Sansaloni Butar Butar <sansaloni@unika.ac.id>

Status artikel

Sansaloni Butar Butar <sansaloni@unika.ac.id> Wed, Feb 7, 2018 at 1:18 PM
To: Juniarti <yunie@petra.ac.id>

Yth. Ibu Juniarti
Pada bulan November 2017 yang lalu, saya mengirim artikel ke jurnal akuntansi keuangan petra dengan judul "Kompleksitas industri dan kinerja auditor: Apakah keahlian industri auditor penting?. " Namun hingga sekarang status artikel masih awaiting assingment. Mohon klarifikasi, mengapa status artikel tersebut belum berubah. selain itu, pada laman JAK dikatakan bahwa edisi may 2018 harus dalam bahasa inggris. Apakah artikel yang saya kirim harus dialihbahasakan dalam bahasa Inggris agar dapat dipertimbangkan untuk dimuat dalam edisi May 2018?.

Mohon kesediaanya untuk memberikan respon atas pertanyaan di atas.

Salam,
Sansaloni Butar Butar

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Sansaloni Butar Butar <sansaloni@unika.ac.id>

Status artikel

Juniarti . <yunie@petra.ac.id> Mon, Feb 12, 2018 at 8:28 AM
To: Sansaloni Butar Butar <sansaloni@unika.ac.id>

Dear Ibu Sansaloni,

Betul, artikel Ibu tengah dalam proses review, dan terlampir saya sampaikan hasil review oleh reviewer kami. Mohon untuk ditindaklanjuti masukan-masukan tsb. Kami berharap dapat menerima artikel yang telah direvisi dalam waktu dua minggu sejak email ini kami kirimkan.
Sesuai masukan reviewer, artikel Ibu kami pertimbangkan untuk dimuat dalam periode Mei 2018, dan kami persilahkan untuk men-translate ke dalam bahasa Inggris, namun jika tetap dalam bahasa Indonesia, kami akan mengenakan translation fee sebesar Rp 750 ribu.

Terima kasih atas kerjasamanya.

salam,
[Quoted text hidden]
--
Dr. Juniarti, M.Si., Ak., CA
Department of Accountancy
Petra Christian University
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INDONESIA

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Masukan Reviewer:

Penyusunan kalimat sudah baik. Tetapi penggunaan istilah tidak jelas. Kadang ditulis et. al; kadang et al.; kadang et. al.; kadang dkk.
Judul cukup ringkas. Istilah kunci dalam judul adalah apakah keahlian industri auditor penting…, **tetapi kesimpulan tidak menjawab penting atau tidak penting**
Abstrak hanya didominasi oleh tujuan dan kesimpulan, selain itu tujuan terlalu banyak, sehingga menjadi tidak seimbang. Tidak ada uraian metode.
Masalah dan isu jelas, namun pengembangan hipotesis 1 dan 2 kurang memadai, tidak menyinggung akrual abnormal padahal dalam hipotesis ada tulisan akrual abnormal.
Hipotesis 2 berisi istilah "akrual abnormal". Pada hipotesis 3 berisi istilah "akrual abnormal absolut". Tetapi dalam metode persamaan-persamaan untuk kedua hipotesis tersebut adalah "absolut"
Data disajikan dengan baik. Sebaiknya tabel-tabel di body tulisan adalah tabel yang dibuat sendiri, bukan tabel output statistik
Masih ada masalah dengan daftar pustaka. Ada beberapa referensi tidak ada di body tulisan seperti Kinney, Solomon, Teoh, dan lainnya, Mohon diperhatikan dan dilengkapi, dan disesuaikan dengan gaya selingkung jurnal

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Sansaloni Butar Butar <sansaloni@unika.ac.id>

Status artikel

Sansaloni Butar Butar <sansaloni@unika.ac.id> Mon, Feb 12, 2018 at 8:41 AM
To: Juniarti <yunie@petra.ac.id>

Yth. Ibu Juniarti

Terimakasih atas balasan email yang baru saja saya terima. Saya akan segera merevisi dan menterjemahkan sendiri artikel tersebut dalam bahasa Inggris.

Salam
Bp. Sansaloni Butar Butar
[Quoted text hidden]

Sansaloni Butar Butar <sansaloni@unika.ac.id>

Paper revisian

Sansaloni Butar Butar <sansaloni@unika.ac.id> Fri, Feb 23, 2018 at 4:29 PM
To: Juniarti <yunie@petra.ac.id>

Yth. Ibu Juniarti

Saya mengirim kembali paper yang telah direvisi sesuai catatan reviewer dan telah mentranslasikan ke dalam bahasa inggris. Mohon kesediaan ibu untuk mereply apabila paper revisian sudah diterima.

Salam,
Sansaloni Butar Butar

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Accounting Complexity and Auditor Industry.docx
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Does Auditor Industry Expertise matters in complex business environment: Evidence From Indonesia

Sansaloni Butar-Butar

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ABSTRACT

This study examines the role of specialist auditors in enhancing the quality of financial statements by taking into account industry complexity. Hypothesis testing is conducted in two steps. First step is to provide evidence that earnings quality, measured by earnings persistent, of firms operating in complex and non-complex industry are different. Second step is to compare the absolute abnormal accruals of companies engaged in complex industry with those from non-complex industry audited by non-specialist and specialists auditors. Results show: 1) earnings persistence of firms in complex industries are lower than that of non-complex industry. 2) absolute abnormal accruals of firms operating in complex industry are greater than those from non-complex industry despite the fact that the auditors are industry specialists. Taking as a whole, the results suggest that auditor industry expertise does not play a significant role in improving the quality of audited earnings when firm running its business in complex environment.

Keywords: specialist auditor, earnings persistence, industry complexity, financial reports

ABSTRAK

Studi ini menguji peran auditor spesialis industri dalam meningkatkan kualitas laporan keuangan dengan memperhatikan kompleksitas industri. Pengujian hipotesis dilakukan dalam dua tahap. Tahap pertama adalah memberikan bukti bahwa kualitas laba, diukur dengan persistensi laba, perusahaan yang beroperasi di industri kompleks dan non-kompleks berbeda. Tahap kedua adalah membandingkan akrual abnormal absolut perusahaan yang bergerak dalam industri yang kompleks dengan industri non-kompleks yang diaudit oleh auditor non spesialis dan spesialis. Hasil penelitian menunjukkan: 1) persistensi laba perusahaan di industri yang kompleks lebih rendah daripada industri yang tidak kompleks. 2) akrual abnormal absolut perusahaan yang beroperasi di industri yang kompleks lebih besar daripada industri non-kompleks meskipun auditor yang digunakan adalah spesialis industri. Secara keseluruhan, hasil penelitian menunjukkan bahwa keahlian industri auditor tidak memainkan peran penting dalam meningkatkan kualitas laba auditan ketika perusahaan menjalankan bisnisnya di lingkungan yang kompleks.

Kata kunci: auditor spesialis, persistensi laba, kompleksitas industri, laporan keuangan.

1. INTRODUCTION

Firms business environment may affect the reliability of financial statements to reflect economic reality. A complex business environment creates uncertainty causing accountants to have difficulties to assess the impacts of events and transactions on company's resources. This situation may lead to inappropriate accounting policy choice and ultimately hinder financial statements users in making effective business decision. Bushman et al. (2004) argue that firm complexity due to business and geographic line diversification decreases transparency. Firms operating in certain industry where rapid environment changes occur very often will have great obstacles in recording business transactions. Francis and Gunn (2015) support the view and state that accounting industry complexity arises from difficulties in mapping economic activity into generaly accepted accounting principles (GPPA), and into accounting rules by which measurement of assets, liabilities, revenues, costs, and owner's equit rely on.

Francis and Gunn (2015) illustrate the accounting complexity in computer and software sectors. They say that common business practice require firms in these industries to bundle multiple products together, such as providing after sale services, free software updates, and assisting installation or providing assistance with software problems. Revenue recognition for these transactions require firms to apply multiple deliverable accounting rules. These rules are quite complex that firms have to estimate selling price for each separate unit of accounting and thorough understanding of the industry's products and services. Recognizing revenue from transactions involving different accounting rules are difficult to do and might induce measurement errors. This situation leads to low quality of audited earnings.

Bushman et al. (2004) use earnings timeliness to assess the impact of firm complexity on reported earnings. They found that firm complexity measured by industrial and geographic concentrations affects earnings timeliness. Meanwhile, Doyle et al. (2007) find that firms with weak internal control systems tend to engage in complex business activities and to have poor financial conditions.

Plumlee and Yohn (2010) investigated factors leading to increasing restatement in the US during 2003-2006. Restatement were used as an indicator of earnings quality. They found that 37% of restament were related to the application of accounting standards. As much as 58% of restating firms were due to uncertainty in accounting standards, and 37% were related to the use of judgment in the application of standards. Their evidence suggests that increasing restatements in US partly because the inability of firms to correctly interpret and decide the most appropriate accounting policies when complex situation occurs. When the erros are subsequently discovered and find out that they adopt incorrect accounting policies, restatements are to be made.

Prior Empirical results support the positive relationship between industry specialization and audit quality. Dunn and Mayhew (2001) argue and provide evidence that the auditor with industry specialization improve the quality of audited earnings simply because they can provide different audit services something that their competitors connot provide. Industry specialist auditors are able to differentiate services that separate them from competitors who have no special expertise in a particular industry. Several researches on relationship between auditor industry specialization and earnings quality reported consistent results (Dechow and Dichev, 2002; Balsam et al. 2003; Doyle et al., 2007). In addition, other studies investigating the link between auditor industry expertise and audit fees found that audit fees received by specialist auditors were higher than for non-specialist auditors (eg Craswell et al.1995; Hogan and Jeter, 1999; Ferguson and Stoke, 2003 ; Choi et al., 2012; Reichelt and Wang, 2010).

In contrast, previous studies in Indonesia that link auditor industry expertise and audit quality documented inconsistent results. Several studies reported positive association between industry specialist auditors and audit quality (Setiawan and Fitriani, 2011; Rahadianto, 2012;

Senjaya and Suprasto, 2013; Nugrahanti, 2014; Fitriany et al. 2015, and Kusumah and Manurung, 2016). Other studies found negative association (Novianti et al. 2012). Meanwhile, some studies fail to provide evidence on the association between industry expertise and audit quality (Herusetya, 2009; Chrisnoventie, 2012; Wintono, 2014; Suresti, 2015; Pertiwi et al., 2016).

Inconsistent results may stem from the use of different proxies for measuring audit quality and industry specializations and different samples periods. For example, Setiawan and Fitriani (2011) use discretionary accruals as audit quality proxy and 10% audit market share as a threshold for industry specializations. Herusetya (2009) uses earnings response coefficients as audit quality proxies and uses 15% and 30% threshold to classify auditors having industry specialization. But more than these, inconsistent results may be attributed to the researcher's assumption that the influence of the auditor industry expertise on audit quality or earnings quality are relevant to all types of industries.

This study attempts to explain the inconsistent results of prior auditor industry specialization studies in Indonesia. As far as authors' knowledge, no previous research has ever conducted to explain the phenomenon. This study argue industry complexity may explain the inconsistent results of previous studies in Indonesia. Firms operating in complex industries have difficulties in applying accounting rules required by GAAP. In effect, the reported earnings of firms in complex industry contain higher noise than those operating in less complex industries. Unlike Francis and Gunn (2015), this study argue that auditor industry expertise are only relevant and to play a significant role in improving earnings quality of firms in less complex industries. In addition to examining auditor industry expertise, this study also investigate the effect of industry complexity on non-specialist auditors. It is predicted that eanings quality of firms in complex industry audited by non-specialist auditors are of lower quality than firms in non-complex industry audited by non-specialist auditors.

2. Literature Review And Hypotheses Development

2.1 Accounting Industry complexity

Diversification of business brings major changes to operational and control activities that a good corporate governance system must be established. Busman et al. (2004) state that multi-industry and multinational companies facing complex managerial environments experience monitoring issues. These companies experience different cultural and legal systems that they should develop monitoring systems to coordinate cross-border corporate activities. Differences in geography, currency, high audit costs, legal systems, language and culture lead to information complexity (Duru and Reeb, 2002; Denis et al., 2002). Bodnar et al. (1998) concluded that operational complexity arises because of differences in tax systems and financial restrictions

The economic effect of diversification and the reasons for doing have become important topics and filled the academic literature. Dennis et al. (2002) concluded that the costs of diversification is greater than the benefits. They argue that the mounting costs are due to increased agency costs between managers and shareholders. Increased agency costs will have a negative effect on capital allocation and manager focus. Furthermore, the diverse corporate activities and unrelated segments may lead to the emergence of corporate culture conflicts and operational styles that distract managers from more strategic tasks. Owen and Polk (2000) reported evidence that diversification was negatively related to firm value. They conclude that diversification destroys company value.

In addition to lowering corporate value, diversification also encourages a serious information gap between parties within the company, and between firms with outside investors (Gilson et al., 2001). Diversification causes business activities and enterprise information systems to become increasingly complex (Bushman et al., 2004). Diversification also causes segment reporting to be less informative (Givoly et al., 1999). They compare incorrect enterprise segment reporting measurements that have more than one line of business with companies with only one business line. They found that the measurement errors of segment information, especially profit, are greater than that of segment companies that have only one business line. Peterson (2012) examines whether accounting complexities increase the likelihood of revenue restatements. They found that the complexity in revenue measurement increases the likelihood of revenue restatements. More over, revenue restatements occur due to deliberate and unintentional reporting errors.

2.2 Auditor industry specialist

An auditor's knowledge about accounting is a key factor that can improve the quality of audit services provided to clients. According to Danos (1989), there are at least five categories of knowledge required to carry an audit of financial statements: general auditing, functional areas (eg tax and computer-based auditing), accounting issues (leasing and pensions), industry issues, and clients' businesses. Category one, two, and three can be obtained through formal education. However, it is rare for a person to have all the necessary accounting and auditing knowledge in an audit engagements. Category four and five are not entirely the domain of professional accountants. Knowledge of industry is particularly important when auditors performing audit in industries with different or unique accounting rules. Knowledge of clients' businesses help auditor to identify potential problems and communicate them with company employees.

Referring to Porter (1985), Mayhew and Wilkins (2003) proposed arguments to explain why specialization is required for accounting firms. In the context of Porter's competitive advantage, accounting firms should attempt to identify ways that can differentiate them from competitors by providing high quality services that other accounting firms are difficult to mimic. By focusing on differentiation, the accounting firm creates opportunities to meet the client's unique needs. The accounting firm must provide unique services that are not easily imitated by competitors. The differentiation should be directed to the characteristics of clients and the type of services required, such as size, number of segments, industry membership, regulation, and capital sources (Chan et al., 2001). Mayhew and Wilkins (2003) state that client industry membership is the most important dimension that can be used to identify the need of clients. Industry specialization becomes valuable because it allows accounting firms to use differentiation strategies to meet the needs of a large group of companies with the same characteristics. Industry specialization is expected to have positive impact on an accounting firm’s income.

Empirical studies on auditor industry specialization suggest that industry specialist auditors are paid higher than non-specialists. Craswell et al. (1995) reported higher audit fees received by auditors with industry specialization in Australia’s audit market on 1987. Hogan and Jeter (1999) investigated the market share of accounting firms that has been classified as specialists. They found that the degree of audit concentration had increased during 1976 to 1993. Meanwhile, Ferguson et al. (2003) documented evidence that market perceptions and appreciation for auditor industry expertise in Australia were largely based on industry leadership at office-level and city level expertise. This is consistent with evidence in Choi et al., (2012) and Reichelt and Wang (2010) suggesting that audit market is dominated by city-specific markets.

2.3 Earnings quality

Conceptual arguments and explanation with regard to earnings quality have become a very important academic discussion in the accounting literature. But differences in definitions and how to measure it still remain to these days. According to Dichev et al. (2013), various measurements have been proposed and used in earnings quality empirical researches; including earnings persistence, predictability, asymmetric loss measurements, benchmark beating forms, income smoothing, magnitude of accruals, income increasing accruals, absolute abnormal accruals, and the extent to which accruals are mapped in cash flow. With respect to auditor industry specialization, studies found that auditor industry specialists have higher earnings quality (Dechow and Dichev, 2002; Balsam et al., 2003). These findings are consistent with arguments that industry-specific auditors are able to position themselves differently to produce higher audit quality (Dunn and Mayhew, 2004). High audit quality is also associated with major investments in technology, physical facilities, employees, and organizational control systems that enable industry specialist auditors to detect irregularities and misstatements more easily (Simunic and Stein, 1987). Their ability to produce higher audit quality derives from accumulation of experiences they get from various companies in the same industry and from knowledge of best practice in different industries.

Khrisnan and Yang (1999) use earnings response coefficients as a proxy for earnings quality. The results showed that the reported earnings of firms with industry specialist auditor have higher earnings response coefficient relative to non-specialist auditors. Carcello and Nagy (2002) reported a negative relationship between industry specialist auditors and fraudulent financial statements. Balsam et al. (2003) showed that the absolute abnormal accruals of firms with industry specialist auditor were smaller than those of non-industry specialists.

2.4 Hypothesis development

Accounting complexity arises from the inherent difficulty in applying accounting standards and mapping firms' economic activities into accounting rules as a basis for recognizing and measuring accounting elements such as assets, liabilities, revenues, costs and owner's equity (Francis and Gunn, 2015). The accounting complexity requires specific accounting knowledge to identify potential problems in clients' financial statements (Danos, 1989). Business trends and jargon used in an industry are often unique and solely belong to the industry.

In some industries such as the service sector, the business model is not complex. Firms pose no difficulties to implement GAAP. In contrast, industries such as software development or construction sector have long life cycles making business models more complex. The paculiar business practices make it difficult for accountants to choose appropriate accounting treatments. Operation of firms in those industries are oftentime involved cash transactions. Therefore, inherent difficulty in applying GAAP in complex industries should be suspected to affect the quality of reported earnings. Since it has greater likelihood of estimation error and contain noiser signals, earnings in complex industry is expected to be less persistent than earnings of firms in less complex industries. Arguments connecting industrial complexity and earnings characteristics are expressed in the following hypotheses:

H1: firms'earnings in complex industries are less persistent compared to those in non-complex industries.

Large body of research on the association of auditor industry specialization and earnings attribute (eg, Khrisnan and Yang, 1999; Balsam et al. 2003; Kwon et al. 2007) generally assumes that auditor industry expertise is relevant to all types of industries. In other words, industry specialist auditors can always provide higher audit quality regardless of types of industries firms belong. However, Francis and Gunn (2015) objected such assumptions saying that non-industry specialist auditors can audit financial statements as good as specialist auditors if clients operate in non-complex industries.

Dichev et al. (2013) identify various measures of earnings quality, including asymmetric loss measurements, various forms of benchmark beating, magnitude of accruals, income increasing accruals, absolute abnormal accruals, and the extent to which accruals are mapped into cash flows. Prior studies on the association between auditor industry expertise and earnings quality documented evidence that firms with industry specialist auditors have higher earnings quality reflected by low abnormal absolute accruals (Dechow and Dichev, 2002; Balsam et al. 2003; Krishnan, 2003; Doyle et al. 2007). However, Francis and Gunn (2015) argue that industry complexity brings advantage to industry specialist auditors to exploit their industry expertise relative to non- specialist auditors.

In less complex industries, financial reporting issues are less complicated and audit judgments to assess and interpret the GAAP are lot easier to do. In contrast, economic events underlying transactions in complex industries are difficult to measure with a high degree of certainty. This is due to estimations and assumptions accountants have to make related to future events. In such situations, auditors can no longer rely on knowledge and audit skills they have but rely solely on discretion in assessing the company's accounting policies. The knowledge specialist auditors have becomes less relevant when dealing with uncertain situations. It is argued that audit performance of specialist auditors will vary considerably when they audit companies operating in complex industries relative to less-complex industries. As a result, the quality of audited earnings reflected in the amount of abnormal accruals will be decreasing. In other words, absolute abnormal accruals of firms operating in complex industrial environments are expected to be higher than firms operating in less complex environments. Arguments connecting absolute abnormal accruals, industry complexity and industry specialist auditors are expressed in the following alternative hypothesis:

H2: Absolute abnormal accruals of firms with audit industry specialists are greater in complex industries than those in non-complex industries.

The two hypothesis above emphasizes the effect of industry complexity on auditors' ability to detect errors in financial statements. It is argued that the negative impact of industry complexity on audit performance will also present in clients with non-specialist industry auditors. In fact, the impact is predicted to be greater. Without sufficient knowledge and experience of business practices in complex industrial environments, non-specialist auditors will pose serious obstacles in performing audit with unprecedented economic events. Accounting complexity surrounding transactions in complex environment is so high that it makes it difficult for non-specialist auditors to exploit the audit expertise they possess in determining the most appropriate accounting treatment. Incorrect estimates and improper accounting policy choices increase absolute abnormal accruals contained in audited earnings. In contrast, in less-complex industrial environment, auditing expertise of non-specialist auditors are relevant and useful. Estimation errors and misleading accounting policies can be reduced and eliminated. As a consequence, abnormal accruals contained in audited earnings becomes smaller. The argument leads to the following hypothesis:

H3: Absolute abnormal accruals of firms with non-specialists auditors are greater in complex industries than those in non-complex industries.

3. Research method.

3.1 Population and Sample

The population of this study are all companies listed on the Indonesia Stock Exchange and the samples are firms releasing complete financial statements and provide necessary information to measure research variables during 2012-2015. Firms belong to financial industry (banks, insurance and other financial institutions) are excluded because of different accruals characteristics. In addition, miscellaneous industry are also excluded for it is difficult to compare it with industrial grouping proposed in Francis and Gunn (2015). Francis and Gunn (2015) separate firms into complex and non-complex industries based on thorough analysis of firm dinamics environments. Data for this study are obtained from annual report uploading online through official website of Indonesian Stock Exchange at www.bei.co.id. However, annual reports of public companies are not all available on the official website of Indonesian Stock Exchange. Data deficiencies are collected from company's official website and other sources from the internet with the help of Google search engine. If from these sources the company's financial statements remain inaccessible, then the company is eliminated.

Table 1 presents the sampling procedure in detail. The number of firms satisfying the criteria for 2012-2015 are 130 firms samples. Thus 520 (130 x4) observations are available for further analysis.

Table 1.

Sample Selection Procedure

Criteria	Total
Firms are listed on IDX in 2015	532
Firms are consecutively listed from 2012-2015	(71)
Firms belong to financial, insurance, and miscellaneous industry are excluded.	(219)
Annual reports are available in Rupiah	(20)
Annual report can be downloaded from data sources	(92)
Final Sample	130

3.2 Variable Measurements

3.2.1 Accounting Industri Complexity

Firm samples are classified into industry groups based on Jakarta Stock Industrial Classification (JASICA). The grouping is available on IDX FACT BOOK. Based on

JASICA, firms are grouped into 9 sectors: Agriculture (1), Mining (2), Basic Industry and Chemicals (3), Miscellaneous Industry (4), Consumer goods Industry (5), Property, Real Estate And Building Construction (6), Infrastructure, Utilities & Transportation (7), Finance (8) and Trade, Service & Investment (9).

In this study, the criteria used to group industries into complex and non-complex industries follows Francis and Gunn (2015). A complete list of complex and non-complex firms based on Francis and Gunn (2015) are described in the appendix. Firm samples classification under JASICA will be compared to the list of industry groups proposed in Francis and Gunn (2015) to determine whether companies are in complex or less complex industrial categories. For example, based on JASICA PT. Astra Argo Lestari is classified as agriculture industry. Based on Francis and Gunn (2015), agriculture industry is categorized as a complex industry. Thus, PT. Astra Argo Lestari is a firm that belongs to complex industry. However, miscellaneous industry group under JASICA is eliminated because it is difficult to determine whether the industry is categorized as complex or non-complex industry.

3.2.2 Earnings Persistent

Following Sloan (1996), earnings persistent is measured as coefficicent regression of current year earnings on prior year earnings. Below is the model to estimate earnings persistent:

$$\text{Earnings}_t = \alpha + \beta_1 \text{ Earningas}_{t-1} + \varepsilon \tag{1}$$

Equation (1) is estimated separately for firms operating in complex and less complex industries. Hypothesis one was then tested by comparing the regression coefficients for each industry group using a non-parametric statistical test of two samples Kolmogorov-Smirnov Z.

3.2.3 Abnormal Accruals

Four different models are used to estimate abnormal accruals. However, performance matched discretionary model proposed by Kothari et al. (2005) is used as a basis for accepting or rejecting hypothesis. The model controls for the effect of firm performance on accruals and is widely used in earnings management research. While the rest of the models are used to assess the consistency of the results (rubustness check). The four models are described below.

a. Kothari Model (Kothari et al., 2005)

$$ACCR_{t}/TA_{t-1} = \beta_0 + \beta1(\Delta SALE_{i,t/}TA_{t-1}) + \beta_2(PPE_{t}/TA_{t-1}) + \beta_3(ROA_{,t}/TA_{t-1}) + \varepsilon_{i,t} \quad (2)$$

ACCRt is the total accruals on year t obtained from the difference between earnings before extraordinary items and discontinued operation and cash flow (CFO), TA_{t-1} is a prior year total asset, $\Delta SALE_t$ represents a change in sales in year t, PPE_t represents equipment, plant and property in year t, and ROA_t is a continuing operating income deflated by total assets. The model is estimated pool-crosssectionaly for each industry. The abnormal accruals are residual from the regression model. Abnormal accruals are then transformed into absolute value and served as a proxy of earnings quality.

b. Ball dan Shivakumar Model (Ball dan Shivakumar, 2006)

$$ACCR_{t}/TA_{t-1}=\alpha_1(1/TA_{t-1})+\alpha_2(\Delta SALE_t-\Delta REC_{t/}TA_{t-1})+\alpha_3(PPE_t/TA_{t-1})+\alpha_4(CFOt/TA_{t-1})+$$

$$\alpha_5 D\_CFO_t + \alpha_6(CFOt/\ TA_{t-1})^{*}\ D\_CFO_{t} + e_t \quad (3)$$

$ACCR_{it}$ is similar to Kothari model, CFOt is the operating cash flow for the current year, TA_{t-1} is total asset in t-1, $\Delta SALE_t$ represents the change in sales in year t, ΔREC_t is the change in receivables in year t, D_CFO_t is a dummy variable, 1 if the operating cash flow is positive and 0 otherwise, and PPE_t represents equipment, plant and property in year t. This model is estimated by pool crosssectional for the entire observation period.

c. Modified Jones Model (Dechow et al. 1995)

$$ACCR_{t}/TA_{t-1} = \alpha_1\ (1/TA_{t-1}) + \alpha_2(\Delta SALE_t-\Delta REC_{/}TA_{t-1}) + \alpha_3(PPE_t/TA_{t-1}) + e_t \quad (4)$$

All variables are defined and measured the same way as in Kothari Model and Ball and Shivakumar (2006).

d. **Kasznik Model (Kasznik, 1999)**

$$ACCR_{i,t}/TA_{i,t-1} = \alpha_1\ (1/TA_{i,t-1}) + \alpha_2(\Delta SALE_{i,t}/TA_{i,t-1}) + \alpha_3(PPE_{i,t}/TA_{i,t-1})$$

$$+ \alpha 4(\Delta CFO_{i,t}/TA_{i,t-1}) + e_{i,t} \qquad (5)$$

All variables in this model are defined and measured the same way as in Modified Jones Model, Kothari Model, and Ball and Shivakumar model (2006).

3.2.4 Auditor Industry Specialist

Following Kwon et al. (2007), auditor's market share is used to determine whether the auditor has an industry specialization. Auditor market share is calculated by the following formula:

$$\text{Auditor maret share} = \frac{\sum_{j=1}^{Jik} Sale_{ijk}}{\sum_{i=1}^{Ik}\sum_{j=1}^{Jik} Sale_{ijk}} \qquad (6)$$

The numerator is the total sales of all clients audited by accounting firm i in industry k. The denominator is the sum of the total sales of all the companies in the industry k. An accounting firm is considered as having industry specialization if it controls more than 20 percent of the audit market share (Mayhew and Wilkins, 2003).

3.2.5 Control variables

There are five control variables that are used to reduce the impact of firm characteristics. They are firm size (total assets), debt to asset ratio, profitability (return on asset), and operating cash flow. Control variables are included to reduce errors in variables or to anticipate the effects of omission of variables.

3.3 Model Specifications

3.3.1 Hypothesis One

Hypothesis one predicts that earnings persistence in complex industries is lower than that of less complex industries. The hypothesis is tested using a non-parametric statistical test of two samples Kolmogorov-Smirnov Z.

3.3.2 Hypothesis two

Hypothesis two predict earnings quality of firms, measured by absolute abnormal accruals, with auditor industry specialists are greater in complex industries relative to those in less complex indsutries. Below is the model to test hypothesis two:

$$Ln\_Abs\_DA_t = \beta_0 + \beta_1 Industry_t + \beta_2 Lev_t + \beta_3\ ROA_t + \beta 4\ Ln\_Size_t + \beta_5 CFO_{t-1} + \varepsilon_t \qquad (7)$$

Where,

$Ln\_Abs\_Da_t$ = Absolute abnormal accruals are estimated separately using four different models and are transformed into natural logarithm; $Industry_t$= Dummy variables, 1 if the firm is audited by a specialist auditor in complex industries and 0 if they are from non complex industries; Lev_t= Ratio of total debt to total assets; ROA_t = Ratio of net income to total assets in year t; Ln_Size_t= The size of the firm that is transformed into natural logarithm; CFO_t= Operating cash flow deflated by total assets

It should be noted that abnormal accruals are transformed into absolute values to avoid negative abnormal accruals and positive abnormal accruals cancel out. The situation obscures the interpretation of results. As discussed extensively in the accounting literature, negative abnormal accruals decreases reported earnings while positive abnormal accruals increases earnings. However, both are the result of manager discretion and bring noise in reported earnings. Since this present study does not focus on the direction of abnormal accruals but the magnitude of abnormal accruals, absolute abnormal accruals are appropriate proxy for earnings quality. Absolute abnormal accruals are then transformed into natural logarithms because transforming abnormal accruals into absolute abnormal accruals causing data skewed to the right and potentially violate the assumption of normality. Transforming abnormal accruals into absolute values and are subsequently transformed natural logarithm follow Carcello et al. (2007).

3.3.1 Hypothesis Three

Hypothesis three examines audit quality among non-specialist auditors in complex and non-complex industries. Below is the model to test hypoyhesis three:

$$Ln\_Abs\_DA_t = \beta_0 + \beta_1 Industry_t + \beta_2 Lev_t + \beta_3\ ROA_t + \beta_4\ Ln\_Size_t + \beta_5 CFO_{t-1} + \varepsilon_t \quad (8)$$

Where,

$Ln\_Abs\_Da_t$ = Absolute abnormal accruals models estimated separately using four different models and are subsequently transformed into natural logarithms; $Industry_t$ =Dummy variable, 1 if firms operating in a complex industry and 0 otherwise; Lev_t = Ratio of total debt to total assets; ROA_t = Ratio of net income to total assets in year t; $Size_{it}$= ln total asset; FO_t= Operating cash flow deflated by total assets.

4. Results and Discussion

4.1 Descriptive Statistics

As much as 520 firm samples are available during 2012-2015 period. Table 2 reports descriptive statistics for variables related to auditor industry expertise and control variables. Panel A is descriptive statistics for variables in complex industries and panel B for non-complex industries.

Absolute abnormal accruals (Abs_Akrual) presented in the table 2 are estimated using model introduced in Kothari et al., (2005). Panel A shows the mean for absolute abnormal accruals is 7.4% of total assets for firms in complex industries and 6.3% of total asset for non-complex industries (panel B). Though some companies report very high abnormal

Table 2.

Descriptive Statistics

Panel A: Complex Industry

Variable	N	Minimum	Maximum	Mean	Std.Dev
Abs_Akrual	288	0,000	0,687	0.074	0.082
Aud_Special	288	0,000	1,000	0,240	0.430
LEV	288	0,000	2,460	0,541	0,368
ROA	288	-0,720	0,490	0,061	0,101
SIZE	288	3,641	8,211	6,210	0,852
CFO	288	-0,610	0,940	0,081	0,145

Panel B: non-complex industry

Variabel	N	Minimum	Maksimum	Rerata	Dev.Std
Abs_Akrual	232	0,000	0,351	0,063	0,058
Aud_Special	232	0,000	1	0,410	0,492
LEV	232	0,000	1,460	0,476	0,270
ROA	232	-0,210	2,05	0,103	0.174
SIZE	232	4,942	7,963	6.246	0.714
CFO	232	-1, 840	1,030	0.085	0.209

accruals

of 68.7%

and 35.1% respectively for each industry, on everage earnings management level is quite moderate.

It can also be seen from Panel A and B, Aud_special has a mean of 24% and 41% respectively. These suggest that 24% of auditors who have industry expertise are hired by firms operating in complex industries and 41% are hired by firms operating in non-complex industries. The statistics show that the number of auditors who have industry expertise are lower than those who have no industry specialization. This is understandable because to gain adequate knowledge of a complex industry requires auditors to have a strong commitment in learning continually about the company's business activities. Not all auditors are willing to invest time and effort to understand complex industrial environments.

This study uses four control variables. They are LEV (debt level), ROA (profitability), SIZE (company size), and CFO (cash flow). On average, the firm samples in complex and non-complex industries have a fairly safe level of debt that is below 1. This is reflected from a low debt ratio of 0.541 for the complex industries and 0.476 for non-complex industries. Meanwhile, profitability is also quite moderate. The mean for ROA are 0.061 and 0.103 for complex and non-complex industries respectively. These figures suggest that on average, firms engaged in non-complex industries are more profitable than firms operating in complex industries. Firm are almost equal in size between the two industry groups. The same is true for the operating cash flow (CFO).

4.2 Results

Hypothesis One (H1) predicts a complex industrial environment causing firms' earnings to fluctuate sharply over years resulting in lower earnings persistence. More specifically, H1 predicts earnings of firms operating in complex industries are less persistent than those in less complex industries. Non-parametric statistical tests of two samples

Kolmogorov-Smirnov Z are used to draw conclusions. This statistical tool is used because earnings persistence is not normally distributed.

The results described in Table 3 show that Z statistics of two-sided test is equal to 1.284 and p-value of 0.074. However, conclusions are drawn using one-tailed test because the hypothesis is stated in a direction. It can thus be concluded that the earnings persistence (Asymp 0.074 / 2 = 0.037) in the complex industries is lower than that of less complex industries. The results support the industry grouping proposed by Francis and Gunn (2015).

Table 3

Differences in Persistence of Complex Profit Industry and Less Complex

	Earnings Persistent
Kolmogorov-Smirnov Z	1,284
Asymp. Sig. (Two tailed)	,074

Firms engaged in complex business environments are more volatile because earnings measurement is more difficult and contains higher measurement errors than other companies operating in less complex industries. Danos (1989) states that the accounting complexity in certain industry requires accountants to have specific accounting knowledge to identify potential problems in clients' financial statements

Hypothesis Two (H2) states that the knowledge of specialist auditors become less relevant in complex indsutries. Therefore it is predicted that absolute abnormal accruals of firms operating in complex industrial environments are expected to be higher than firms operating in less complex environments. The firms used to test H2 are limited to those audited by industry specialist auditor. As a consequence, Only 149 firm samples available to test H2. More over, as much as 13 firm samples must be eliminated to meet normality assumption underlying multiple regression analysis. Final samples left to test H2 is 136 observations. Table 4 summarizes the effect of industry complexity and specialist auditors on abnormal absolute accruals.

It should be noted that the abnormal accruals shown in table 4 are estimated using performance matched discretionary accruals model introduced in Kothari et al. (2005). Inferences are drawn based on this model. The analysis focuses on industry variable which is a dummy variable that takes 1 if firms operating in a complex industry and 0 otherwise. Table 4 shows the coefficient has a positive value and statistically significant at less than 1%. Positive directions indicate that the abnormal accruals of firms in the complex industry are

Table 4
Abnormal Accruals and Auditor Industry Expertise
In Complex Industry

Model : $Ln\_Abs\_Akrual_t = \gamma_0 + \gamma_1 Industry_t + \gamma_2 Ln\_SIZE_t + \gamma_3 DAR_t + \gamma_4 ROA_t + \gamma_5 CFO_t + \varepsilon_t$

Variables	**Predicted Signs**	**Coefficient**	**Std. Error**	**t-statistics**	**P-Value**
Industry	(+)	0,373	0,124	3,007	0,003
Ln_Size	(+)	-0,044	0,037	-1,172	0,243
DAR	(+)	0,415	0,263	1,577	0,117
ROA	(+)	0,249	0,884	0,282	0,779
CFO	(+/-)	0,738	0,662	1,115	0,267
N		**135**			
Adjusted R^2		**0,06**			

higher than those of the less complex industry although both use industry specialization auditors. Hence, H2 is supported statistically.

Overall, the findings suggest the auditor's industry expertise does not play an important role in a complex industry. The uncertain business environment makes it difficult for auditors to assess whether the accounting policies used by the company are in conformity with accepted accounting standards. More over, the findings explain the inconsistent results reported by various studies of industry specialization auditors in Indonesia (Setiawan and Fitriani (2011), Rahadianto (2012), Senjaya and Suprasto (2013), Nugrahanti (2014), Fitriany et al. (2015), Kusuma and Manurung (2016), Novianti et al. (2012), Herusetya (2009), Chrisnoventie (2012), Wintono (2014), Suresti (2015), Pertiwi et al. (2016). As described earlier, some studies reported positive association between industry specialist auditors and audit quality but some found negative association. The result of the present study shows that industry complexity must be controled to assess the effect of auditor industry expertise on audit quality.

We perform further analysis to test the validity of the results. Sensitivity analysis is performed by re-estimating abnormal accruals using three different models that has been described earlier. Table 5 reports that the coefficients for Industry in all models have positive direction. The results are consistent with evidence reported in table 4. However, the significance level of the three models varies, ranging from 1% for modified Jones, 5 % for Ball and Shivakumar, and 10% for Kasznik models. Overall these results suggest that industry complexity cause negative effect on the quality of audited earnings.

Industry complexity is predicted to not only decreases the ability of specialist auditors to assess the company's accounting policies but also the ability of non-specialist auditors. The relationship between industry complexity and non-specialist auditors is stated hypothesis three (H3). Hypothesis three emphasizes the pronounced effect of industry complexity on non-specialist auditors relative to specialist auditors in maintaining the quality of financial statements.

Tabel 5.

Abnormal Accruals and Auditor Industry Expertise

In Complex Industry (Alternative Models)

$$Ln\_Abs\_Akrual_t = \gamma_0+\gamma_1 Industry_t+\gamma_2 Ln\_SIZE_t+\gamma_3 DAR_t+\gamma_4 ROA_t+\gamma_5 CFO_t+ \varepsilon_t$$

	Model Ball dan Shivakumar		**Model Modified Jones**		**Model Kasznik**	
	Koef. B	***p-value***	**Koef. β**	***p-value***	**Koef. B**	***p-value***
Industry	0,272	0,033	0,392	0,002	0,248	0,087
Ln_Size	-0,037	0,313	-0,025	0,487	0,011	0,784
DAR	1,270	0,000	0,386	0,145	0,026	0,931
ROA	2,387	0,012	1,340	0.132	0,543	0,593
CFO	0,009	0,989	-0,206	0,745	0,617	0,395
N	132		144			140
Adj. R2	0,190		0,054			0,012

Table 6 presents the impact of industry complexity on financial statements audited by non-specialist auditors. It should be noted that the samples used to test H3 are limited to firms who hire non-specialist auditors. As a consequence, firm samples available to conduct regression analysis is down to 267 observations. As much as 31 firm sampels were then eliminated leaving only 236 firm samples to test H3. The results are shown in Table 6. The focus is on variable Industry which is a dummy variable that takes 1 if the firm operates in a complex industry and 0 otherwise.

As seen in table 6, Industry has positive sign with p-value of 0,045. Therefore, H3 is statistically suported with significant level at 5%. The results suggest that the absolute abnormal accruals of firms in complex industries are higher relative to firms operating in less complex industries even though they use non-specialist auditors. The results support previous findings that industry complexity has a negative effect on the quality of financial statements.

Tabel 6

Non-spesialist Auditors In Complex and Non-complex Industry

$Ln\_Abs\_Akrual_t = \gamma_0+\gamma_1 Industri_t+\gamma_2 Ln\_SIZE_t+\gamma_3 DAR_t+\gamma_4 ROA_t+\gamma_5 CFO_t+ \varepsilon_t$

Variabel	Arah Prediksian	Koefisien	Std. Error	t-statistics	P-Value
Industry	(+)	0,205	0,101	2,017	0,045
Ln_Size	(+)	-0,009	0,030	--0,312	0,755
DAR	(+)	0,402	0,148	2,717	0,007
ROA	(+)	-0,763	0,524	-1,456	0,147
CFO	(+/-)	3,397	0,540	6,293	0,000
N		**135**			
Adjusted R^2		**0,17**			

Robustness check is also conducted to assess whether the results are specific or dependent upon the model used. Table 7 summarizes the results using three alternative models.

Tabel 7.

Non-specialist Auditors In Complex and Non-Complex Industry (Alternative Models)

$Ln\_Abs\_Akrual_t = \gamma_0+\gamma_1 Industry_t+\gamma_2 Ln\_SIZE_t+\gamma_3 DAR_t+\gamma_4 ROA_t+\gamma_5 CFO_t+ \varepsilon_t$

	Ball dan Shivakumar		**Modified Jones**		**Kasznik**	
	Koef. B	***p-value***	**Koef. B**	***p-value***	**Koef. B**	***p-value***
Industry	0,051	0,708	0,216	0,091	0,400	0,001
Ln_Size	-0,093	0,017	-0,042	0,254	-0,090	0,011
DAR	0,874	0,000	0,467	0,002	0,435	0,001
ROA	-0,178	0,788	0,300	0.636	-0,095	0,872
CFO	0,083	0,871	-0,535	0,277	0,126	0,804
N	243		256			243
Adj. R2	0,104		0,042			0,089

Of the three models, only the Ball and Shivakumar fail to detect differences in absolute abnormal accruals of firms with non-specialist auditors in complex and non-complex industries. Kasznik and modified Jones models support previous findings with a significance level of less than 1% and at 10% .

5. Conclusions and Limitations

5.1 Conclusions

The assumption that the auditors who have industry specialization expertise can always improve the quality of financial statements regardless kinds of industries are misleading. The complexity of industry may reduce or even eliminate the effect of auditor industry expertise. Knowledge of business practices and norms in particular industry are often unique and useful only in less complex industry. This study examines the important of auditor industry expertise in improving the quality of financial statements by taking into account industry complexity. The findings are summed up as follows:

1. Earnings Persistence of firms in complex industries are lower than firms in non-complex industry.
2. Auditor industry expertise does not affect financial statements quality of firms operating in complex business environments. The result suggests that investors should considers industry complexity before making investment decisions. Hiring public accounting firms who have industry expertise are only appropriate for firms engaged in less complex industries. The specialist auditor alone is not enough to guarantee that the financial statements have reasonably reflected economics reality and firm prospects in the future.
3. Absolute abnormal accruals of firms operating in complex industries are higher relative to those in-non complex industries despite the fact that they hire non-specialized industry auditors.

Some prior studies in Indonesia have shown industry-specific auditors play an important role in improving the quality of financial statements. But the results of this study suggest that the knowledge of business practices in an industry does not improve the ability of auditors in enhancing financial reporting quality of firms in a complex environment. More over, the significant effect of industry complexity on the quality of financial statements identified in this study may explain the inconsistent results of previous auditor industry specialization studies in Indonesia.

5.2 Limitations

This study collected data from accessible external data sources. Unfortunately, some firms' financial statements are not available online during sample period of 2012-2015. This might affect the results. Therefore, inferential should be taken catiously and in the context of firms sample and periods.

The procedure to separate firms into complex and non-complex industry based on Jakarta Stock Industrial Classification could be too broad and fail to distinguish different environment dynamics that a firm experienced. Incorrect grouping might have impacted the results reported in this study.

5.3 Suggestions

Following are two suggestions that should be considered for future research:

1. Use different proxy for earnings quality such as earnings response coefficients, stock prices synchronicity and earnings timeliness.
2. Subsequent research may consider classification of complexity by sub-industry.

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DAFTAR INDUSTRI

Industri Kompeks	Industri Yang Tidak Kompeks
Agriculture	Food Products

Entertainment	Candy & Soda
Healthcare	Beer & Liquor
Construction	Recreation
Defense	Printing and Publishing
Precious Metals	Consumer Goods
Non-metallic and Industrial Metal Mining	Apparel
Coal	Medical Equipment
Petroleum and Natural Gas	Pharmaceutical Products
Utilities	Chemicals
Communication	Rubber and Plastic Products
Business Services	Textiles
Computers	Construction Materials
Transportation	Steel works, etc.
Banking	Fabricated Products
Insurance	Machinery
Real Estate	Electrical Equipment
Trading	Automobiles and Trucks
	Aircraft
	Shipbuilding, Railroad Equipment
	Personal Services
	Electronic Equipment
	Measuring and Control Equipment
	Business Supplies
	Shipping Containers
	Wholesale
	Retail
	Restaurants, Hotels, Motels
	Food Products

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Paper revisian

Juniarti . <yunie@petra.ac.id> Wed, Feb 28, 2018 at 1:13 PM
To: Sansaloni Butar Butar <sansaloni@unika.ac.id>

Dear Bapak Sansaloni,

Terima kasih sudah mengirimkan hasil review, namun masih ada beberapa hal yang perlu disesuaikan dengan gaya selingkung JAK, dalam hal penulisan judul/sub judul, penulisan kutipan dan penulisan referensi. Kami berharap artikel yang telah disesuaikan dapat kami terima paling lambat tanggal 9 Maret 2018.

Terima kasih atas kerjasamanya.

salam,
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--
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Sansaloni Butar Butar <sansaloni@unika.ac.id> Fri, Mar 9, 2018 at 4:52 PM
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Yth. Ibu Juniarti
Terlampir saya kirim kembali hasil revisi paper untuk JAK sesuai dengan masukan-masukan yang telah saya terima dan batas waktu yang diberikan untuk melakukan revisi. Terimakasih.

Salam,
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Does Auditor Industry Expertise Improve Audit quality In Complex Business Environments?

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ABSTRACT

This study examines the role of specialist auditors in enhancing the quality of financial statements by taking into account industry complexity. The test of hypotheses are conducted in two steps. The first step is to provide evidence that earnings quality, measured by earnings persistent, of firms operating in the complex and non-complex industry are different. The second step is to compare the absolute abnormal accruals of companies engaged in the complex industry with those from non-complex industry audited by non-specialist and specialists auditors. Results show: 1) earnings persistence of firms in complex industries are lower than those in non-complex industries. 2) absolute abnormal accruals of firms operating in complex industries are higher than those in non-complex industries regardless industry specialization. Overall, the results suggest that auditor industry expertise does not play a significant role in improving the quality of audited earnings in complex business environment.

Keywords: specialist auditor, earnings persistence, industry complexity, financial reports

INTRODUCTION

Firm business environment may affect the reliability of financial statements to reflect firm economic reality. A sophisticated business environment creates uncertainty causing accountants to face difficulties in assessing the impact of events and transactions on company's resources. The situation may lead to inappropriate accounting policy choices and ultimately hinder financial statements users in making effective business decisions. Bushman et al. [1] argue that firm complexity due to business and geographic line diversification decreases transparency. Firms operating in a particular industry where rapid environment changes occur very often will have high obstacles in recording business transactions. Francis and Gunn [2] supported the view stating that accounting industry complexity arises from difficulties in mapping economic activities into generally accepted accounting principles (GPPA), and accounting rules as basis for measurement of assets, liabilities, revenues, costs, and owner's equity.

Francis and Gunn [2] illustrated the accounting complexity of computer and software sectors. They stated that ordinary business practice requires firms in these industries to bundle multiple products together, such as providing after-sale services, free software updates, and assisting installation or providing assistance with software problems. Revenue recognition for the particular transactions requires firms to apply multiple deliverable accounting rules. These rules are quite complicated. Firms have to estimate selling price for each separate unit of accounting that require thorough understanding of the industry's products and services. Recognizing revenue from transactions involving different accounting rules are difficult to accomplish and might induce measurement errors. The situation might lead to low quality of audited earnings.

Bushman et al. [1] use earnings timeliness to assess the impact of firm complexity on reported earnings. They found that firm complexity measured by industrial and geographic concentrations affects earnings timeliness. Meanwhile, Doyle et al. [3] find that firms with weak internal control systems tend to engage in complex business activities and to have poor financial conditions.

Plumlee and Yohn [4] investigated factors leading to increasing restatement in the US during 2003-2006. The restatement was used as an indicator of earnings quality. They found that 37% of restament were related to the application of accounting standards. As much as 58% of restating firms were due to uncertainty in accounting standards, and 37% were related to the use of judgment in applying accounting standards. The evidence suggests that increasing restatements in the US was partly because the inability of firms to correctly interpret and choose the most appropriate accounting policies in complex situation. When firms subsequently discover errors and misaplication of GAAP, restatement of finansial statements are to be made.

Prior Empirical results support the positive relationship between industry specialization and audit quality. Dunn and Mayhew [5] argued that the auditor with industry specialization improve the quality of audited earnings largely because they provide audit services that differ from other accounting firms. Industry specialist auditors can differentiate services that separate them from competitors who have no expertise in a particular industry. Previous studies on the relationship between auditor industry specialization and earnings quality reported consistent results [6,7,8]. Other studies had investigated the association between auditor industry expertise and audit fees and found that audit fees for specialist auditors were higher than non-specialist auditors [9,10,11,12,13].

In contrast, previous studies in Indonesia examining the association between auditor industry expertise and audit quality reported mixed results. Several studies reported positive association between industry specialist auditors and audit quality [14,15,16,17,18,19]. Other studies found negative association [20]. Meanwhile, some studies fail to provide evidence on the association between industry expertise and audit quality [21,22,23,24,25].

The mixed results may stem from different proxies employed for audit quality, industry specializations or different samples periods. For example, Setiawan and Fitriani [14] used discretionary accruals as audit quality proxy and 10% audit market share as a threshold for industry specializations. Herusetya [21] used earnings response coefficients as a measure of audit quality. They also employed 15% and 30% threshold to classify auditors as industry specialists. Furthermore, the mixed results may be attributable to the researcher's assumption that industry expertise is relevant to all type of industries.

This study attempts to explain the mixed results of prior auditor industry specialization studies in Indonesia. As far as authors' knowledge, no previous research has ever been conducted to explain the phenomenon. We argue that industry complexity may explain the inconsistent results of previous studies in Indonesia. Firms operating in complex industries have difficulties in applying accounting rules required by GAAP. In effect, the reported earnings of firms in complex sectors contain higher noise than those operating in less complicated areas. Unlike Francis and Gunn [2], we argue that auditor industry expertise is only relevant and to play a significant role in improving earnings quality of firms in less complicated industries. In addition this study also investigates the effect of industry complexity on non-specialist auditors. It is expected that earnings quality of firms in complex industry audited by non-specialist auditors is of lower quality than firms in non-complex industry audited by non-specialist auditors.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Accounting Industry complexity

Diversification of business causes significant changes to firm operational and control activities that a good corporate governance system must be established. Busman et al. [1] stated that multiindustry and multinational companies posing complex managerial environments experience monitoring and control issues. Good monitoring systems should be developed to coordinate cross-border corporate activities. Differences in geography, currency, audit costs, legal systems, language, tax systems, financial restrictions, and culture may lead to information complexities [26,27,28].

The cause and consequences of diversification have become important topics and filled academic literatures. Dennis et al. [27] reported that the costs of diversification are higher than its benefits. The mounting costs are due to increased agency costs between managers and shareholders. Increased agency costs will hurt capital allocation and distract manager focus. Furthermore, the diverse corporate activities and unrelated segments lead to the emergence of organizational culture conflicts and operational styles that distract managers from more strategic tasks. Owen and Polk [29] reported evidence that diversification was negatively related to firm value. They concluded that diversification destroys company value.

In addition to the lowering corporate value, the diversification also encourages a severe information gap between parties within the company, and with outside investors [30]. Diversification causes business activities and enterprise information systems to become increasingly sophisticated [1]. Givoly et al. [31] argued that diversification makes segment reporting to be less informative. They compare firms with one business line with more than one line of businesses. They found that the measurement errors of more than one line of business segment are higher than firms with one business line. Peterson [32] examined whether accounting complexities increase the likelihood of revenue restatements. They showed that the complexity of revenue measurement increases the probability of revenue restatements. Moreover, the revenue restatements occur due to intentional and unintentional reporting errors.

Auditor industry specialist

Auditor knowledge of accounting are critical factors that improve audit quality. According to Danos [33], there are at least five categories of knowledges required to perform audit: general auditing, functional areas (e.g., tax and computer-based auditing), accounting issues (leasing and pensions), industry issues, and clients' businesses. The category one, two, and three can be obtained through formal education. But it is rare for a person to have all the necessary accounting and auditing knowledge in audit engagement. The category four and five are not entirely the domain of professional accountants. Knowledge of industry is particularly important when auditors are performing audits in industries that possess different or unique accounting rules. Knowledge of client businesses helps auditor to identify potential problems and communicate them with company employees.

Referring to Porter [34], Mayhew and Wilkins [35] proposed arguments to explain why specialization is required for accounting firms. In the context of Porter's competitive advantage, accounting firms should attempt to identify ways that can differentiate them from competitors by providing high-quality services that other accounting firms are difficult to mimic. By focusing on differentiation, the accounting firm creates opportunities to meet the client's unique needs. The accounting firm must provide unique services which cannot be readily imitated by competitors. The differentiation should be directed to the characteristics of clients and the type of services required, such as size, the number of segments, industry membership, regulation, and capital sources [36]. Mayhew and Wilkins [35] stated that client industry membership is the essential dimension that can be used to identify the need of clients. Industry specialization is important because it allows accounting firms to handle differentiation strategies to meet the needs of a large group of companies having the same characteristics. Industry specialization is expected to have positive impact on an accounting firm income.

Empirical studies on auditor industry specialization suggest that industry specialist auditors are paid higher than non-specialists. Craswell et al. [9] reported higher audit fees received by auditors with industry specialization in Australia's audit market on 1987. Hogan and Jeter [10] investigated the market share of accounting firms with industry specialization. They provided evidence that the degree of audit concentration had increased during 1976 to 1993. Meanwhile, Ferguson [11] documented evidence that market perceptions and appreciation for auditor industry expertise in Australia were primarily based on industry leadership at office-level and city level expertise. This is consistent with evidence in Choi et al. [12] and Reichelt and Wang [13] suggesting that audit market is dominated by city-specific markets.

Earnings quality

Conceptual arguments and explanation concerning earnings quality have become a critical academic discussion in the accounting literature. But differences in definitions and how to measure it still exist to these days. According to Dichev et al. [37], various measurements have been proposed and used in earnings quality empirical researchers; including earnings persistence, predictability, asymmetric loss measurements, benchmark beating forms, income smoothing, magnitude of accruals, income increasing accruals, absolute abnormal accruals, and the extent to which accruals are mapped to cash flow. For auditor industry specialization, studies found that auditor industry specialists have higher earnings quality [6,7]. The findings are consistent with argument that industry-specific auditors are able to position themselves differently to produce higher audit quality [38]. High audit quality is also associated with major investments in technology, physical facilities, employees, and organizational control systems that enable industry specialist auditors to detect irregularities and misstatements more easily [39]. Their ability to produce higher audit quality derives from the accumulation of experiences they obtain from companies in the same sectors and knowledge of best practice in different sectors.

Khrisnan and Yang [40] used earnings response coefficients as a proxy for earnings quality. The results showed that the reported earnings of firms with industry specialist auditor have higher earnings response coefficient relative to non-specialist auditors. Carcello and Nagy [41] found a negative association between industry specialist auditors and fraudulent financial statements. Balsam et al. [7] showed that the absolute abnormal accruals of firms with industry specialist auditor were smaller than those of non-industry specialists.

Hypothesis development

Accounting complexity arises from the inherent difficulty in applying accounting standards and mapping firm economic activities into accounting rules as a basis for recognizing and measuring accounting elements such as assets, liabilities, revenues, costs and owner's equity [2]. The accounting complexity requires specific accounting knowledge to identify potential problems in client financial statements [33]. Business trends and jargon used in industry are often unique and solely belong to the industry.

In some industries such as the service sector, the business model is not complicated. Firms pose no difficulties to implement GAAP. In contrast, industries such as software development or construction sector with long life cycles have more complex business models. The peculiar business practices make it difficult for accountants to choose appropriate accounting treatments. Transactions in those industries are often involved cash. Therefore, the inherent difficulty in applying GAAP in complex industries should be expected to affect the quality of reported earnings. Since it has higher likelihood of estimation error and contains noise signals, earnings in the complex industries are expected to be less persistent than firms in less complicated industries. Arguments connecting industrial complexity and earnings characteristics are expressed in the following hypotheses:

H1: earnings in complex industries are less persistent than those in non-complex industries.

A large body of research on the association of auditor industry specialization and earnings attribute [40,7,42] assume that auditor industry expertise is relevant to all type of industries. In other words, industry specialist can always provide higher audit quality regardless of the type of industries firms belong. However, Francis and Gunn [2] objected the assumptions saying that non-industry specialist auditors can audit financial statements as good as specialist auditors if clients operate in non-complex industries.

Dichev et al. [37] identified various measures of earnings quality, including asymmetric loss measurements, various forms of benchmark-beating, the magnitude of accruals, income increasing accruals, absolute abnormal accruals, and the extent to which accruals are mapped into cash flows. Prior studies on the association between auditor industry expertise and earnings quality documented evidence that firms with industry specialist auditors have higher earnings quality measured by low abnormal absolute accruals [6,7,43,3]. However, Francis and Gunn [2] argued that industry complexity brings advantage to specialist auditors because they can exploit their industry expertise relative to non-specialist auditors.

In less complicated industries financial reporting issues are less complicated. Audit judgments in assessing and interpreting GAAP are much easier to exercise. In contrast, economic events or transactions in complex industries are difficult to measure with a high degree of certainty. This is due to estimations and assumptions that accountants have to make in relation to future events. In such situations, auditors can no longer rely on knowledge and audit skills to assess client's accounting policies but on discretion alone. The previous knowledges and experiences are less relevant when dealing with uncertain situations. Therefore it is expected that audit performance of specialist auditors vary considerably in complex industries relative to less-complex industries. As a result, the quality of audited earnings measured by absolute abnormal accruals will be decreased. In other words, absolute abnormal accruals of firms operating in complex business environments are expected to be higher relative to those operating in less complex environments. Arguments connecting absolute abnormal accruals, industry complexity and industry specialization auditors are expressed in the following alternative hypothesis:

H2: Absolute abnormal accruals of firms with audit industry specialists are greater in complex industries than those in non-complex industries.

The two hypotheses above emphasize the effect of industry complexity on the ability of auditors in detecting rrors in financial statements. It is argued that the negative impact of industry complexity on audit performance will also present in clients with non-industry specialization. In fact, the effect is predicted to be greater. Without sufficient knowledge and experience of business practices in complex industrial environments, non-specialist auditors will pose severe obstacles in performing the audit with unprecedented economic events. Accounting complexity surrounding transactions in the complex environment is so high that makes difficult for non-specialist auditors to exploit their industry specialization in determining the most appropriate accounting treatments. Incorrect estimates and improper accounting policy choices increase absolute abnormal accruals contained in audited earnings. In contrast, in less-complex industrial environments, auditing expertise of non-specialist auditors are relevant and useful. Estimation errors and misleading accounting policies can be reduced and eliminated. As a consequence, abnormal accruals contained in audited earnings are smaller. The argument leads to the following hypothesis:

H3: Absolute abnormal accruals of firms with non-specialists auditorsare greater incomplex industries than those in non-complex industries.

RESEARCH METHOD

Population and Sample

The population of this study are all listed companies on the Indonesia Stock Exchange, and the samples are firms releasing complete financial statements with necessary information to measure research variables during 2012-2015. Firms belonging to the financial industry (banks, insurance, and other financial institutions) are excluded due to different characteristics of accruals. Miscellaneous industry is also excluded because it is difficult to compare it with industrial grouping proposed in Francis and Gunn [2]. Francis and Gunn [2] separated firms into complex and non-complex industries based on thorough analysis of firm dynamics environments. Data are obtained from annual report uploaded online by Indonesian Stock Exchange and can be accessed via www.bei.co.id. However, annual reports of public companies which are not available on the official website of Indonesian Stock Exchange, are collected from company's official website and other sources from the internet with the help of Google search engine. If annual reportof firms cannot be collected from all indicated sources then they are eliminated from the sample.

Table 1 presents the sampling procedure in detail. The number of firms satisfying the criteria for 2012-2015 are 130 firms samples. Thus 520 (130 x4) observations are available for further analysis.

Table 1.

Sample Selection Procedure

Criteria	Total
Firms were listed on IDX in 2015	532
Firms are consecutively listed from 2012-2015	(71)
Firms belong to financial, insurance, and miscellaneous industry is excluded.	(219)
Annual reports areavailable in Rupiah	(20)
Annual report canbe downloaded from data sources	(92)
Final Sample	130

Variable Measurements

Accounting Industri Complexity

Firm samples are classified into industry groups based on Jakarta Stock Industrial Classification (JASICA). The grouping is available on IDX FACT BOOK. Based on JASICA, firms are grouped into 9 sectors: Agriculture (1), Mining (2), Basic Industry and Chemicals (3), Miscellaneous Industry (4), Consumer goods Industry (5), Property, Real

Estate And Building Construction (6), Infrastructure, Utilities & Transportation (7), Finance (8) and Trade, Service & Investment (9).

The criteria to clasify firms into into complex and non-complex industries follow Francis and Gunn [2]. A complete list of complex and non-complex firms based on Francis and Gunn [2] are described in the appendix. Firm samples classification under JASICA will be compared to the list of industry groups proposed in Francis and Gunn [2] to determine whether companies are in complex or less complex industrial categories. For example, under JASICA PT. Astra Argo Lestari is classified as agriculture industry. Based on Francis and Gunn [2], the agriculture industry is categorized as a complex industry. Thus, PT. Astra Argo Lestari is a firm that belongs to the complex industry. However, miscellaneous industry under JASICA is eliminated because it is difficult to determine whether the industry is categorized as a complex or non-complex industry.

Earnings Persistent

Following Sloan [44], earnings persistent is measured as coefficient regression of current year earnings on prior year earnings. Below is the model to estimate earnings persistent:

$$\text{Earnings} = \alpha + \beta_1 \text{ Earnings}_{-1} + \varepsilon \qquad (1)$$

Equation (1) is estimated separately for firms operating in complex and less complex industries. Hypothesis one was then tested by comparing the regression coefficients for each industry group using a non-parametric statistical test of two samples Kolmogorov-Smirnov Z.

Abnormal Accruals

Four different models are employed to estimate abnormal accruals. However, performance matched discretionary model proposed by Kothari et al. [45] is used as a basis for accepting or rejecting the hypotheses. The model controls for the effect of firm performance on accruals and is widely used in earnings management research. While the rest of the models are used to assess the consistency of the results (robustness check). The four models are described below.

a. Kothari Model [45]

$$ACCR_t/TA_{t-1} = \beta_0 + \beta 1(\Delta SALE_{i,t}/TA_{t-1}) + \beta_2 (PPE_t/TA_{t-1}) + \beta_3 (ROA_{,t}/TA_{t-1}) + \varepsilon_{i,t} \quad (2)$$

ACCRt is the total accruals on year t obtained from the difference between earnings before extraordinary items and discontinued operation and cash flow (CFO), TA_{t-1} is a prior year total asset, $\Delta SALE_t$ represents a change in sales in year t, PPE_t represents equipment, plant, and property in year t and ROA_t is a continuing operating income deflated by total assets. The model is estimated pool-cross-sectional for each industry. The abnormal accruals are residual from the regression model. Abnormal accruals are then transformed into an absolute value and served as a proxy for earnings quality.

b. Ball dan Shivakumar Model [46].

$$ACCR_t/TA_{t-1}=\alpha_1(1/TA_{t-1})+\alpha_2(\Delta SALE_t-\Delta REC_t/TA_{t-1})+\alpha_3(PPE_t/TA_{t-1})+\alpha_4(CFOt/TA_{t-1})+ \alpha_5 D\_CFO_t+ \alpha_6(CFOt/ TA_{t-1})^* D\_CFO_{t} +e_t \quad (3)$$

$ACCR_{it}$ is similar to Kothari model, CFOt is the operating cash flow for the current year, TA_{t-1} is total asset in t-1, $\Delta SALE_t$ represents the change in sales in year t, ΔREC_t is the change in receivables in year t,D_CFO_t is a dummy variable, 1 if the operating cash flow is positive and 0 otherwise, and PPE_t represents equipment, plant, and property in year t. This model is cross-sectionaly estimated for the entire observation period.

c. Modified Jones Model [47].

$$ACCR_t/TA_{t-1} = \alpha_1 (1/TA_{t-1}) + \alpha_2(\Delta SALE_t-\Delta REC/TA_{t-1}) + \alpha_3(PPE_t/TA_{t-1}) + e_t \quad (4)$$

All variables are defined and measured the same way as in Kothari Model and Ball and Shivakumar (2006).

d. Kasznik Model [48].

$$ACCR_{i,t}/TA_{i,t-1} = \alpha_1 (1/TA_{i,t-1}) + \alpha_2(\Delta SALE_{i,t}/TA_{i,t-1}) + \alpha_3(PPE_{i,t}/TA_{i,t-1})$$

$$+\alpha 4(\Delta CFO_{i,t}/TA_{i,t-1}) + e_{i,t} \qquad (5)$$

All variables in this model are defined and measured the same way as in Modified Jones Model, Kothari Model, and Ball and Shivakumar model.

Auditor Industry Specialist

Following Kwon et al. [42], auditor's market share is used to determine whether an accounting firm has industry expertise. Auditor market share are computed as follows:

$$\text{Auditor market share} = \frac{\sum_{j=1}^{Jik} Sale_{ijk}}{\sum_{i=1}^{Ik}\sum_{j=1}^{Jik} Sale_{ijk}} \qquad (6)$$

The numerator is the total sales of all clients audited by accounting firm i in industry k. The denominator is the sum of the total sales of all firms in industry k. An accounting firm is considered as having industry specialization if it controls more than 20 percent of the audit market share [35].

Control variables

Five control variables are added to control the impact of firm characteristics. They are firm size (total assets), debt to asset ratio, profitability (return on asset), and operating cash flow. Control variables are included to reduce errors in variables to anticipate the effects of omission of variables.

M odel Specifications

Hypothesis One

Hypothesis one predicts that earnings persistence of firms in complex industries are lower than those in less complex industries. The hypothesis is tested using a non-parametric statistical test of two samples Kolmogorov-Smirnov Z.

Hypothesis Two

Hypothesis two examines the audit quality among specialist auditors in complex and non-complex industries. Hypothesis two predict earnings quality of firms, measured by absolute abnormal accruals, with auditor industry specialists are greater in complex industries relative to those in less complex industries. The following is the model to test hypothesis two:

$$Ln\_Abs\_Akrual_t = \beta_0 + \beta_1 Industry_t + \beta_2 Lev_t + \beta_3 \, ROA_t + \beta 4 \, Ln\_Size_t + \beta_5 CFO_{t-1} + \varepsilon_t \qquad (7)$$

Where,

$Ln\_Abs\_Akrual_t$ = Absolute abnormal accruals are estimated separately using four different models and are transformed into natural logarithm; $Industry_t$= Dummy variable, 1 if the specialist auditor belong to complex industries and 0 otherwise; Lev_t= Ratio of total debt to total assets; ROA_t= Ratio of net income to total assets in year t; Ln_Size_t= The size of the firm that is transformed into natural logarithm; CFO_t= Operating cash flow deflated by total assets

It should be noted that the abnormal accruals are transformed into absolute values to avoid negative and positive abnormal accruals cancel out. Such a situation may obscure the interpretation of the results. As discussed extensively in the accounting literature, negative abnormal accruals decrease reported earnings while positive abnormal accruals increase earnings. However, both are the result of manager discretion causing noises in reported earnings. Since this present study does not focus on the direction of abnormal accruals but the magnitude of abnormal accruals, absolute abnormal accruals are appropriate proxy for earnings quality. Absolute abnormal accruals are then transformed into natural logarithms because transforming abnormal accruals into absolute abnormal accruals causing data skewed to the right and potentially violate the assumption of normality. Transforming absolute abnormal accruals into natural logarithm follows Carcello et al. [49].

Hypothesis Three

Hypothesis three examines audit quality among non-specialist auditors incomplex and non-complex industries. The following is the model to test hypothesis three:

$$Ln\_Abs\_Akrual_t = \beta_0 + \beta_1 Industry_t + \beta_2 Lev_t + \beta_3 ROA_t + \beta_4 Ln\_Size_t + \beta_5 CFO_{t-1} + \varepsilon_t \quad (8)$$

Where,

$Ln\_Abs\_Akrual_t$ = Absolute abnormal accruals models estimated separately using four different models and are subsequently transformed into natural logarithms; $Industry_t$ = Dummy variable, 1 if the non-specialist auditor belongs to complex industries and 0 otherwise; Lev_t = Ratio of total debt to total assets; ROA_t = Ratio of net income to total assets in year t; $Size_{it}$= ln total asset; CFO_t= Operating cash flow deflated by total assets.

Results and Discussion

Descriptive Statistics

There are 520 firm samples available during the 2012-2015 period. Table 2 reports descriptive statistics for variables related to auditor industry expertise and non-industry expertise. Panel A is descriptive statistics for firms using auditor industry specialization and panel B for non-industry specialization.

Table2.

Descriptive Statistics

Panel A: Specialist Auditor

Variable	N	Minimum	Maximum	Mean	Std.Dev
Abs_Akrual	288	0,000	0,687	0.074	0.082

Industry	288	0,000	1,000	0,240	0.430
LEV	288	0,000	2,460	0,541	0,368
ROA	288	-0,720	0,490	0,061	0,101
SIZE	288	3,641	8,211	6,210	0,852
CFO	288	-0,610	0,940	0,081	0,145

Panel B: Non-specialist auditor

Variables	**N**	**Minimum**	**Maximum**	**Mean**	**Std. Dev**
Abs_Akrual	232	0,000	0,351	0,063	0,058
Industry	232	0,000	1	0,410	0,492
LEV	232	0,000	1,460	0,476	0,270
ROA	232	-0,210	2,05	0,103	0.174
SIZE	232	4,942	7,963	6.246	0.714
CFO	232	-1, 840	1,030	0.085	0.209

Absolute abnormal accruals (Abs_Akrual) presented in table 2 are estimated using model introduced in Kothariet al. [45]. Panel A shows the mean for absolute abnormal accruals is 7.4% of total assets for firms in complex industries and 6.3% of the total asset for non-complex industries (panel B). Though two companies report high abnormal accruals of 68.7% and 35.1% respectively for each industry, on average earnings management level is quite moderate.

It can also be seen from Panel A and B, Industry has mean value of 24% and 41% respectively. They suggest that 24% of auditors who have industry expertise are hired by firms operating in complex industries, and 41% are employed by firms operating in non-complex industries. The statistics also show that the number of auditors who have industry expertise is lower than those who have no industry specialization. This is understandable because to gain adequate knowledge of a complex industry requires auditors to have a strong commitment to learning continually about the company's business activities. Not all auditors are willing to invest time and effort to understand complex industrial environments.

This study uses four control variables. They are LEV (debt level), ROA (profitability), SIZE (company size), and CFO (cash flow). On average, the firm samples in complex and non-complex industries have a reasonably safe level of debt that is below 1. This is reflected from a low debt ratio of 0.541 for the complex industries and 0.476 for non-complex industries. Meanwhile, profitability is also quite moderate. The mean for ROA is 0.061 and 0.103 for complex and non-complex industries respectively. These figures suggest that on average, firms engaged in non-complex industries are more profitable than firms operating in complex industries. The firm is almost equal in size between the two industry groups. The same is true for the operating cash flow (CFO).

RESULTS AND DISCUSSION

Hypothesis One (H1) predicts a complex industrial environment causing firms' earnings to fluctuate sharply over the years resulting in lower earnings persistence. More specifically, H1 predicts earnings of firms operating in complex industries are less persistent than those in less complicated industries. Non-parametric statistical tests of two samples Kolmogorov-Smirnov Z are used to test the hypothesis. Kolmogorov-Smirnov Z is used because earnings persistence is not normally distributed.

The results described in Table 3 show that Z statistics of the two-sided test is equal to 1.284 and p-value of 0.074. However, conclusions are drawn using one-tailed test because the hypothesis is stated in a certain direction. It can thus be concluded that the earnings persistence (Asymp 0.074 / 2 = 0.037) in the complex industries is lower than that of less complex industries. The results support the industry grouping proposed by Francis and Gunn [2].

Table 3

Differences in Persistence of Complex Profit Industry and Less Complex

	Earnings Persistent
Kolmogorov-Smirnov Z	1,284
Asymp. Sig. (Two-tailed)	,074

Firms engaged in complex business environments are more volatile because earnings measurement is more difficult and contains higher measurement errors than other companies operating in less complex industries. Danos [33] stated that the accounting complexity in specific industry requires accountants to have particular accounting knowledge to identify potential problems in clients'financial statements

Hypothesis Two (H2) indicates that the knowledge of specialist auditors become less relevant in complex industries. Therefore it is predicted that absolute abnormal accruals of firms operating in complex industrial environments are expected to be higher than firms operating in less complex environments. The firms used to test H2 are limited to those audited by industry specialist auditor. As a consequence, Only 149 firm samples are available to test H2. Moreover, as much as 13 firm samples must be eliminated to meet normality assumption underlying multiple regression analysis. The final firm samples to test H2 is 136 observations. Table 4 summarizes the effect of industry complexity and specialist auditors on abnormal absolute accruals.

It should be noted that the abnormal accruals shown in table 4 are estimated using performance-matched discretionary accruals model introduced in Kothari et al. [45]. Inferences are drawn based on this model. The analysis focuses on industry variable which is a dummy variable that takes one if firms operating in a complex industry and 0 otherwise. Table 4 shows the coefficient has a positive value and statistically significant at less than 1%. Positive directions indicate that the abnormal accruals of firms in the complex industries are

Table 4
Abnormal Accruals and Auditor Industry Expertise
In Complex Industry

Model : $Ln\_Abs\_Akrual_t = \gamma_0 + \gamma_1 Industry_t + \gamma_2 Ln\_SIZE_t + \gamma_3 DAR_t + \gamma_4 ROA_t + \gamma_5 CFO_t + \varepsilon_t$

Variables	**Predicted Signs**	**Coefficients**	**Std. Error**	**t-statistics**	**P-Value**
Industry	(+)	0,373	0,124	3,007	0,003
Ln_Size	(+)	-0,044	0,037	-1,172	0,243
DAR	(+)	0,415	0,263	1,577	0,117
ROA	(+)	0,249	0,884	0,282	0,779
CFO	(+/-)	0,738	0,662	1,115	0,267
N		**135**			
Adjusted R^2		**0,06**			

Higher than those of the less complex industries although both use industry specialization auditors. Hence, H2 is supported statistically.

Overall, the findings suggest the auditor's industry expertise does not play a significant role in complex industries. The uncertain business environment makes it difficult for auditors to assess whether the accounting policies used by the company conform with accepted accounting standards. Moreover, the findings explain the inconsistent results reported by various studies in Indonesia [14,15,16,17,18,19,20,21,22,2324,25]. As described earlier, some studies reported a positive association between industry specialist auditors and audit quality but some found a negative association. The result of the present research shows that industry complexity must be controlled to assess the effect of auditor industry expertise on audit quality.

We perform further analysis to test the validity of the results. Sensitivity analysis is performed by re-estimating abnormal accruals using three different models that have been described earlier. Table 5 reports that the coefficients for Industry in all models have the positive direction. The results are consistent with evidence reported in table 4. However, the significance level of the three models varies, ranging from 1% for modified Jones, 5 % for Ball and Shivakumar model, and 10% for Kasznik model. Overall these results suggest that industry complexity cause the adverse effect on the quality of audited earnings.

The industry complexity is predicted to not only decreases the ability of specialist auditors to assess and verify client's accounting policies but also the ability of non-specialist auditors. The relationship between industry complexity and non-specialist auditors is stated in hypothesis three (H3). Hypothesis three emphasizes the pronounced effect of industry complexity on non-specialist auditors relative to specialist auditors in maintaining the quality of financial statements.

Tabel 5.

Abnormal Accruals and Auditor Industry Expertise

In Complex Industry (Alternative Models)

$Ln\_Abs\_Akrual_t = \gamma_0 + \gamma_1 Industry_t + \gamma_2 Ln\_SIZE_t + \gamma_3 DAR_t + \gamma_4 ROA_t + \gamma_5 CFO_t + \varepsilon_t$

	Ball dan Shivakumar Model		**Modified Jones Model**		**Kasznik Model**	
	Coef. B	***p-value***	**Coef. β**	***p-value***	**Coef. B**	***p-value***
Industry	0,272	0,033	0,392	0,002	0,248	0,087
Ln_Size	-0,037	0,313	-0,025	0,487	0,011	0,784
DAR	1,270	0,000	0,386	0,145	0,026	0,931
ROA	2,387	0,012	1,340	0.132	0,543	0,593
CFO	0,009	0,989	-0,206	0,745	0,617	0,395
N	132		144			140
Adj. R2	0,190		0,054			0,012

Table 6 presents the impact of industry complexity on financial statements audited by non-specialist auditors. It should be noted that the samples used to test H3 are limited to firms who hire non-specialist auditors. As a consequence, firm samples available to conduct regression analysis is down to 267 observations. As much as 31 firm samples were eliminated, leaving only 236 firm samples to test H3. The results are shown in Table 6. The focus is on variable Industry which is a dummy variable that takes one if the firm operates in a complex industry and 0 otherwise.

As seen in table 6, Industry has positive sign with a p-value of 0,045. Therefore, H3 is statistically supported with the significant level at 5%. The results suggest that the absolute abnormal accruals of firms in complex industries are higher relative to firms operating in less complex industries even though they use non-specialist auditors. The results support previous findings that industry complexity hurts the quality of financial statements.

Tabel 6

Non-spesialist Auditors In Complex and Non-complex Industry

$Ln\_Abs\_Akrual_t = \gamma_0 + \gamma_1 Industry_t + \gamma_2 Ln\_SIZE_t + \gamma_3 DAR_t + \gamma_4 ROA_t + \gamma_5 CFO_t + \varepsilon_t$

Variables	**Predicted signs**	**Coefficients**	**Std. Error**	**t-statistics**	**P-Value**

Industry	(+)	0,205	0,101	2,017	0,045
Ln_Size	(+)	-0,009	0,030	--0,312	0,755
DAR	(+)	0,402	0,148	2,717	0,007
ROA	(+)	-0,763	0,524	-1,456	0,147
CFO	(+/-)	3,397	0,540	6,293	0,000
N		**135**			
Adjusted R^2		**0,17**			

Robustness check is also conducted to assess whether the results are specific or dependent upon the model used. Table 7 summarizes the results using three alternative models.

Tabel 7.

Non-specialist Auditors In Complex and Non-Complex Industry (Alternative Models)

$$Ln\_Abs\_Akrual_t = \gamma_0+\gamma_1 Industry_t+\gamma_2 Ln\_SIZE_t+\gamma_3 DAR_t+\gamma_4 ROA_t+\gamma_5 CFO_t+ \varepsilon_t$$

	Ball dan Shivakumar Model		**Modified Jones Model**		**Kasznik Model**	
	Coef. B	***p-value***	**Coef. B**	***p-value***	**Coef. B**	***p-value***
Industry	0,051	0,708	0,216	0,091	0,400	0,001
Ln_Size	-0,093	0,017	-0,042	0,254	-0,090	0,011
DAR	0,874	0,000	0,467	0,002	0,435	0,001
ROA	-0,178	0,788	0,300	0.636	-0,095	0,872
CFO	0,083	0,871	-0,535	0,277	0,126	0,804
N	243		256			243
Adj. R2	0,104		0,042			0,089

Of the three models, only the Ball and Shivakumar model fail to detect differences in absolute abnormal accrualsof firms with non-specialist auditors in complex and non-complex industries. Kasznik and modified Jones models support previous findings with a significance level of less than 1% and at 10%.

CONCLUSIONS, LIMITATIONS, AND SUGGESTIONS

Conclusions

The assumption that the auditors who have industry specialization expertise can always improve the quality of financial statements regardless of type of industries they operate are misleading. The complexity of industry may reduce or even eliminate the effect of auditor industry expertise. Knowledge of business practices and norms in particular industry are often unique and useful only in less complex industry. This study examines the importance of auditor industry expertise in improving the quality of financial statements by taking into account industry complexity.The findings are summed up as follows:

1. Earnings Persistence of firms in complex industries is lower than firms in non-complex industry.
2. Auditor industry expertise does not affect financial statements quality of firms operating in complex business environments. The result suggests that investors should consider industry complexity before making investment decisions. Hiring public accounting firms who have industry expertise are only appropriate for firms engaged in less complex industries. The specialist auditor alone is not enough to guarantee that the financial statements have reasonably reflected economics reality and firm prospects in the future.
3. Absolute abnormal accruals of firms operating in complex industries are higher relative to those in-non complex industries despite the fact that they hire non-specialized industry auditors.

Several prior studies in Indonesia have shown industry-specific auditors play an important role in improving the quality of financial statements. But results of this present study suggest that the knowledge of business practices in an industry does not improve the ability of auditors in enhancing financial reporting quality of firms in complex business environments. Moreover, the significant effect of industry complexity on the quality of financial statements identified in this study may explain the inconsistent results of previous auditor industry specialization studies in Indonesia.

Limitations

The data used in this study come from publicly available sources. Unfortunately annual reports of firm samples are not all available online during the sample period of 2012-2015. This might affect the results. Therefore, inferential should be taken cautiously in the context of firms sample and periods.

The procedure to separate firms into a complex and non-complex industry based on Jakarta Stock Industrial Classification could be too broad and fail to distinguish different environment dynamics. Incorrect grouping might have affected the results reported in this study.

Suggestions

Following are two suggestions for future research:

1. Use different proxy for earnings quality such as earnings response coefficients, stock prices synchronicity and earnings timeliness.
2. Subsequent research may consider the classification of complexity by sub-industry.

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DAFTAR INDUSTRI

Industri Kompeks	Industri Yang Tidak Kompeks
Agriculture	Food Products
Entertainment	Candy & Soda
Healthcare	Beer & Liquor
Construction	Recreation
Defense	Printing and Publishing
Precious Metals	Consumer Goods
Non-metallic and Industrial Metal Mining	Apparel
Coal	Medical Equipment
Petroleum and Natural Gas	Pharmaceutical Products
Utilities	Chemicals
Communication	Rubber and Plastic Products
Business Services	Textiles
Computers	Construction Materials
Transportation	Steelworks, etc.
Banking	Fabricated Products

Insurance	Machinery
Real Estate	Electrical Equipment
Trading	Automobiles and Trucks
	Aircraft
	Shipbuilding, Railroad Equipment
	Personal Services
	Electronic Equipment
	Measuring and Control Equipment
	Business Supplies
	Shipping Containers
	Wholesale
	Retail
	Restaurants, Hotels, Motels
	Food Products

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