Abstract

Purpose - This study empirically examines the relation between two dimensions of auditor quality, namely auditor industry specialization and auditor reputation and the audit report lag.
Design/methodology/approach – The data collection focuses on companies listed on the Indonesia Stock Exchange (IDX) for the financial year of 2010 and 2011. To ensure data homogeneity and reduce industry bias, this study focuses solely on manufacturing companies identified by the Indonesian Capital Market Directory (ICMD).
Findings - This study finds a negative and significant association between industry specialist auditors and audit report timeliness. Companies audited by auditor industry specialists have shorter audit delays. We also find evidence that Big 4 auditors perform significantly faster audit work than their non-Big 4 counterparts. In addition, this study reports a statistically and significant relationship between auditing complexity, companies' profitability, auditors' business risk and industry classification and audit report lag. The results show that firms with a large number of subsidiaries and firms experiencing poorer financial performance are found to be associated with longer reporting delays. Moreover, audit report timeliness is found to be faster for companies in the low profile industry sector and owned by family members.
Practical implications - Insights drawn from this study may be of assistance to policy makers as they consider the costs and benefits associated with varying levels of audit market concentration as well as providing a snapshot of the level of non-compliance on audit timeliness in Indonesia.
Originality/value – This study provides further empirical evidence on the relation between auditor quality and audit report lag using data from a different domestic setting. This study also enriches the auditor quality literature by employing industry specialist and Big 4 auditors as a predictor for the timeliness of audit reports.
Keywords – Indonesia manufacturing listed companies, auditor industry specialization, auditor reputation, audit report lag
Paper type – Research paper

I. Introduction

Alkhatib and Marji (2012) argue that the most reliable source and reference of accounting information available to external users is audited financial statements. One qualitative characteristic clearly articulated with the Conceptual Framework for Financial Reporting is relevance. As stated by FASB, concept Statement 2, to be useful financial information must be both relevant and reliable. As stated by Alfredson *et al*. (2009) "to have relevance, financial information must have a quality that influences users' economic decision (p. 15)". To be relevant and of economic value, the financial information contained in the year-end final statement should be disclosed in a timely manner and delivered to users as soon as practicable after the fiscal year-end (Al-Ajmi, 2008; Alkhatib and Marji, 2012). Delays in reporting financial information will clearly impact on the effectiveness of reports. The timeliness of audit reports is becoming an important issue as the timing and delivery of the reports will affect the relevance of financial statements (Dopuch *et al.*, 1986; Field and Walkins, 1991; Jaggi and Tsui, 1999). In related work several studies have shown that postponing the disclosure and publication of the audited financial statements may negatively impact stock market efficiency (Leventis *et al.*, 2005; Alkhatib and Marji, 2012) and market reaction to earnings announcements (Chambers and Penman, 1994) can lead to auditor switching (Mande and Son, 2011).

It is well recognised that the timeliness of audit reports is influenced by a number of variables. Prior research on audit report lags have documented that the delay in audit reports can be attributed to specific firm characteristics and complexities (client firm size, number of subsidiaries, client financial condition, foreign operations, and audit fees); audit risk (ownership structures, financial distress indicators, high risk accounts, and modified audit opinion), audit firm attributes (auditor reputation, non-audit fees), and corporate governance (board independence, audit committee independence, frequency of boards and or audit committee meeting). The majority of research in this area remains centred in the US but clearly there is a need to extend this research to a new global reach. This study explores the role of auditor industry specialization (Habib and Bhuiyan, 2011), in determining audit report timeliness and is an area of study that has received little

attention. Industry specialist auditors are expected to provide superior services and credibility (Solomon *et al.*, 1999; Owhoso *et al.*, 2002). Consequently, industry specialist auditors are likely able to conduct a more effective audit and be able to complete the audit engagements more expediently than non-specialist auditors. Additionally, we investigate the association between auditor reputation (proxied by Big 4 auditing firms) and the audit report lag. It can be argued that big auditing firms have more resources (Palmrose, 1986b), more at risk in terms of brand name reputation (Francis and Wilson, 1988), have higher quality staff (Chan *et al.*, 1993b) and are therefore likely to provide a high quality audit. In other words, Big 4 auditors are expected to provide a faster more efficient service leading to shorter audit reporting lags.

As mentioned previously the economic significance of an audit report lag is a global issue and yet the majority of the research literature is US based using US data (for example, Asthon *et al.*, 1989; Bamber *et al.*, 1993; Schwartz and Soo, 1996; Lee *et al.*, 2009). There has only been limited research from outside the US, for example, Malaysia (Wan-Hussin and Bamahros, 2013) Egypt (Afify, 2009), Jordan (Alkhatib and Marji, 2012), Bahrain (Al-Ajmi, 2008), and New Zealand (Habib and Bhuiyan, 2011), whilst studies using Indonesian data sets are limited. Unlike the paper by Habib and Bhuiyan, our study is based on an emerging economy, namely, Indonesia. As an emerging economy, Indonesia has a number of unique institutional settings. First, historically Indonesia experienced an audit environment that delivered poor quality audits as indicated by the collapses of many Indonesian companies and banks during the Asian Crisis in 1997-1998. Second, unlike the majority of other economies, Indonesian regulators have instigated a firm level audit rotation policy. Third, Claessens *et al.* (2000) documented that around 67% of Indonesian listed companies are family controlled while only 0.6% are widely held. They further find that Indonesia has the highest ownership concentration of any East Asian Countries and has the largest number of companies owned by a single family. It is argued that agency problems from the separation of ownership and control will be smaller in the high ownership concentration and family-owned and control firms (Jaggi and Tsui, 1999; Afify, 2009). The high ownership concentration or family-owned firms can be expected to have

relatively shorter audit report lag than other firms where the ownership structure is more diversified or non-family. Fourth, a number of studies report that many Indonesian firms are politically connected (e.g., Gomez and Jomo, 1997; Gul, 2006). The greater perceived risks inherent in politically connected firms arise due to increased agency costs arising from perceived exploitation by insiders. Gul (2006), in a study of Malaysia firms, found that auditors perceived greater risk inherent in politically connected firms leads to extra audit work. This study provides valuable insight from a unique environment such as Indonesia and adds institutional connectedness into the discussion. In addition, we also extend the definition of auditor specialization by adding measures which include the number of clients in an industry as well as market share based on total sales.

The remainder of this paper is organized as follows. The next section presents the theoretical framework and the hypotheses development. Section 3 describes the research design. Primary results including descriptive statistics, correlations and regression analysis are presented in Section 4. Discussion of results and implications for future research are discussed in the concluding section.

II. Literature review and hypotheses development

The audited financial statements contained in the annual report are seen as a reliable source of information for users of financial information. A gap does however exist between the end of the financial year and the publication of the financial statements and although a gap is necessary to enable the production of quality information, any extended delay may impact on the usefulness and relevance of the information. The issue of timeliness of financial reporting has attracted considerable attention from professional bodies, researchers, regulatory agencies and users of accounting information as an important qualitative characteristic of financial accounting information. Timely accounting information will lead to investor confidence and thus enhance market efficiency (Leventis *et al.*, 2005). As mentioned previously users of financial statements consider timeliness as one of the key determinants of audit quality (Leventis *et al.*, 2005; Al-Ajmi, 2008).

The principle role of auditing is to ensure the quality of the corporate earnings thus allowing stakeholders to rely on financial statements with confidence. Differences in auditor quality are thought to lead to variations in credibility, objectivity employed and the quality of the earnings provided by clients. Given auditor quality is multidimensional and inherently unobservable, no single characteristics or proxy is used to capture this concept. Previous research has generally used auditor brand name to proxy for audit quality while researchers (e.g., Craswell *et al.*, 1995; Balsam *et al.*, 2003; Krishnan, 2003b; Chen *et al.*, 2005; Gul *et al.*, 2009) have argued that auditor industry specialization contributes to audit quality.

With regard to auditor industry specialization, researchers (e.g., Craswell *et al.*, 1995; Balsam *et al.*, 2003; Chen *et al.*, 2005) have hypothesized that a by-product of an audit firm choosing to specialize in a given industry is an improvement in the superiority of services provided as well as the credibility afforded to the auditor. As stated by Dopuch and Simunic (1982), specialist auditors are likely to invest more in staff recruitment and training, information technology, and state-of-the art audit technologies than non-specialist auditors. The use of auditors with industry specialization will enhance audit quality and in turn improves the quality of financial reporting (Dopuch and Simunic, 1982). The other effect of industry specialization is audit fees charged by specialist auditor to their clients. Since the development of industry-specific skills and expertise requires costly investment, the industry specialist auditors will expect to charge higher fees compared to non-specialist auditors (Habib, 2011). However, specialist knowledge can also promote production economies of scale into the audit process and become more efficient and leads to lower cost producers of audit works (Craswell *et al.*, 1995; McMeeking *et al.*, 2006). Palmrose (1986a) therefore argues that the resulting production of economies of scale enable specialist auditors to charge relatively lower fees to their clients.

In addition, O' Reilly and Reisch (2002) assert that auditors with an in-depth knowledge of an industry's operation and characteristics may be better able to recognise unique

problems and issues for clients operating in that industry. The audit issues relate to unique industry features (e.g., accounting systems, tax rules, special reporting requirements), therefore, client-specific knowledge plays an important role in an effective and efficiency audit assignment (Gul *et al.*, 2009). Consequently, industry expertise auditors will promote a higher audit quality through audit effectiveness as well as enhance audit efficiency through economies of scale. Industry specialist auditors require a shorter time to become familiarized with client' financial reporting systems and to resolve complex accounting issues compared to non-specialist auditors (Habib and Bhuiyan, 2011). Accordingly, industry specialist auditors will be able to complete the audit of a company's financial statements faster than those non-specialist counterparts. On the basis of the above discussion our first hypothesis is:

H_1: The audit report timeliness of audits conducted by an industry specialist auditor is shorter than those conducted by a non-industry specialist auditor.

It is widely accepted that the quality of audit work varies among audit firms (DeAngelo, 1981; Francis *et al.*, 1999). The Big 4 audit firms may provide higher audit quality than those non-Big 4 (DeAngelo, 1981; Watts and Zimmerman, 1986; Becker *et al.*, 1998; Caneghem, 2004) as they have strong incentives to provide or maintain a high audit quality level due to the fact that they have: (1) more qualified staff, (2) a greater number of clients, (3) more opportunity to deploy significant resources to auditing (recruitment, training and technology), and (4) more at risk, for example, termination of clients and loss of reputation (Chan *et al.*, 1993b; Caneghem, 2004; Chung *et al.*, 2005). Leventis *et al.* (2005) find that as a result of the use of better qualified and trained staff together with the use of superior audit technology, Big 4 accounting firms take less time to conduct audit engagements.

It has been documented in the auditing literature that Big 4 auditors are positively associated with higher quality of financial reporting. Findings reported in numerous studies clearly support that Big 4 auditor serves as an earnings management constraint (a

proxy of financial reporting quality). Using U.S data, Becker *et al.* (1998) show that clients of Big 4 auditors report relatively less discretionary accruals than the discretionary accruals reported by clients of non-Big 4 audit firms. Krishnan (2003b) document that Big 4 auditors are able to constrain aggressive and opportunistic reporting of discretionary accruals by their clients compared to non-Big 4 auditors. Francis *et al.* (1999) argue that even though clients of Big 4 firms report higher level of total accruals, they have lower amounts of discretionary accruals. Based on a U.K sample, Gore *et al.* (2001) suggest that in the case where high level of non-audit services are provided, Big 4 firms are more able to constrain earnings management. In other international studies, Chen *at al.* (2005) find that Big 4 auditors are associated with less earnings management for Taiwan IPO firms. However, using a sample of Belgian publicly listed firms, Bauwhede *at al.* (2003) report that the superior performance of Big 4 auditors over non-Big 4 auditors is only in the case of income-increasing earnings management. In general, evidence presented from the above mentioned studies indicates that Big 4 auditors provide more effective audit services than non-Big 4 auditors.

Afify (2009) and Cohen & Leventis (2013) postulate that Big 4 accounting firms tend to have a stronger incentive to finish their audit work more quickly in order to maintain their reputation or brand name. Likewise, international affiliated audit firms have more incentives to be more aggressive by providing a faster service in order to increase their audit market share (Leventis *et al.*, 2005). In addition, it is argued that Big 4 audit firms have more resources (Palmrose, 1986a), higher quality and better trained staffs (Chan *et al.*, 1993a) and advanced audit technology (William and Dirsmith, 1988) and are able to conduct audit more efficiently and timely (Gilling, 1977; Hassan, 2016). Several previous studies (e.g., Abdulla, 1996; Leventis *et al.*, 2005; Owunsu and Leventis, 2006) have documented that companies are more likely to report on a timely basis if their financial statements are audited by one of the Big 4 auditing firms. Using a sample of 171 publicly listed firms from the Athens Stock Exchange Leventis et al. (2005) find that audit delay is reduced by appointing a big international accounting firm. Another study conducted by Owunsu and Leventis (2006) reveals that companies listed on Atherns Stock Exchange

that audited by Big 4 accounting firms have shorter final reporting lead-time compared to companies audited by local accounting firms. However, no such studies have been undertaken for Indonesia companies (Maijoor and Vanstraelen (2006). Based on the above discussion, our second hypothesis is:

H_2: The audit reports produced by Big 4 auditors are timelier than those reports produced by non-Big 4 auditors.

III. Research design

A. Sample selection

To ensure data homogeneity this study focuses on manufacturing companies identified in the Indonesian Capital Market Directory (ICMD). The rationale for selecting manufacturing firms is that these firms are dominant in Asian and in particular the Indonesian economy. As Dhawan *et al.* (2000p. 42) noted: "Asia has become the workshop of the world: more than half of all manufacturing on Earth is estimated to take place there." Within the Indonesian context, Craig and Diga (1998p. 248) noted that "Indonesia was represented strongly by manufacturing-type entities."

The sample for the study comprises of all manufacturing companies listed on the Indonesia Stock Exchange (IDX) for the financial year of 2010 and 2011. There were a total of 303 and 325 manufacturing firms listed on the IDX at the end of financial year 2010 and 2011 respectively. The data used to construct proxy measures for the dependent, independent and control variables were obtained directly from annual reports and from the ORBIS database. Following the omission of firms due to missing or incomplete data sets, a final sample of 407 manufacturing firms (year 2010 = 156 firms and year 2011 = 251 firms) in Indonesia was used for the study.

B. Estimation of variables

The underlying objective of the study is to examine the association between audit reporting lag and two audit quality predictors: namely, auditor industry specialization

and auditor reputation. The audit reporting lag is defined as the number of days from the financial year-end to the time when the auditor signs the report. The natural logarithm of auditing reporting lag is used for regression analysis[1]. Auditor industry specialization cannot be observed directly and therefore we must rely on proxies for the relevant estimates. Yardley *et al.* (1992) and Hogan and Jeter (1999) derived a measurement proxy of auditor industry specialization being the proportion of audit fees earned by an audit firm from a single industry relative to audit fees generated from serving all clients. A number of prior studies of auditor specialization, particularly those focusing on data where audit fee information has not been available, have relied on sales revenue or total assets as the basis for estimating an auditor's market share (e.g., Kwon, 1996; Krishnan, 2003b). Our study follows the work by Krishnan 2003 and uses total assets as the basis for estimating an auditor's industry market share and is similar to the work of (e.g., Hogan and Jeter, 1999; Gramling and Stone, 2001; Ferguson *et al.*, 2003; Krishnan, 2003a; Habib and Bhuiyan, 2011). We apply the largest (top rank) market share threshold across all industries to denote an industry specialist. Market share is defined as the portion of a clients' total assets audited by an accounting firm in a certain industry relative to the clients' total assets audited by all accounting firms in that particular industry.

As audit fee information is not available in Indonesia we estimate the portfolio market share of total assets for the 2010 and 2011 calendar year as the sum of all total assets audited by the auditor from firms serviced in a given IDX industry sector divided by the sum of the clients' total assets audited by the auditor for all firms served.[2] The following equation defines this measure:

$$MS_{ik} = \frac{\sum_{j=1}^{J_{ik}} TotalAssets_{ijk}}{\sum_{k=1}^{K}\sum_{j=1}^{J_{ik}} TotalAssets_{jk}}$$

[1] Log transformation has been used in several studies (e.g., Jaggi and Tsui, 1999; Cohen and Leventis, 2013; Wan-Hussin and Bamahros, 2013) to normalize the distribution and to linearize the model.

[2] Some prior researchers (e.g., Hogan and Jeter, 1999) sum the two or three largest shares into a two/three-firm industry concentration ratio. As we investigate industry specialization by individual firms we use a single-firm measure.

Where:
i = an index of audit firms;
j = an index of client firms;
k = an index of client industries;
I_k = number of audit firms in industry k;
J_{ik} = the number of clients served by audit firm i in industry k;
$TotalAssetse_{ijk}$ = total clients' total assets by auditor i of client j in industry k;
MS_{ik} = total assets market share of auditor i in industry in industry k.

Following previous studies (e.g., Al-Ajmi, 2008; Afify, 2009; Khasharmeh and Aljifri, 2010; Wan-Hussin and Bamahros, 2013), this study uses Big 4 audit firms as a proxy for auditor reputation. To control for the compounding influences of cross-sectional factors, this study incorporates seven control variables (size of firm, financial leverage, number of subsidiaries, extraordinary items, family ownership, loss, and industry) into the regression analysis. Consistent with the works of Tanyi *et al.* (2010) and Habib and Bhuiyan (2011) we include client firm size as a control factor since larger clients can exert greater influence on their auditors to complete faster audit work. Furthermore, large companies generally possess stronger internal control systems that audit firms can rely on and these will consequently reduce the amount of audit work. Fifth (1985) also suggests that the larger the company the easier it is for the auditors to accomplish economies of scale in their audit work. In addition, it is often argued that since large firms have more resources they are more likely to pay higher audit fees charged by the high quality auditor and in return demand that the audit be conducted in a timely manner.

There are two conflicting schools of thought on the importance of financial leverage and audit quality. The first school of thought is based on an agency framework where agency costs are expected to increase with an increase in the leverage ratio (Jensen and Meckling, 1976). One rationale is that highly leveraged companies, preferring to invest their money in riskier projects, would demand a high quality audit service (Carey and Simnett, 2006; Al-Ajmi, 2008) to reduce doubt and signal confidence to debt-holders and share-holders (Chow, 1982; Ashbaugh *et al.*, 2003; Al-Ajmi, 2008). High quality auditors have greater opportunity to deploy significant resources to the audit process (recruitment, training and technology) and mobilise more qualified staff which can reduce the audit reporting lag. The second school of thought is centred on the notion that highly geared companies have

a higher probability of default particularly during an economic slowdown (Owusu-Ansah, 2000). Companies in a weaker financial condition are more likely to have greater audit risk and will require auditors to undertake more due diligence which may increase the audit reporting lag (Habib and Bhuiyan, 2011).

Previous work has found that complexity is an important factor in the timeliness decision (Ng and Tai, 1994; Jaggi and Tsui, 1999; Sengupta, 2004; Habib and Bhuiyan, 2011). Following Hassan (2016) and Habib & Bhuiyan (2011), our study uses the number of principal subsidiaries held by the company as a proxy for complexity and diversification. It is reasonable to assume that companies with a significant number of subsidiaries will have complexities embedded in the accounting system and the auditing process may result in longer reporting delays. Audit firms also spend considerable of time and effort when auditing a company that reports extraordinary items in its financial statements. Previous studies (Jaggi and Tsui, 1999; Owusu-Ansah, 2000; Leventis *et al.*, 2005) have examined the relationship between extraordinary items and audit report lag. Extraordinary items are material events that are considered abnormal, not related to the ordinary company activities. These events are expected to required additional time to discuss and negotiate with management and lead to longer audit works (Owusu-Ansah, 2000; Leventis *et al.*, 2005).

Our study includes a family ownership variable as the level of family ownersip is expected to influence audit report lag. It is argued that auditors' business risk will be limited if their client audit firms are family owned and controlled (Jaggi and Tsui, 1999). The family-owned and controlled firms are expected to have relatively shorter audit report lag. For our study, the data sets obtained from Purwanto (2015) who investigated the association between family ownership and related-party transactions in Indonesia are used.

A company's risk is directly related to its financial health. The poorer the financial position of the company, the more risky a company becomes. The increasing probability of

failure will have consequences for auditors (Al-Ajmi, 2008). Companies in poor financial condition may act to delay bad news leading external auditors to be more diligent during their engagement (Habib and Bhuiyan, 2011). Companies with a reported a loss are therefore likely to have a longer audit report lag (Asthon *et al.*, 1989; Carslaw and Kaplan, 1991; Bamber *et al.*, 1993; Schwartz and Soo, 1996; Habib and Bhuiyan, 2011).

We include the type of industry in the regression since previous research (e.g., Ng and Tai, 1994; Abdulla, 1996; Al-Ajmi, 2008; Habib and Bhuiyan, 2011) has identified that industry types are correlated with reporting delays. Consistent with the work of Robert (1992) and Hackston and Milne (1996), we classify the sample into both low profile and high profile industries. High profile industries appear as industries which have consumer visibility, are in the public domain and are therefore more sensitive, are characterised by a high level of political risk and intense competition (Roberts, 1992)[3]. It is argued that the time to perform audit work for firms included in the high profile industry may be longer since these firms have a higher inherent risk and will therefore require more audit effort and specialized audit procedures (Simunic, 1980; Newton and Ashton, 1989; Wan-Hussin and Bamahros, 2013).

The specific proxy measures for the dependent, independent and control variables are all fully defined in Table 1.

Table 1: Variable definition and description

Variable Description	Variable Title
Dependent Variable	
The number of days from the financial year-end to the time when auditor sign the report of firm *j*	*Audit Lag*
Control Variables	
Natural logarithm of total assets of firm *j* for year *t*	*Size*
Ratio of total debt of firm *j* for year *t* to total equity of firm *j* for year *t*	*Leverage*
The number of principle subsidiaries held by the firm *j* for year *t*	*Subsidiary*
Indicator variable scored one (1) if firm *j* reports extraordinary items in fiscal year *t*;	*Extra*

[3] Following Roberts (1992), in this study, high profile firms are defined as those from mining, basic industry and chemicals, and miscellaneous industry classifications.

otherwise scored zero (0)	
Indicator variable scored one (1) if firm *j* is family-owned; otherwise scored zero (0)	*Family*
Indicator variable scored one (1) if firm j reports a loss in fiscal year *t;* otherwise scored zero (0) Loss	*Loss*
Indicator variable scored one (1) if firm *j* is classified as the high profile industry (mining, basic industry & chemicals, and miscellaneous industries); otherwise scored zero (0)	*Industry*
Independent Variables	
Indicator variable scored one (1) if the auditor of firm *j* in fiscal year *t* has the highest market share in total assets for an industry; otherwise scored zero (0).	*Specialist*
Indicator variable scored one (1) if the auditor of firm *j* in fiscal year *t* is a Big-4 audit firm; otherwise scored zero (0)	*Auditor Reputation*

C. Empirical model equations

This study uses the ordinary least squares (OLS) and multiple regressions technique to test the hypotheses. The regression model is defined in the following equation:

$$ARL_i = a_i + \gamma_{i1}\, Specialist_i + \gamma_{i2}\, Auditor\ Reputation_i + \alpha_{i1}\, Size_i + \alpha_{i2}\, Leverage_i + \alpha_{i3}\, Subsidiary_i + \alpha_{i4}\, Extra_i + \alpha_{i5}\, Family_i + \alpha_{i6}\, Loss_i + \alpha_{i7}\, Industry_i + \varepsilon_i$$

If *Specialist* and *Auditor Reputation* effect audit report lag as predicted the coefficients γ_1 and γ_2 should be negative. Whilst this study is not testing the effect of our control variables on the dependent variable, based on our intuition and prior research referred to above, we expect the coefficients on *Size* and *Family* to be negative while *Subsidiary, Extra, Loss* and *Industry* to be positive. There is no prior literature that enables us to definitively define a directional sign a priori for *Leverage*.

IV. Results

A. Descriptive statistics

Table 2 classifies the sample by industry and presents descriptive statistics for the audit report lag.

Table 2: Audit lag by industry sector

Industry Sector	n	% IND	Audit Report Lag (days)			
			Mean	Median	Min	Max
1 Agriculture	18	4.42	77	86	36	90
2 Mining	46	11.30	82	84	40	159
3 Basic Industry & Chemicals	62	15.23	77	81	32	134
4 Miscellaneous Industry	41	10.07	81	81	34	149
5 Consumer goods industry	40	9.83	71	73	31	116
6 Property, Real Estate & Building Construction	17	4.18	81	78	44	162
7 Infrastructure, Utilities & Transportation	53	13.02	83	83	26	142
9 Trade, Services & Investment	130	31.94	79	78	12	164
Total	407	100	79	81	12	164

As shown in Table 2, the majority of the samples is drawn from the Trade, Services & Investment (31.94%) while only 4.18% of the sample companies are involved in the Property, Real Estate & Building Construction industry. The average audit report lag for Indonesian firms in our sample is 79 days. On average, a shorter time period (71 days) is taken to complete the audit works in the Consumer Goods industry while the longest period (83 days) is in companies that are categorized as Infrastructure, Utilities & Transportation industry. In addition, the shortest and longest time period to complete the auditing engagements is 12 and 164 days respectively, both of which are firms included in the Trade, Services & Investment industry. The Indonesia authority requires all listed companies to file their annual audited financial statements within 90 days form fiscal year-end. Further analysis shows that 28 companies or 32 firm-year observations (7.86%) in the sample period fail to meet the Indonesia Capital Market regulatory deadline of 90 days.

Table 3 depicts the descriptive statistics for the study's independent and control variables.

Table 3: Descriptive Statistics (n=407)

	Mean	*Median*	*Std Dev*	*Min*	*Max*
Panel A- Continuous Variables					
Size (Total Assets in million IDR)	4,038,049.90	985,922.22	9,439,643.82	65.93	107,947,000.00
Leverage (%)	1.35	0.60	5.93	0.45	97.86
Number of Subsidiaries	4.64	1.00	13.25	0.00	72.00
Panel B – Categorical Variables				***Frequency***	***Percentage***
Auditor Reputation					
Non Big-4				230	56.51
Big-4				177	43.49
Extraordinary Items					
Not reported				335	82.31
Reported				72	17.69
Ownership structure					
Non-family				195	47.91
Family				212	52.09
Profitability					
Loss				77	18.92
Profit				330	81.08
Industry					
High profile				149	36.61
Low profile				258	63.39
Specialist –the highest					
0				320	78.62
1				87	21.38

Legend: See Table 1 for full definitions and descriptions for the study's dependent, independent and control variables.

Table 3 indicates that the average firm size (measured by total assets in million IDR) is million IDR4,038,049.90 ranging from million IDR65.93 to million IDR107,947,000.00. The median figure (million IDR985,922.22) is significantly lower than the mean figure which is indicative of a small number of very large capitalized companies in Indonesia. There are also wide ranges in the minimum and maximum figures of the total assets in the sample. Such figures indicate that the data on total assets are skewed to the left. Consequently and consistent with numerous other studies, this study transforms the data of total assets into the natural logarithm in measuring size of firm. An average total debt to total equity ratio (*Leverage*) of the sample firms is 1.35% with a median of 0.60%. The companies in the sample have an average of five subsidiaries. About 43% of the sample observations are

audited by Big 4 accounting firms. In a study of Indonesian state-owned enterprises, Ali and Aulia (2015) report that audit market share of the Big 4 firms is steadily decreased since 2010. A material decrease in the market share of the Big 4 audit firms in Indonesia is likely due to the presence of second-tier international audit firms (e.g., Moore Stephens International, BKR International, and BDO International Limited) that have affiliated with local accounting firms. Even though there has been a decrease in the number of companies using the service of Big 4 auditors, Big 4 audit firms remain the dominant audit service provider in the Indonesia capital market with 71.54% total assets market share. This study assumes that Big 4 firms in Indonesia maintain a high standard of audit quality and reputation as other Big 4 accounting firms do around the world. Panel B of Table 3 also shows that 17.69% of the sample firms report extraordinary items. In relation to the ownership structure observed across the sample firms, Panel B of the table indicates that 52.09% of firms are owned by an individual or group of family members. This is consistent with Claessens *et al.* (2000) finding that Indonesian ownership concentration is higher than most other countries. More than one third (36.61%) of the sample observations are categorised in the high profile industry. The majority of the companies (81.08%) in the sample firms report a profit in the sample fiscal year. Finally, approximately 21% of the sample observations are audited by top industry specialist auditors.

B. Correlations

Table 4 presents a correlation matrix between the dependent, independent and control variables.

Table 4: Pearson and Spearman correlation matrix

	Audit Lag	Specialist	Auditor Reputation	Size	Leverage	Subsidiary	Extra	Family	Loss	Industry
Audit Lag		-0.132*	-0.279*	-0.094	0.018	0.137*	0.064	-0.268*	0.139*	0.044
Specialist	-0.093**		0.486*	0.162*	-0.047	0.004	-0.050	0.068	-0.099**	-0.098**
Auditor Reputation	-0.211*	0.486*		0.150*	-0.028	0.074	-0.011	0.107**	-0.171*	0.012
Size	-0.083	0.248*	0.300*		-0.032	-0.048	-0.044	0.011	-0.227*	-0.144*
Leverage	0.075	0.014	0.018	-0.023		-0.006	0.027	0.040	0.158*	0.069
Subsidiary	0.127*	-0.012	0.028	0.029	0.031		0.159*	-0.055	0.015	-0.016
Extra	0.107**	-0.050	-0.011	-0.030	-0.007	0.225*		-0.039	0.009	-0.013
Family	-0.276*	0.068	0.107**	0.021	-0.004	-0.083	-0.039		-0.114**	0.126**
Loss	0.194*	-0.099**	-0.171*	-0.224*	0.065	0.019	0.009	-0.114**		0.037
Industry	0.060	-0.098**	0.012	-0.098**	0.003	-0.035	-0.013	0.126**	0.037	

Legend: * and ** indicate significance at $p<0.01$ and $p<0.05$ (based on two-tailed tests). See Table 1 for full definitions and descriptions for the study's dependent, independent and control variables.

The upper half of each panel reports Pearson pairwise correlation coefficients (cr_p), the lower half Spearman correlation coefficients (cr_s). As predicted, *Audit Lag* is negatively correlated with *Specialist* and *Auditor Reputation* both for Pearson and Spearman correlations. Correlations between *Audit Lag* and *Specialist* in both (Pearson or cr_p and Spearman or cr_s) are negative and significant at $p<0.01$ and $p<0.05$ respectively. *Audit Lag* is negatively correlated with *Auditor Reputation* in both (Pearson or cr_p and Spearman or cr_s) at $p<0.01$. Thus, our hypotheses are supported. Findings also show a significant positive correlation ($p<0.01$ cr_p and cr_s) between *Auditor Reputation* and *Specialist*. Given that the correlation value is below the critical limits of 0.80 (Hair *et al.*, 1995; Greene, 1999; Cooper and Schindler, 2003) there is unlikely to be an issue of multicollinearity problem between independent variables. In respect to correlations between the independent and control variables and amongst control variables themselves, the highest correlations are between *Auditor Reputation* and *Size*, with a coefficient of 0.300 ($p<0.01$ cr_s). This value is, however, below the critical limit of 0.80.

C. *Multivariate results*

The results of multivariate regression for testing the hypotheses are reported in Table 5.

Table 5: Multiple regressions

	Panel A		**Panel B**		**Panel C**	
	Beta	***t*-statistic**	**Beta**	***t*-statistic**	**Beta**	***t*-statistic**
(Constant)		53.714*		56.467*		56.422*
Specialist	-0.152	-3.417*			-0.087	-1.993**
Audit Reputation			-0.225	-6.844*	-0.209	-6.196*
Size	-0.005	-0.899	-0.004	-0.800	-0.004	-0.663
Leverage	0.001	0.127	0.001	0.004	0.001	0.104
Subsidiary	0.020	2.441**	0.025	3.135*	0.025	3.135*
Extra	0.011	0.294	0.011	0.303	0.005	0.129
Family	-0.146	-5.051*	-0.135	-4.837*	-0.134	-4.813*
Loss	0.117	3.021*	0.090	2.429**	0.092	2.477**
Industry	0.115	3.000*	0.153	4.504*	0.190	4.922*
Model Summary						
R-Squared	0.143		0.211		0.218	
Adj. R-Squared	0.126		0.195		0.201	
F-Statistic	8.291*		13.274*		12.329*	
Sample Size	407		407		407	

Legend: *, **, and *** indicate significance at $p<0.01$, $p<0.05$ and $p<0.10$, respectively (based on two-tailed tests). See Table 1 for full definitions and descriptions for the study's dependent, independent and control variables.

Panels A and B present results from simple regressions with only one independent variable (*Specialist* and *Auditor Reputation* respectively). Panels C of Table 5 shows the results with all independent variables included in one multiple regression. Regression model estimates reported in Table 5, Panels A to C, are all statistically significant (F-statistic $p<0.01$). The model in Panel A (12.6%) explains the most variance in the dependent variable and the information in Panel C (20.1%) the least. The overall explanatory power of the model is comparable to many studies in this area Ashton *et al*. (1989), 8.8% to 12.3%; Jaggi and Tsui (1999), 14.2% to 14.4%; Tanyi *et al.* (2010) 4% to 17%; Leventis *et al*. (2005) 24.3%; and Habib and Bhuiyan (2011) 25% to 27%.

A consistent finding across all regressions is that *Specialist* and *Auditor Reputation* are negatively and significantly (both at $p<0.05$ and $p<0.01$ respectively) associated with *Audit Lag*[4]. The results therefore support our hypotheses. Companies that are audited by auditors' industry specialization enjoy a shorter audit delays. In general, industry-specialist auditors have better audit technology, lower audit costs as a result of economies-of-scale, and superior knowledge (Gramling and Stone, 2001). They are better able to develop superior industry-specific knowledge and expertise in the industry in which they specialize and are more quickly able to familiarize with the clients' business operations. The result is they are able to perform their audit work more expeditiously than their non-specialist counterparts (Craswell and Taylor, 1991; Habib and Bhuiyan, 2011). The finding in this study is consistent with previous international studies conducted by Habib and Bhuiyan (2011). Using 502 firm-year observations of New Zealand Stock Exchange listed firms from 2004 to 2008, Habib and Bhuiyan document evidence that the audit report lag is shorter when firms are audited by industry specialist auditors.

It is often argued that big, internationally affiliated accounting firms have more resources to hire high quality audit staffs, employ audit technology more effectively, provide enhanced teaching and training programs which culminate in higher quality auditing

[4] There are a number of other possible factors, for example the administration approval process by the audit firm home office which can impact on audit lags.

service (Palmrose, 1986b; Owunsu and Leventis, 2006). Consequently, Big 4 auditors are more likely to work to more condensed reporting time lines as compared to their non-Big 4 counterparts (Ashton *et al.*, 1989; Carslaw and Kaplan, 1991; Abdulla, 1996; Leventis *et al.*, 2005; Al-Ajmi, 2008). In line with other previous studies (e.g., Leventis *et al.*, 2005; Owunsu and Leventis, 2006), our result supports the argument that the audit report lag in Indonesia is reduced by appointing an international audit firm since Big 4 auditors are more likely to complete their audit work faster than their non-Big 4 counterparts. Our findings do however contradict with Afify (2009) and Apadore and Noor (2013) who fail to find evidence supporting a negative relationship between Big 4 audit firms and an audit report lag.

With reference to control variables, the coefficients on *Size* are negative across all regression models. This finding is not statistically significant and therefore our results do not support the argument that large companies are able to exert more pressure on auditors for timely reporting. This result suggests that for Indonesia strong internal control is not a necessary condition to ensure a timely audit. Large firms in Indonesia firms are likely to have numerous divisions, subsidiaries, and branches that are widely located throughout the Indonesian archipelago which adds a layer of complexity and time to the audit process. These conditions may lead to different result compared to other studies.

Similar to previous studies (Owusu-Ansah, 2000; Leventis *et al.*, 2005; Cohen and Leventis, 2013), the coefficients for *Leverage* is not significant. The coefficients on *Subsidiary* are all positively and are significantly (at $p<0.05$ in Panel A and $p<0.01$ in Panels B and C) associated with the measure of audit report lag, implying that an audit report lag is longer for companies with more subsidiaries due to the complexities inherent in auditing such companies. The results are consistent with Ng and Tai (1994); Jaggi and Tsui (1999); and Habib and Bhuiyan (2011), but contradicts with the report by Leventis *et al.* (2005). For their study, Leventis *et al.* (2005) document that the number of subsidiaries is not significant and with a negative sign. The result on the variable *Extra* is with the predicted sign but not statistically significant. This could be due to a relatively small number of

firms reporting extraordinary items in our sample. Another possible explanation could be that additional audit works in auditing a company that reports extraordinary items was not considered important and have not an impact on audit delay. Panels A to C in Table 5 also show that the coefficients on family ownership (*Family*) are in the expected negative direction and statistically significant at $p<0.01$, implying that audit report lag for family-owned and controlled firms is likely to be shorter.

In our paper the estimated coefficient on *Loss* is positive and significant at $p<0.01$ (Panel A) and $p<0.05$ (Panels B and C). Companies with a loss are more likely to delay bad news for a longer period of time or alternatively auditors may proceed more cautiously during the audit process in response to a reported company loss (Carslaw and Kaplan, 1991). Our results are generally in line with prior studies (Henderson and Kaplan, 2000; Afify, 2009; Habib and Bhuiyan, 2011). Additional analysis reveals that the audit report lag is found to be higher (approximately 11 days) for companies making a loss. Also, our result from Independent Samples T-test (for brevity is not presented) shows that companies reporting a loss statistically and significantly experience longer audit delay than profitable companies. As shown in Table 5, the coefficient on *Industry* is positive and statistically significant at $p<0.01$ across all models indicating that an industry variable does influence the audit report lag. The audit report lag is shorter for companies categorised as low profile industry compared to companies in the high profile group.

D. Self-selection and endogeneity

It is possible that the audit reporting lag and both the auditor industry specialization and auditor reputation measures are endogenously determined. It could be argued that corporate managers may be motivated to hire high quality (industry specialist or Big 4) auditors as these auditors are expected to perform an audit effectively and efficiently. Also high quality (specialist and Big 4) auditors are more likely to retain clients with stronger internal control systems, are in strong financial positions and have low inherent risk. The

observed positive association between auditor reporting lag and *Specialist* or *Auditor Reputation* variables may be due to self-selection bias.

To address the self-selection concern, our study performs additional ordinary least squares (OLS) analyses that excludes the variable of *Specialist* and *Auditor Reputation* respectively and divide these independent variables into two categories, namely, specialist versus non-specialist and Big 4 versus non-Big 4 auditors (Habib and Bhuiyan, 2011). The regression results are presented in Table 6, Panels A and B.

Table 6: Self-selection: The effect of Specialist and Auditor Reputation

	Panel A – Industry Specialist				**Panel B – Auditor Reputation**			
	Specialist		***Non Specialist***		***Big 4***		***Non Big 4***	
	Beta	***t*-statistic**	**Beta**	***t*-statistic**	**Beta**	***t*-statistic**	**Beta**	***t*-statistic**
(Constant)		15.083*		54.947*		29.608*		51.333*
Specialist					-0.157	-1.961**	0.006	0.084
Audit Reputation	-0.100	-0.754	-0.210	-6.693*				
Size	-0.024	-1.653	0.004	0.693	-0.009	-1.055	0.011	1.726***
Leverage	-0.020	-0.144	0.001	0.187	-0.001	-0.208	-0.001	-0.650
Subsidiary	0.037	1.689***	0.030	3.754*	0.032	2.382**	0.027	3.134*
Extra	0.105	0.861	0.130	0.861	0.007	0.087	-0.023	-0.702
Family	-0.111	-2.146**	-0.127	-4.746*	-0.160	-2.910*	-0.110	-4.312*
Loss	0.287	2.126**	0.048	1.388	0.173	1.919**	0.070	2.330**
Industry	0.589	4.286*	0.130	3.551*	0.304	4.707*	-0.003	-0.062
Model Summary								
R-Squared	0.339		0.228		0.210		0.160	
Adj. R-Squared	0.271		0.208		0.172		0.130	
F-Statistic	4.991*		11.457*		5.578*		5.263*	
Sample Size	87		320		177		230	

Legend: *, **, and *** indicate significance at p<0.01, p<0.05 and p<0.10, respectively (based on two-tailed tests). See Table 1 for full definitions and descriptions for the study's dependent, independent and control variables.

The regression model estimates reported in Panels A and B of Table 6 are all significant (F-statistic p<0.01). As shown in Panel A, the explanatory power of the model for the industry specialist auditor is greater than the non-specialist auditor category (27.1% compared to 20.8%). Likewise, the explanatory power of the model for the Big 4 auditor sub-sample (Panel B) is significantly higher than the Non Big 4 group (adjusted R^2 of 17.2% versus 13.0%). Additionally, the directional signs and significant on coefficients for

the explanatory variables in the *Specialist* and *Big 4* sub-samples are generally consistent with our main findings as reported in Table 5.

E. Additional sensitivity and robustness checks

We undertook a number of additional sensitivity and robustness tests so as to better ensure the robustness of the inferences drawn. First, we define an industry specialist auditor as the largest supplier in each industry using market share based upon client total sales. Using the market share in measuring industry specialization is based on the assumption that industry expertise is built by repetition in similar settings. A large volume of business in an industry would be indicative of expertise in that industry. Industry expertise could also accumulate from auditing a large number of clients rather than from a few large clients (Gramling and Stone, 2001; Balsam *et al.*, 2003). For the second sensitivity analyses, we identify an industry specialist as the auditor with the largest number of clients in the industry. Finally, instead of using a dichotomous measure to identify a specialist auditor, we proxy for industry specialization using a continuous measure of market share based upon client total assets (e.g., Lys and Watts, 1994; Balsam *et al.*, 2003; Carcello and Nagy, 2004).

Table 7, Panels A to C, presents the results of multivariate regression for the three sensitivity tests.

Table 7: Sensitivity and robustness analyses

	Panel A		Panel B		Panel C	
	Beta	***t*-statistic**	**Beta**	***t*-statistic**	**Beta**	***t*-statistic**
(Constant)		56.354*		56.971*		58.176*
Specialist	-0.076	-1.761***	0.138	2.804*	-0.006	-5.445*
Audit Reputation	-0.211	-6.239*	-0.267	-7.445*	-0.151	-4.357*
Size	-0.004	-0.666	-0.004	-0.673	-0.001	-0.102
Leverage	0.001	0.095	0.001	0.184	0.001	-0.007
Subsidiary	0.025	3.132*	0.027	3.336*	0.028	3.525*
Extra	0.005	0.143	-0.003	-0.081	0.007	0.194
Family	-0.133	-4.787*	-0.142	-5.114*	-0.131	-4.867*
Loss	0.092	2.463**	0.089	2.412**	0.073	2.015**
Industry	0.184	4.817*	0.092	2.308**	0.229	6.422*
Model Summary						
R-Squared	0.217		0.226		0.265	
Adj. R-Squared	0.199		0.208		0.249	
F-Statistic	12.206*		12.876*		15.943*	
Sample Size	407		407		407	

Legend: *, **, and *** indicate significance at p<0.01, p<0.05 and p<0.10, respectively (based on two-tailed tests). See Table 1 for full definitions and descriptions for the study's dependent, independent and control variables.

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All regression model estimates reported in Table 7 are highly significant (F-statistic p<0.01) with explanatory power (adjusted R^2) ranging from a high of 24.9% (Panel C) to a low of 19.9% (Panel A). The results of multiple regression analysis from the sensitivity test are generally similar to that of the main regression analysis (see Table 5). One difference of note, however unlike the finding on the main Table 5, the coefficient on *Specialist* in Panel B (when an industry specialist auditor is determined by the largest number of clients in the industry) is positive and significant at p<0.01. In some industries an auditor has the largest number of clients and is categorized as an industry specialist. However, the auditors are not deemed specialist when we calculate market share based upon the client's total assets or total sales. This is likely due to audit clients in these industry classifications being relatively small in term of total revenues and total assets. Another possible explanation for the result is given the geography of Indonesia firms may own several branches that are located widespread locations and islands. Finally, it is noted that the results for control variables in the sensitivity and robustness tests are generally in line with the main finding reported in Table 5.

V. Discussion and Concluding Remarks

One important factor in measuring of transparency and quality of financial reporting is timeliness. This study investigates the determinants of timeliness of annual corporate reports of manufacturing firms listed on the Indonesia Stock Exchange (IDX) for the financial year of 2010 and 2011. We investigate the association between audit report timeliness and two characteristics of audit quality, namely auditor industry specialization and auditor reputation. This study finds evidence consistent with Habib and Bhuiyan (2011) who document that industry specialist auditors offer faster audit work compared to non-specialist auditors. This study also reveals that Big 4 audit firms perform statistically and significantly faster audit work than their non-Big 4 counterparts in Indonesia. Our findings are robust to three alternative measures of auditor industry specialization, that is, an industry specialist auditor as the largest supplier in each industry using market share based upon client total sales, an industry specialist as the auditor with the largest number of clients in the industry, and instead of using a dichotomous measure to identify a specialist auditor, we proxy for industry specialization using a continuous measure of market share based upon client total assets .

With respect to the control variables, the study reports statistically and significant relationships between auditing complexity (*Subsidiary*), companies' profitability, auditors' business risk (*Family*) and industry classification and audit report lag. The results reveal that the audit process of firms with a large number of subsidiaries and/or firms who are experiencing difficult financial condition are found to be associated with longer reporting delays. Additionally, audit report timeliness is found to be faster for companies in the low profile industry sector and owned by family members. Insights drawn from this study may be of assistance to policy makers as they consider the costs and benefits associated with varying levels of audit market concentration as well as providing a snapshot of the level of non-compliance on audit timeliness in Indonesia. Due to competitive pressure, audit firms have 'naturally' re-aligned their organizational structure along industry lines which in turn has promoted broader development of industry specialization. One

implication of our results is that this 'natural' progression has ultimately enabled better streamlining of the audit firm and the ability to conduct a faster more efficient audit. Given industry specialization is likely to play an increasingly important role in audit value in the future (Hogan and Jeter, 1999; Solomon *et al.*, 1999) development by policy makers and reformists to contract industry specialization should be encouraged (Balsam *et al.*, 2003; Krishnan, 2003a). Our findings also provide support to client firms using the audit services of Big 4 auditors. In addition the importance of investment by audit firms into personal skills, technologies, and physical facilities is a pre-cursor to quality audit outcomes.

Similar to other empirical investigations, our study is not without certain caveats. First, the period of audit report lag in this study reflects the audit work from the year-end to the audit report date. We do not consider audit work conducted outside this period in the analysis. Second, there are numerous control variables and although we have attempted to capture those variables to maintain the integrity of our research there are likely other excluded variables that may be important in explaining audit report timeliness. Finally, there are other factors, for example, administrative approval process with the audit firm home office, which can affect audit report lags but have not been included in the model analysis. Future studies can seek to focus on refinements to the proxy measures for dependent and experimental variables.

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