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Effects of Industrial Specialization on Income Smoothing with Company Size and Leverage as Control Variables

Astuti Yuli Setyani

Faculty of Business, Duta Wacana Christian University, Indonesia

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Abstract

The characteristic of industrial specialist auditors is that they have more information obtained from experience when auditing clients of industry specialists so that they can detect errors and irregularities that occur in financial statements. Companies that are audited by industrial specialist auditors tend not to perform income smoothing. The purpose of this study was to examine the effects of industrial specialization on income smoothing with leverage and company size as control variables. The data used were Food and Beverage companies listed on the Indonesia Stock Exchange of 2013-2018. The purposive sampling gave 78 data used in this study. The data analysis method was the multiple linear regression test. The result of this studyshowsthat industrial specialization does not affect income smoothing. For the control variables, leverage and company size, theyshow no effect on income smoothing either.

Keywords: Income Smoothing, Leverage; Company Size; Industrial Specialization

Introduction

Company performance can be detected in the generated and reported profits in the financial statements; therefore, earnings information is an important basis to makes investment decisions. This earnings information often becomes the manipulation target of the management to maximize its interests, and consequently, it cancreate a loss for the investors. The practice of managing a company's earnings based on the management's wishes is known as earnings management. Earnings management exists as a result of agency problems and this is called a misalignment of interests between managers and company owners because of information asymmetry. Information asymmetry is the occurrence of an imbalance in information acquisition between the management and the shareholders where the management has more information than the external parties. The published information must be trusted by the public; avoid misinformation that could make the public or the users of the financial statements not believe the financial statements. To be able to restore trust, good audit quality is essential (Lughiatno, 2010). The company's financial statements should be audited by auditors withhigh quality. Ardiati (2005) states that a high-quality audit is an effective deterrent to earnings management. This is because the management's reputation and company values will decrease if false reporting is detected and revealed. Ratmono (2010) states that a qualified auditoris capable of detecting earnings management practices undertaken by the clients. Audit service is a monitoring tool for possible conflicts of interest between the owners and the managers and between the shareholders, those with different ownership amounts. Audit quality can be measured using industrial specialization. Gerayli et al. (2011) state that KAP size is negatively related to earnings management measured using discretionary accruals. Arlyn (2013) notes that earnings management has no effects on audit opinion and has no interaction with audit quality which is proxied by audit size and industrial specialist auditors.

Research conducted by Ingrid Christiani (2014) revealsthat industrial specialization has a negative impact on earning management and this isbecause industrial specialist auditors have superior knowledge about certain industries. The auditor's industry specialization ability to detect earnings management will encourage clients not to perform earnings management, and consequently, the earnings quality will increase. The researcher is interested in researching earnings management after learning the research results of Leuz et al. (2003) which show that Indonesia is in a cluster of countries with weak investor protection, which means that it triggers high earnings management practices. This study refers to the research by Gerayli et al. (2011). The purpose of this study is then to evaluate the audit quality effects on earnings management. The audit quality in this study is observed by the industrial specialist auditors. Gerayli et al. (2011) used all non-financial companies in Iran in 2004-2009 as the samples. This study results prove that the audit quality which is proxied by the KAP size and industrial specialist auditors shows a negative effect on earnings management. This study re-examined the findings of Gerayli et al. (2011) on public companies in Indonesia and it uses a classification of industrial specialist auditors based on the number of companies percentage to be audited by auditors in an industry (Andreas 2012). With this background, the researcher will examine the audit quality effects on earnings management with company size and leverage as control variables. Audit quality in this study is measured by industrial specialist auditors; company size is measured by assets; as for leverage, it is measured by debts.

Literature Review and Hypothesis Development

Agency Theory

Agency theory in the practice of earnings management can be triggered by the existence of information asymmetry. Information asymmetry is an imbalance in information acquisition betweenthe management and the shareholders. The managers have more information than the shareholders because the managers are the ones who manage the company. Less information as held by the shareholders can triggerthe managers to use their position in the company to manage reported earnings (Zou and Elder 2004). This condition causes a conflict of interest between the shareholders (principals) and the managers (agents), where both parties want to maximize their welfare with the information they have. In this asymmetrical condition, there needs to be a third party playing a role as a controller or as a mediator who supervises the agent's performance to meet the principal's expectations and desires. An auditor is a party who is considered capable of bridging the principal's (shareholder) and the manager's (agent) interests in managing the company finances.

Earnings Management

Ghozali and Chariri, (2011) define earnings, which is adopted by the accounting structure, as the difference between the realized income of the transactions during a periodwith the costs, which is related to the income. Nuryaman, (2007) states that earnings management is an opportunist action carried out by choosing certain accounting policies so thatthe company's profits can be adjusted, increased, or decreased which later can affect the management's scheme in adjusting the earnings based on their desire.

Sulistyanto (2008) explains that earnings management is the company managers' effort to give influence to information about the financial reports intended to trick the stakeholders who want to know about the company's performance and condition. Earnings management is a method used by the management to systematically and deliberately influence earnings figures by selecting certain accounting

policies and procedures to maximize management *utility* and stock price. Earnings management is not a good practice because the reliability of the financial statement will benegatively affected. There is a concern that it will lead to wrong decision-making. Astuti (2019) states that profitability (ROA), financial leverage (DOTA), and company size variables (SIZE) have no impact on the occurrence of income smoothing practices. This is because, with its low profitability, the management will find difficulties in managing profits.

From the statements above, it can be concluded that income smoothing is one of the management's efforts in reducing the reported earnings fluctuations to make the company's performance look stable. The management's deliberate income smoothing action within the terms of Generally Accepted Accounting Principles leads to the desired situation of the reported profits.

Industrial specialization Auditor

GAO (Government Accountability Officer) states that industry-specialized auditors are partly responsible for the high level of auditor's involvement in various industries (Kirana, 2013). According to Fitriany, et al. (2015), industry-specialized auditors can further improve audit quality and produce higher information certainty with better quality than that of the non-specialized auditors. Accordingly, the fees received by the auditors who have industrial specifications will be higher than those of the other auditors who do not have industry specifications. Industry-specialized auditors will provide higher audit quality because they can find and expose specific problems in a particular industry. Kirana (2013) notes 2 approaches to identify industrial specialization auditors, namely: (1) Market share in the industry. This approach is calculated based on the percentage of the number of clients audited in an industry. This approach assumes that industry-specialized auditors are the largest supplier of audit services in an industry. In fact, they are also the second and third largest. (2) Market share in KAP. This approach is often called portfolio share, which describes the distribution of KAP's income based onthe industry. An approach that measures industry-specialized auditors is carried out by measuring portfolios based on the estimated proportion of industry-specialized auditors' earnings of one industry divided by the total audit earnings of all industries. Andreas (2012) states that auditors have industry specialization if the auditor has many clients in the same industry. Industry specialist auditors were measured in the way proposed by Craswell et al. (1995). First, the industry sample used is an industry that has at least 30 companies. Second, the auditor is said to be a specialist if one auditor audits 20% of the total companies in the industry.

An industrial specialization auditor must have competence. Auditor competence is the professional ability of one auditor in applying knowledge to complete an engagement either as a team or as an individual based on the Public Accountant Professional Standards, codes of conduct, and applicable laws. The auditor competence can be obtained through education at universities in the major of accounting, through development activities, and through professional training in the workplace, all of which are proven through their work practices. Auditor competence is reflected in the auditor's expertise in their field, for example, by performing himself as an industrial specialist auditor.

Other studies related to industrial specialist auditors such as Rusmin (2010), Gerayli (2011), Krishnan (2003) have found a low level of discretionary accruals in companies audited by industrial specialists. This means that industrial specialist auditors can reduce earnings management schemes done by the management. With this background, therefore, this study would use Industrial Specialist Auditor as a proxy to determine the audit quality in addition to the auditor size.

Hypothesis Development

A study by Gramling et al. (2001) shows that KAPs that focus on certain industries will be more likely to invest in technology and organizational control systems that can improve audit quality within the

KAPs. When compared to auditors not specializing in a particular industry, those who have experience in one industry will be better able to detect errors in the client's data in that industry. The industryspecialized auditors are able to detect errors and have a better experience than the non-specialized auditors. This is supported by several research results which show that auditor industry specialization can limit accrual earnings management practices (Krishnan 2003 and Balsam et al. 2003). Maletta and Wright (1996) explain that auditors with no knowledge of one industry are less effective in their audit jobs as opposed to those with more comprehensive knowledge about a trend and characteristic of the industry. Industry specialization auditors carrying better understanding of industry characteristics are more compliant with auditing standards, better understand risks, know every problem in the industry being audited, and have a better error detection ability when compared to non-specialized industry auditors. These industry specialization auditors can better reduce accrual earnings management than nonspecialized industry auditors (January 2009). Zhou and Elder (2001), Gerayli et al. (2011), and Rusmin (2010) have revealed that industrial specialization auditorscan correct earnings management. Based on the agency theory, the agent has more information than the principal. As a result, there is often a conflict of interest between the agent and the principal. With the auditor's presence, it is expected that the quality of financial statements can be accounted for. The accountability is related to the fact whether the company performs income smoothing practices or not. An industrial specialist auditor is one of the factors correlating with smoothing practice. Companies audited by specialist auditors will be more careful in performing income smoothing because they are considered more competent than others.In addition, the debt of the company can also affect the income smoothing practice. Based on this fact, the following hypothesis can be formulated:

Hipotesis 1: (H1) Industrial specialization has a negative effect on *income smoothing* with *Company Size* and *Leverage* as control variables.

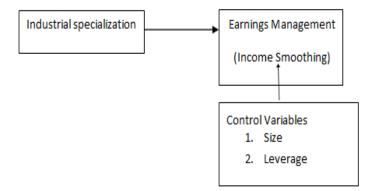


Figure 1. Framework Hypothesis

Methodology

Population and Sample

The population in this study was composed of manufacturing companies listed on the Indonesia Stock Exchange between 2013-2018. The determination of the company sample was carried out using purposive sampling with the following criteria:

- (1) Food and Beverage companies listed on the IDX between 2013-2018,
- (2) Companies having issued audited financial reports for the period ended on December 31,
- (3) All data related to the research variables were available in the company's annual financial statements published between 2013-2018.

Dependent Variable

This study used binary logistic regression. Logistic regression has the dependent variable as a continuous variable or a binary variable which is generally labeled 0 and 1 (Ghozali, 2011). The variable in this study was income smoothing which was then measured using the Eckel Index. The Eckel Indexwould differentiate between companies that carry out income smoothing practices and those that do not. The profit used to calculate the Eckel Index is *net* income which was based on the investor's tendency to pay attention to the latest earnings value obtained by a company. The measurement scale used was the nominal scale. If a company practiced income smoothing, it was given a value of 1, while one that did not practice income smoothing was given a value of 0. The income smoothing index was calculated by using the following formula. Values are calculated by using the formula below Equation (1):

Income smothing index =
$$\frac{CV \Delta I}{CV \Delta S}$$

Notes Equation (1):

CV: the variation coefficient of the variable; namelythe standard deviation divided by the expected value.

 Δ I: Earnings change in one period.

 ΔS : Sales change in one period.

If CV $\Delta I \geq$ CV ΔS then the company is not classified as a company that carries out income smoothing practices. In which CV ΔI is the variation coefficient for changes in earnings and CV ΔS is the variation coefficient for changes in sales.CV ΔI and CV ΔS Values are calculated by using the formula below Equation (2):

$$\frac{\sqrt{\sum(\Delta x - \Delta X)^2}}{n-1}$$

Notes Equation (2):

 Δx : Earnings change (I) or sales (S) between year n withn-1.

 ΔX : the average earnings change (I) or sales (S) between year n with n-1.

N: Number of years observed.

Independent Variable

The independent variable used in this study is Industrial Specialist Auditor. The KAP industrial specialization in this study is auditors who have a market share of at least 20% of the number of the accepted clients in certain industry groups (Chen et al 2005; Rusmin, 2010). The formula for measuring the industrial specialization ratio is as follows:

R = m/n

R = Industrial specialization ratio

m = Number of companies in one industry audited by the same auditor

n = Number of companies audited by all auditors

If an auditor has a market share of more than 20%, then the auditor is an industrial specialist auditor and ifs/he has a market share of less than 20%, s/he is not an industrial specialist auditor. The

measurement of this variable uses a dummy variable. Auditors of industry specialists are given a value of 1, and those with no industry specialists are given a value of 0.

Control Variable

A control variable is a variable made constant so that the influence of the independent variable on the dependent variable is not influenced by external factors that are not examined (Widhiarso 2011). The control variable used in this study follows the research of Gerayli et al. (2011), namely:

Company Size

Earnings management practices by company managers can be determined by the size of the company. It is suspected that large companies tend to act on a scheme cautiously in managing the company, especially in managing profits efficiently. Zhou and Elder (2004) notes that large companies will reduce earnings management to avoid supervision from financial analysts and investors. A company size variable is measured by the natural logarithm of the company's total assets (Gerayli et al. 2011).

Leverage

Leverage is the total debt divided by the total assets used to guarantee the debt. A company performs earnings management to increase the company's profit so that the company will have a higher probability of violating the debt agreement (Healy and Palepu 2001). Values are calculated by using the formula below Equation (3):

Total Debt Total Assets

Analysis Techniques

The hypothesis testing in this study used the multiple regression analysis. Hypothesis H1 will be tested using the following model (Equation 4):

$$ABSDA = \alpha + \beta 1 INDSPEC + \beta 2 SIZE + \beta 3 LEV + e$$

Notes Equation (4):

ABSDA = absolute value of discretionary accruals (earnings management). Absolute value is used because the concern in this study is the number of discretionary accruals, not the direction (positive or negative) (Balsam et al. 2003).

INDSPEC = The independent variable used in this study is Industrial Specialist Auditor. The variable measurement of the auditor industry specialization variable used a dummy variable and it was given a value of 1 if the company was audited by auditor industry specialization, otherwise, it was given a value of 0.

SIZE = natural logarithm of total assets

LEV = ratio of total debt to total assets.

Result

Population and Sample

This study involved the Food and Beverage companies listed on the Indonesia Stock Exchange between 2013-2018. This study used purposive sampling and it generated 13 public companies as

research samples. Out of 15 Food and Beverage companies, only 13 companies had complete financial data of a period of 6 years. There were 78 data obtained.

Descriptive Statistics

Descriptive statistics provides adata overview or description of the sample, the minimum value, the maximum value, and the average value of each variable.

N Min Max Mean Std. Dev **LEV** 78 .1406 8.2521 .558063 .8953425 SIZE 18.7680 21.730073 78 25.2932 1.5376890 IS 78 .00 1.00 .6923 .46453 SPI 78 .00. 1.00 .3846 .48965 Valid N 78

Table 1. Descriptive Statistics

Resource: Processed secondary data

Table 1 shows that Leverage has a minimum value of 0.1406, a maximum of 8.2521, and a mean of 0.558063 with a standard deviation of 0.8953425. The minimum size is 18.7680 and the maximum is 25.2932 with a mean value of 21.730073 within a standard deviation of 1.5376890. This shows that the average is quite good. Income smoothing has a minimum value of 00.00 and a maximum of 1 because companies practicing income smoothing are given a value of 1 and those that do not do it are given a value of 0. Likewise, industrial specialization has a minimum value of 0 and a maximum of 1.

Standardized Unstandardized Coefficients Coefficients t significant В Std. Error Beta .376 .457 (Constant) .823 .649 **LEV** .009 .061 .017 .142 .888 SIZE .011 .038 .038 .300 .765 SPI .163 .117 .172 1.393 .168

 Table 2. Regresion Result

Source: Processed Secondary Data

Table 2 shows the significant value of industrial specialization of 0.168 with a significant level of 0.05. It can be concluded that the value is greater than 0.05, which means that industrial specialization has no effect on income smoothing. Therefore, the hypothesis in this study is rejected. The hypothesis testing results in this study are not in line with what Inggrid (2014) has reported. She notes that industrial specialization has a negative effect on earnings management.

The control variable, the leverage,has a significant value of 0.888 which is above 0.05 and it means that leverage has no effect on income smoothing. This is because the company does not need to depend on income smoothing and debt agreements. Several other factors affect the security of debt agreements, for example,the company guarantees. This is about how the company is in its ability to repay the debts and to keep its credibility (Zhou and Elder, 2004).

The control variable, Size, has a significant value of 0.765 which is above 0.05. This means that company size shows no effect on income smoothing. Company size is not one of the considerations for investors in making investment decisions. In fact, other factors may influence investors to invest. The company's profit level and the company's prospects in the future can be better considerations for investors to invest.

Discussion

Industrial specialist auditors have a lot of information. They have deeper and more detailed information regarding the examination of financial reports. Industrial specialist auditors can reveal the company's conditions and can focus on the company's business when auditing its industrial specialization. Undoubtedly, non-industrial specialist auditors are different from industrial specialists because the former do not have a similar amount of information. Their auditing is usually less focusing on industrial specialization. Companies audited by industry specialist auditors better detect earnings management than the non-industrial specialist auditors because the latter are susceptible to detecting earnings management carried out by the company management. However, in this study, Auditor Quality, which is proxied by industrial specialization, shows no effect on *income smoothing*. In other words, industrial specialist auditors cannot detect income smoothing. The results of this study are not supported by Gerayli et al (2011). The research reported that industrial specialist auditor affects earnings management. This is because the auditor's specialist has superior knowledge about a particular industry. The ability of industry specialist auditors to detect earnings management will trigger the clients to avoid performing earnings management and consequently, the quality of earnings increases. If an industrial specialist auditor can detect earnings management, s/he can maintain his/her reputation as an industrial specialist auditor.

Industrial specialization in this study is not significant with income smoothing based on the research conducted by Johl, Jub, and Houghton (2007). The research conducted by Luhgiatno (2008) states that the specialist industry has no significant effect on earnings management. Even though the specialist industry KAP is an expert in certain industrial fields, this cannot be used as a control for the earnings management implementation carried out bythe company.

This study uses *company size* and *leverage* as the control variables. This study reveals that they show no effect on income smoothing. This finding is not consonant with the research findings of Gerayli et.al (2011). This shows that the asset size is not the only predictor that influences investors to invest. *Leverage*, the control variable, shows no effect on income smoothing. This indicates that the company does not depend on earnings management or income smoothing in carrying out debt agreements.

Conclusion

Based on the analysis of industrial specialization effect on *income smoothing* with *leverage* and *size* as control variables, some conclusions can be listed as follows.

- a. Industrial specialist auditors show no effect on incomes moothing
- b. Leverage, acontrol variable, shows no effect on income smoothing
- c. Size, acontrolvariable, does not affect incomes moothing

Based on the results, it can be stated that with *leverage* and *size* as control variables, industrial specialization carries no effect on *income smoothing*.

References

Andreas, Hans Hananto. (2012), "SpesialisasiIndustri Auditor Sebagai Prediktor Earnings Response Coefficient Perusahaan Publik Yang Terdaftar Di BEI", Jurnal Akuntansi dan Keuangan, Vol. 14, No. 2, November 2012: 69-80.

- Arlyn, Yuliawati, (2013) "Studi Pengaruh Manajemen Laba terhadap Opini Audit pada Usaha Sektor Manufaktur yang Terdaftar di Bursa Efek Indonesia Periode 2009-2011., Jurnal Ilmiah Mahasiswa Universitas Surabaya, Vol2, No.2. 2013
- Ardiati, Aloysia Yanti, 2005. Pengaruh Manajemen Laba terhadap Return Saham terhadap Perusahaan yang Diaudit oleh KAP Big 5 dan KAP Non Big, Vol. 8 hal 235-249 Baridwan, Zaki. 2000. Analisis
- Astuti, Eka (2019)" Pengaruh Financial Leverage, Company size dan Profitabilitas terhadap Perataan laba (Income smoothing) pada Perusahaan Manufaktur yang terdaftar di Bursa Efek Indonesia, Research Fair Unisi, Volume 3, Number 1, Januari 2019.
- Balsam, et al. (2003). "Auditor Industry Specialization and Earnings Quality". Auditing: A Journal of Practice & Theory Vol. 22, No. 2 September 2003 pp. 71ñ97
- Becker, C.L., Mark, L. DeFond, J.J. & Subramanyam, K.R. (1998), "The Effect of Audit Quality on Earnings Management". Social Science Research Network, 1-24
- Craswell, A., J. Francis, and S. Taylor. (1995), Auditor brand name reputation and industry specialization, Journal of Accounting and Economics 20: 297–322.
- Fitriany, et al. (2015). Pengaruh Tenure, Rotasi dan Spesialisasi Kantor Akuntan Publik (KAP) terhadap Kualitas Audit: Perbandingan Sebelum dan Sesudah Regulasi Rotasi KAP di Indonesia. Jurnal Akuntansi dan Keuangan, Vol. 17, No. 1, Hal. 12-28
- Chen, K., Lin, K., & Zhou, J. (2005), "Audit Quality and Earnings Management for Taiwan IPO firms. Managerial Auditing Journal, 20(1),86-104.
- Gerayli, M., Ma'atofa, S., & Yane Sari, A.M. (2011)."Impact of audit quality on Earnings Management: From Iran". International Research Journal of Finance and Economics, Issue 66, pp. 77-84. www.eurojournals.com/IRJFE_66_07 in access on 30 October 2011.
- Ghozali, Imam. (2011). "Aplikasi Analisis Multivariate dengan Program IBM SPSS 19", Semarang : Badan Penerbit Universitas Diponegoro.
- Gramling, et al. (2001). "Audit Firm Industry Specialization and Financial Reporting Quality" Working Paper, Georgia State University and University of Missouri-Columbia
- Inggrid (2014). Pengaruh kualitas Auditn Terhadap Manajemen Laba". Jurnal Akuntansi dan Keuangan, Vol 16 No 1, Mei 2014.
- Januarsi, Yeni. (2009). "Peran Auditor Spesialis Dalam Mengurangi Manajemen Laba Akrual Dan Manajemen Laba Real Pada Periode Sebelum dan Sesudah Keputusan Menteri Keuangan No. 423/KMK.06/2002", Simposium Nasional Akuntansi 12, Palembang: 4 -6 November 2009.
- Healy and Palepu. (2001). "Information Asymmetry, Corporate Disclosure, And The Capital Markets: A Review of the Empirical Disclosure Literature". Journal of Accounting and Economics. Vol.31
- Johl, Shireenjit., Christine A. Jubb dan Keith A. Houghton. 2007. Earnings Management and the Audit Opinion: Evidence from Malaysia. Managerial Auditing Journal, Vol. 22 Iss: 7 pp. 688 715. (diunduh http://www.emeraldinsight.com/journals.htm?articleid=1616104 pada tanggal 3 Desember 2012)
- Kirana, Pangestika A.J. (2013). Pengaruh Kualitas Audit Terhadap Cost of Equity Capital. Universitas Diponegoro Semarang [15] Rusmin (2010), "Auditor Quality and Earnings Management: Singaporean Evidence", Managerial Auditing Journal, 25(7), 618-638.

- Krishnan, Gopal V. 2003. Does Big 6 Auditor Industry Expertise Constrain Earnings Management? Accounting Horizons pp. 1-16.
- Luhgiatno. (2010). "Analisis Pengaruh Kualitas Audit Terhadap Manajemen Laba (Studi Pada Perusahaan Yang Melakukan IPO di Indonesia)", Fokus Ekonomi, Vol. 5, No. 2.
- Leuz, Christian., Dhananjay Nanda dan Peter D. Wysocki. 2003. Earnings Management and Investor Protection: An International Comparison. Journal of Financial Economics 69, 2003 pp. 505
- Maletta, M., and Wright, A. (1996), "Audit evidence planning: an examination of industry error characteristics." Auditing: A Journal of Practice and Theory. 15(Spring), 71-86.
- Nuryaman. 2007. "Pengaruh Konsentrasi Kepemilikan, Ukuran Perusahaan, dan Mekanisme Corporate Governance terhadap Manajemen Laba". Simposium Nasional Akuntansi XI.
- Rusmin (2010), "Auditor Quality and Earnings Management: Singaporean Evidence", Managerial Auditing Journal, 25(7), 618-638.
- Ratmono, Dwi (2010), "Manajemen Laba Riil dan Berbasis Akrual: Dapatkah Auditor yang Berkualitas Mendeteksinya?". Simposium Nasional Akuntansi 13. Purwokerto. Rusmin (2010), "Auditor Quality and Earnings
- Sulistyanto, S. (2008). Manajemen Laba, Teori dan Model Empiris. Jakarta: Grasindo
- Widhiarso. (2011). "Analisis Data Penelitian dengan Variabel Kontrol. Universitas Gadjah Mada
- Zhou, J., and Elder, R. (2004). "Audit Qua lity and Earnings Management by Seasoned Equity Offering Firms", Asia-Pacific Journal of Accounting and Economics. 11(2), 95-120.

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