model regression firstly then the analysis could be done (Ajija, Sari, Setianto, & Primanti, 2010). The best fitted-model of ERV data panel is Fixed Effect Model (FEM) (Table 4). Based on the results of the individual parameter test (Table 5), it is known that the ERV significance value is 0.0264. Its value is smaller than the 5 percent significance level. Thus, the mandatory XBRL in Indonesia positively affects ERV, which means that the first hypothesis of this paper is not supported by the data.

Table 5. Regression Test Results

Variables	Exp. Sign	MODEL 1 (ERV) Coeff	t-stat	Prob	MODEL 2 (ACAR) Coeff	t-stat	Prob	MODEL 3 (STDEVRET) Coeff	t-stat	Prob	MODEL 4 (ASPREAD) Coeff	t-stat	Prob	MODEL 5 (AVOL) Coeff	t-stat	Prob
Constant		-0.103	-0.416	0.6776	0.426	2.406	0.0168	-0.174	-2.827	0.0051	0.158	1.211	0.2269	0.536	0.250	0.8026
XBRL	+/-	0.008	2.233	0.0264**	0.008	0.902	0.3680	0.002	2.511	0.0127**	0.004	2.475	0.0140**	0.256	2.230	0.0265**
SIZE	+	0.004	0.553	0.5805	-0.009	-2.015	0.0448**	0.006	2.932	0.0037***	-0.005	-1.104	0.2705	-0.015	-0.227	0.8208
MBR	+	-0.002	-1.642	0.1019	-0.006	-0.380	0.7040	-0.001	-2.091	0.0376**	0.000	-0.812	0.4178	-0.005	-0.633	0.5270
EPRATIO	+	0.000	-3.721	0.0002***	0.091	1.454	0.1471	0.000	-0.069	0.9451	0.000	-2.954	0.0034***	-0.001	-0.921	0.3577
LEV	-	0.086	1.927	0.0552*	-0.012	-0.589	0.5564	-0.006	-0.500	0.6177	0.014	0.595	0.5527	-0.045	-0.165	0.8687
LOSS	+	-0.005	-0.480	0.6313	0.036	1.684	0.0932*	0.003	1.029	0.3047	0.004	0.672	0.5020	-0.518	-1.875	0.0618*
RETVAR	+	-0.414	-0.882	0.3788	0.142	0.447	0.6554	-0.011	-0.091	0.9272	-0.712	-2.887	0.0042***	4.046	0.295	0.7685
NEGCAR	+	-0.002	-0.683	0.4953	-0.003	-0.325	0.7453	0.001	0.575	0.5660	0.000	-0.060	0.9525	0.147	1.284	0.2000
CAAR	+	0.005	0.692	0.4893	-0.001	-0.029	0.9772	-0.003	-1.497	0.1358	-0.008	-1.890	0.0599*	-0.155	-0.623	0.5337
Prob (F-stat)		0.000246	***		0.038179	**		0.010920	**		0.000954	***		0.027985	**	
Adjusted R²		0.140			0.030			0.087			0.109			0.008		
No. Obs		296			296			296			296			296		

Note: * = 10 percent significance level; ** = 5 percent significance level; *** = 1 percent significance level

Eviews v.9.5 specifies Random Effect Model (REM) as the best-fitted data panel model for ACAR dependent variable(Table 4). Based on the result of the individual parameter test (Table 5), the ACAR's significance value is 0.3680. It means that the probability value of ACAR is greater than the 5 percent significance level. Thus, the mandatory XBRL in Indonesia has no significant effect on ACAR.

Eviews v.9.5 specifies Fixed Effect Model (FEM) as the best-fitted data panel model for ÄSTDDEVRETdependent variable (Table 4). Based on the result of the individual parameter test (Table 5), the ÄSTDDEVRET's significance value is 0.0127. It means that the probability value of ÄSTDDEVRETis smaller than the 5 percent significance level. Hence, the third hypothesis of this research is not supported by the data.

XBRL is expected to reduce the level of information asymmetry because XBRL is transparent, interactive, dynamic and informative. This XBRL's benefits potentially to reduce the information inequality among the investors and capital market participants.

Eviews v.9.5 specifies Fixed Effect Model (FEM) as the best-fitted data panel model for ASPREADdependent variable (Table 4). Based on the result of the individual parameter test (Table 5), the ASPREAD's significance value is 0.0140. It means that the probability value of ASPREADis smaller than the 5 percent significance level. Hence, the fourth hypothesis of this research is not supported by the data.

Eviews v.9.5 specifies Random Effect Model (REM) as the best-fitted data panel model for AVOL dependent variable (Table 4). Based on the result of the individual parameter test (Table 5), the AVOL's significance value is 0.0265. It means that the probability value of AVOL is less than the 5 percent significance level. Thus, the mandatory XBRL in Indonesia is able to increase the level of stock trading volume in Indonesia.

DISCUSSION

Event Return Volatility

The presence of an early implementation of mandatory XBRL in Indonesia cannot affect the market uncertainty. So it can be assumed that there is no significant difference between the financial statements presented conventionally with the financial statements presented based on XBRL format. This finding contrasts with Yoon, Zo, & Ciganek (2011), Kim, Lim, & No (2012), and Bai, Sakaue, & Takeda (2014), and as expected earlier that XBRL is able to improve the value of information quality than the conventional models.

Referring to the XBRL implementation in other countries, such as, the United States, Canada, South Korea, Malaysia, and European capital market authorities (ESMA), they applied voluntary XBRL first as an experimental test, testing the error level, and weighing the costs & benefits XBRL before the mandatory policy was enacted (Yoon, Zo, & Ciganek, 2011; Li, Ni, & Lin, 2012; Ilias & Ghani, 2015; Nitchman, 2016; Liu, Luo, & Wang, 2017). At least there are four years for the United States to initiate the XBRL Voluntary Filing Program (VFP) program, which was released from February 2005 to the mandatory filing stage in April 2009 (Bartley, Chen, & Taylor, 2011). Throughout the voluntary period, they have designed a complete taxonomy such as the components of financial statements, notes on financial statements, additional disclosure information, and others. At the same time, they are also evaluating the listed companies on the XBRL reporting progress. This case is different in the Indonesia Stock Exchange (IDX) context. IDX designed XBRL taxonomy since 2013, its socialization in 2014, and the mandatory implementation in 2015. So it can be noted that XBRL in Indonesia is applied mandatory in a very short time. IDX prefer to implement such method rather than to implement XBRL voluntarily in a long time. Afterward, XBRL taxonomy in Indonesia is still limited financial state-

ments taxonomy such as financial position statement, income statement, statement of changes in equity, and cash flow statement. The disclosure taxonomy is still designed by IDX but not yet applied until the mandatory policy was rolled out. Thus, the first year of XBRL implementation in Indonesia is still no significant difference compared with the conventional financial statements model. So the conclusion is, there is no significant implication in the stock market uncertainty after the mandatory XBRL policy was enacted.

Absolute Cumulative Abnormal Return

Hodge, Kennedy & Maines (2004) and Janvrin, Pinsker, & Mascha (2011), underlines that nonprofessional investors are not directly benefiting XBRL even though XBRL itself has increased the transparency. However, nonprofessional investors which willing to learn XBRL technology are believed to have more accurate financial analysis perceptions than the traditional investors (Pinsker & Wheeler, 2009).

XBRL is a complicated technology; it requires more efforts to learn it. If the users want to get the benefits of XBRL technology, they should involve the significant costs due to the complexity of its technology. Investors/ users may delay using an XBRL technology at the early implementation. Then there are only a few investors or users are willing to use that technology in the first year XBRL mandate.

Change in S.D. of Daily Return

XBRL files in Indonesia are limited to financial statement element, while the disclosure element of this files has not yet been applied. So the XBRL-based data is just the numbers without any explanation. In fact, if the disclosure part has become an XBRL taxonomy, it will have a tremendous impact regarding transparency, openness, and interactive model on the company's financial information.

Abnormal Bid-Ask Spread

Increased information asymmetry in the IDX after the mandatory XBRL implementation is consistent with the findings of Blankespoor, Miller, & White (2014) due to the differences scale of technology acceptance among the large and small investors. Large investors are familiar with a hi-tech mastery. If XBRL was enacted, they get greater benefits of such technology. Consequently, the small investor becomes inferior and takes time to master it.

Unfortunately, we have not found any publication or related literature about the investor's perceptions of XBRL-based financial reporting policy in Indonesia. So we can not yet conclude why the mandatory XBRL has not been able to reduce the level of information asymmetry.

Abnormal Trading Volume

Although the Indonesian XBRL taxonomy is still limited to the component of financial statements, actually the level of stock trading volume increases significantly after this policy was enacted. XBRL is a manifestation of the data language universality, so the communication between users to companies, companies to companies, and companies to regulators are mutually interactive without being trouble by using the different system platforms. Moreover, XBRL files can be accessed easily through software that has an XML parser (Perdana, 2011). In order to publish widely on the internet, XBRL's financial statement files can be copied into the XBRL inline module. This online module can be displayed on various internet browsers which supported an XML parser program (browsers called it as an XHTML). These browsers are Google Chrome, Mozilla Firefox, Opera, Microsoft Edge, Safari, and so on.

CONCLUSION AND SUGGESTIONS

Conclusion

The result of this study proves that an initial implication of mandatory XBRL in Indonesia is not

giving significant implications to the financial information environment in the stock market. So this result is able to be an evaluation for IDX after enacted the mandatory policy for all the listed companies. IDX should complete the financial disclosure (notes to financial information) taxonomy immediately then improving it until consistent with the Indonesian accounting standard (PSAK).

Suggestions

This study has several limitations, including there are only selected participating companies which submitted XBRL output separately rather than unify them on the XLS files. XBRL program using XBRL instance document which officially provided by IDX. These instance documents are designed rigidly based on the taxonomy for each field business enterprise. On the other hand, IDX gives easy step to input XBRL using Excel spreadsheet offline then uploaded and validated by IDXnet (Amran, 2015; Kasih, 2016). XLS files are existing technology which does not cost more efforts to apply XBRL add-on. We argue that XLS files just a transition step to fulfill XBRL reporting policy at the first year adoption. XLS also editable form, so it allows companies do not follow or modify the taxonomy designed by IDX. XBRL data via XLS files indicates that the company not yet fully concerning about the future financial reporting technology.

In addition, the number of samples is also decreased due to data outliers. It is formed by extreme points of data which derived from the dynamic data, such as daily stock movements, stock trading volume, and so forth. On the other hand, Bid-Ask or Bid-Offer data availability at TICMI (a subsidiary of IDX) is limited to access because of the paid data. We use Bid-Ask Spread Estimator assumption to obtain the daily stock spread data through the High-Low stock price calculation formula designed by Corwin & Schultz (2012).

The future research should use a year or two years observation period after this mandatory policy was enacted (in 2016 or 2017). It will result in a larger number of samples because this policy is increasingly obeyed by the initial public offering (IPO) companies. In addition, the latest bid-ask or bid-offer data is also freely available on the IDX website before being redirected to TICMI. The next study also should examine the users and issuers perception aspect related to XBRL financial reporting based on the questionnaires interview. How much XBRL influences the investment attractiveness also interesting to be further investigated. Eventually, XBRL with its transparent and interactive characteristics are potentially applied to the government or public sector. So it could enrich the publication related to XBRL implementation and its development in Indonesia.

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