Meta-Analysis: a Decade Study about the Determinants of Earnings Response Coefficient (ERC) in Indonesia

FITRIA PRANANDARI
ZAENAL FANANI*
KHUSNUL PRASETYO
AGUS WIDODO MARDIJUWONO
Universitas Airlangga

Abstract: This research tries to study the determinants of earnings response coefficients (ERC) with 10-year data from published and unpublished journals in Indonesia. The purpose of this research is to examine the association between earnings growth, earnings predictability, earnings persistence, industry type, capital structure, auditor quality, income smoothing, timeliness, firm size, gain/loss of foreign currency transaction, beta risk, voluntary disclosure, CSR disclosure, and audit committee with the ERC. This research applies the meta-analysis technique developed by Hunter et al. (1982) to a sample of 20 articles published from 2002 until 2011 to cumulate and integrating across studies. The articles used are selected studies from five publicly accredited journal in Indonesia and Simposium Nasional Akuntansi (SNA) as the representative of an unpublished journal. This research shows that earning persistence, earnings growth, earnings predictability, beta risk, industry type, audit quality, CSR disclosure, timeliness, audit committee, and transaction gains (losses) are the factors which significantly associate with the ERC.
Meanwhile, capital structure, firm size, income smoothing, and voluntary disclosure are found to be not significantly associated with the ERC. Thus, ten variables found to be the robust test determinants of ERC. This research is an integrated study that never done before in the ERC research.

Keywords: Earnings Response Coefficients, Meta-Analysis, Determinants of Earnings Response Coefficient.

Abstract: Penelitian ini mencoba untuk mempelajari faktor-faktor penentu koefisien respons laba (ERC) dengan data 10 tahun dari jurnal yang diterbitkan dan tidak diterbitkan di Indonesia. Tujuan penelitian ini adalah untuk menguji hubungan antara pertumbuhan laba, prediktabilitas laba, persistensi laba, jenis industri, struktur modal, kualitas auditor, perataan laba, ketepatan waktu, ukuran perusahaan, keuntungan / kerugian transaksi mata uang asing, risiko beta, pengungkapan sukarela , Pengungkapan CSR, dan komite audit dengan ERC. Penelitian ini menerapkan teknik meta-analisis yang dikembangkan oleh Hunter et al. (1982) untuk sampel 20 artikel yang diterbitkan dari 2002 hingga 2011 untuk mengumpul dan

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* Corresponding author: fanani_unair@yahoo.com

mengintegrasikan seluruh studi. Artikel yang digunakan adalah studi yang dipilih dari lima jurnal yang terakreditasi publik di Indonesia dan Simposium Nasional Akuntansi (SNA) sebagai perwakilan dari jurnal yang tidak dipublikasikan. Penelitian ini menunjukkan bahwa persistensi pendapatan, pertumbuhan laba, prediktabilitas pendapatan, risiko beta, jenis industri, kualitas audit, pengungkapan TSP, ketepatan waktu, komite audit, dan keuntungan (kerugian) transaksi adalah faktor-faktor yang secara signifikan berhubungan dengan ERC. Sementara itu, struktur modal, ukuran perusahaan, perataan laba, dan pengungkapan sukarela ditemukan tidak terkait secara signifikan dengan ERC. Dengan demikian, sepuluh variabel yang ditemukan menjadi penentu uji kuat ERC. Penelitian ini merupakan penelitian terpadu yang tidak pernah dilakukan sebelumnya dalam penelitian ERC.

Keywords: *Earnings Response Coefficients, Meta-Analysis, Determinants of Earnings Response Coefficient.*

1. Introduction

The external users have a lack of authority to prescribe financial information directly from the company. Hence, the financial statement is functioned as the communication tools from the management to the external users. Investors, as one of the external users, need the information stated in the financial statement to help them in making an investment decision. Investors are interested in assessing the company's ability to generate net cash inflows and management's ability to protect and enhance their investments (Kieso et al., 2011: 8).

Earnings information is considered the relevant information for the investors. Information perceived as relevant if it is capable of making a difference in decisions. It helps users both for predicting the outcome of past, present, and future event, and confirming prior expectations. Thus, SFAC 2 (FASB, 1980) stated that the components of relevant information are the feedback value and predictive value. The relevant information contains value relevance. Value relevance theories use securities market reaction to measure the extent to which financial statement information assists investors to predict future firm performance. (Beaver, 2002)

The value relevance theory opens the possibility for other factors influencing the market response. It is closely related with the concept of earnings quality because a

change in security price surrounding earnings releases assists investor to make an investment decision. Then, it brings to the next important direction of Ball and Brown's study called as Earning Response Coefficient (ERC) theory. ERC measures the extent of a security's abnormal market return in response to the unexpected component of reported earnings of the firm issuing that security. Improved understanding of the market response

suggests a further improvement to the decision usefulness of financial statement. (Scott, 2012:168)

Some researchers have been tried to examine the factors that affect the different market response by using ERC. The determinants factors have been examined to the values of ERC. They are earning persistence (Kormendi and Lipe, 1987 and Collins and Kothari, 1989), growth opportunities (Collins and Kothari, 1989), beta risk (Collins and Kothari, 1989, Chambers et al., 2005 and Dhaliwal and Reynolds, 1994), capital structure (Dhaliwal et al., 1991), firm size (Chaney and Jeter, 1991), auditor quality (Teoh and Wong, 1993), industry effect (Biddle and Seow, 1991), timeliness (Jaswadi, 2004), and accounting method (Chandrarin, 2003). However, the results of the researches about the factors influencing ERC are inconsistent.

Hence, the first motivation of this research is to reconcile the inconsistent research findings. Many factors can determine these different results, one of its factors can be the different sample size. According to the Suhardianto (2011), a comprehensive study is needed to find the most robust variable that associate with the ERC. Thus, a meta-analysis study can be the most suitable method to address this problem. As mentioned by Ahmed et al. (2012), meta-analysis is a statistical technique allowing researchers to overcome the shortcomings of the narrative aspects of empirical reviews and thereby accumulates the statistical findings of related research in an attempt to make quantitative generalizations and reduce the limited statistical power of studies with small sample sizes.

Second motivation in conducting this research is to expand factors that may associate with the earnings response coefficient (ERC). Commonly, researches in

accounting only used certain variables in testing the determinants of ERC, like what has been studied by Jang et al. (2006), Mulyani et al. (2007) and Setiati and Kusuma (2004).

Finally, the objective of this research is to analyze the association of earnings growth (EGrw), earnings predictability (EPrdc), earnings persistence (EPrst), dummy industry (INDUSTRY), capital structure (CS), auditor quality (RepAud), income smoothing (IS), timeliness (TIME), firm size (SIZE), gain/loss of foreign currency transaction (TG/L), beta risk (βRISK), voluntary disclosure (VDisc), CSR disclosure (CSRDisc), and audit committee (AudCom) toward the ERC.

2. Theoretical Review, Conceptual Framework, and Hipothesis Development

According to Scott (2012:163), Earnings Response Coefficient (ERC) measures the extent of a security's abnormal market return in response to the unexpected component of reported earnings of the firm issuing that security. ERC has potential use in valuation and fundamental analysis (Kothari 2001). It is used as the indicator of investor responsiveness to the released earnings. The unexpected increases in earnings represent new information in the market. Thus, it led to the assumption that the earnings information is useful. The usefulness of earning information reflected its quality. More reactive the investors to the earnings information, more increase the earning quality.

Many researchers have been conducted the studies about ERC. This research has been expanding from the first conducted study until now. Ball and Brown (1968) began an empirical capital market research in accounting that continues until nowadays. They brought an idea that the share prices would adjust to reflect the information of unexpected earnings released by the companies. They used US firms for the period 1946-1966 to examine the price impact from unexpected profit announcements. Ball and Brown (1968) finally found that the average abnormal security market return for those firms with good news earning. announcements (unexpected increase in earnings) is strongly positive, while those with bad news

(unexpected decrease in earnings) have a strongly negative abnormal return.

According to the inconsistencies problem in the previous researches, this research will analyze 14 variables from 20articles, which examine the relationship between some factors to the ERC, to determine the most robust factors that can influence the ERC. These factors used as the independent variables are earnings growth (EGrw), earnings predictability (EPrdc), earnings persistence (EPrst), dummy industry (INDUSTRY), capital structure (CS), auditor quality (RepAud), income smoothing (IS), timeliness (TIME), firm size (SIZE), gain/loss of foreign currency transaction (TG/L), beta risk (βRISK), voluntary disclosure (VDisc), CSR disclosure (CSRDisc), and audit committee (AudCom). And absolutely, the dependent variable is the earnings response coefficients (ERC). The model of this research variables is depicted in Figure 1.

2.1 The effect of Earnings Persistence to ERC

Bonny et al. (2004), Chandrarin (2003), Jang et al. (2006), Jaswadi (2004), Mulyani et al. (2007), Mayangsari (2004), Naimah and Utama (2007), Riduwan (2004), and Setiati and Kusuma (2004) found that earnings persistence has a positive association with the ERC. It is in line with the study held by Kormendi and Lipe (1987) and Easton and Zmijweski (1989). Surprisingly, Rahayu (2011) resulted in negative influence of earning persistence to the ERC. Harahap (2004) and Murwaningsari (2011) found that this association is rather insignificant.

The ability of the company to persist the earnings in each year will bring GN for investors when this company announced their earnings to the market. Investors will more responsive, by buying the company's stocks, the companies which have steady earnings. Thus, the market price and stock return in response to the GN will be higher, if otherwise. So, this research suggests that earnings persistence has a positive association with the ERC.

H1: *Earnings persistence has a positive association with the ERC.*

2.2. The effect of Earnings Growth to ERC

Some of the studies held in Indonesia include earning growth as one of the factors that can influence the ERC, except Chandrarin (2003) who found that the result is not significant. Jaswadi (2004), Mayangsari (2004), Mulyani et al. (2007), Murwaningsari (2011), Midiastuty and Machfoedz (2003), Rahayu (2011), Sayekti and Wondabio (2007), Setiati and Kusuma (2004), and Syafudin (2004) found that earnings growth had a positive influence on the ERC. Contrary, Jang et al. (2006) and Harahap (2004) demonstrated that earnings growth negatively affected the ERC.

High earnings growth can reflect the increasing value of the company. Thus the stock demand of GN company stock will be higher for a growth company. Higher demand implies the increase of market price and stock return in response to the GN, hence higher ERC.

H2: *Earnings growth has a positive association with the ERC.*

2.3 The effect of Earnings Predictability to ERC

Bonny et al. (2004), Jaswadi (2004), Setiati and Kusuma (2004) demonstrated no significant association between earnings predictability and ERC. However, Chandrarin (2003) and Harahap (2004) found a positive association between earnings predictability and ERC. As earnings predictability increases, the current earnings information becomes more useful in predicting future earnings. Investors will response it more when companies that have higher earnings predictability announce GN in the market, thus a higher ERC.

H3: *Earnings predictability has a positive association with the ERC*

2.4 The effect of Beta Risk to ERC

Research by Chandrarin (2003), Harahap (2004), Mayangsari (2004), Mulyani et al. (2007), Sayekti and Wondabio (2007), Setiati and Kusuma (2004), and Syafrudin (2004) also shown the negative association between beta risk and ERC. Meanwhile, Bonny et al. (2004) and Rahayu (2011) demonstrated a positive association between beta risk and the ERC. Another research by Jaswadi (2004) showed no significant

association between beta risk and ERC, the judgment for this result came from the possibility of bias from the beta used before the correction.

According to the theory and previous researches, this research hypothesized that beta risk influences ERC. Suppose that investors are typically risk-averse, they want to maximize their expected return and minimize the risk of return of the portfolio. The higher beta of the company will increase the portfolio risk. Thus, the investors will consider this as one of the factors for decreasing the decision of buying the security in the market. GN from the companies that have higher beta will cause less ERC, other things equal.

H4: *Beta risk has a negative association with the ERC.*

2.5 The effect of Capital Structure on ERC

Chandrarin (2003) and Jaswadi (2004) showed an insignificant association between leverage and ERC. However, other researches such as Mulyani et al. (2007), Midiastuty and Machfoedz (2003), Murwaningsari (2011), Setiati and Kusuma (2004) found that capital structure has a negative association with the ERC. Contrary, Dewi (2010), Jang et al. (2006), Harahap (2004), Mayangsari (2004), Pradipta and Purwaningsih (2012), Rahayu (2011), Riduwan (2004) proved a positive association with the ERC.

This research hypothesizes that capital structure has an association with the ERC. The capital structure, proxied by leverage, can derive a higher or a lower ERC. Highly leveraged firms will have lower ERC. The GN of highly leverage firms will improve the strength and safety of bonds and other outstanding debts, and this information will go to the debtholders instead of shareholders. For highly leveraged firms, the demand of the GN firm's stock will be lower, so the increase of market price and stock return in response to GN will be lower too. Hence, it implies the lower ERC, if otherwise. Then, it is expected that leverage will reduce the magnitude of ERC as shown as the negative association with the ERC.

H5: *Capital structure, proxied by leverage, has a negative association with the ERC.*

2.6 The effect of Industry Type to ERC

Chandrarin (2003) and Jaswadi (2004) showed a significantly positive association between industry types with the ERC. Chandrarin (2003) and Jaswadi (2004) use the dummy variable to separate between manufacture and non-manufacture industry. This research hypothesizes that industry type has an association with the ERC. Since the investors usually more responsive in the specific sector compared with another industry.

H6: *Industry type has a positive association with the ERC.*

2.7 The effect of Firm Size on ERC

Firm size is the proxy for stock's price informativeness. Big firms are considered more informative than small firms. The big firm has more business activities, business resources, business units, employees, capitals, and higher revenues than a small firm. Thus, the big firm has to disclose more information rather than the small ones.

The earlier study held by Easton and Zmijweski (1989) showed that firm size is insignificant explanatory variables for ERC, this result same with what found by Bonny et al. (2004), Chandrarin (2003), Jaswadi (2004), and Murwaningsari (2011). Some researchers found a different result about the association between firm size and ERC. Dewi (2010), Midiastuty and Machfoedz (2003), Rahayu (2011) found that there i s a negative association between firm size and the ERC Harahap (2004), Jang et al. (2006), Mayangsari (2004), Mulyani et al. (2007), Pradipta and Purwaningsih (2012), Riduwan (2004), Setiati and Kusuma (2004), and Syafrudin (2004) elaborated that firm size positively influence the ERC.

H7: *Firm size has a positive association with the ERC.*

2.8 The effect of Income Smoothing to ERC

Income smoothing is defined as the management effort in reducing the variability of earnings for specified periods to decrease the earnings fluctuation. The income smoothing will increase the investor's ability in predicting future earnings. Thus, the earnings become more informative and relevant to the investors.

Bonny et al. (2004) found a positive association between income smoothing and the ERC. However, Harahap (2004) found a negative association. When the company did an income smoothing, the earnings will comply with the investor's expectation. Thus, the good news comes from the earnings will be a response by the market as the increasing of market price and stock returns. Hence, a higher ERC will be reached.

H8: *Income smoothing has a positive association with the ERC.*

2.9 The effect of Audit Quality on ERC

Teoh and Wong (1993) examined the association between audit quality and ERC. They grouped the sample into two, Big 8 clients and Non-big eight clients, and they found that the Big 8 clients have statistically significantly larger ERCs than Nonbig 8 clients. It reflects the conclusion that larger auditor will affect the greater ERCs than smaller auditors. However, the research conducted by Mulyaniet al. (2007) to 51 companies in Indonesia result insignificant association between auditor quality and ERC. In measuring the audit quality, Mulyaniet al. (2007) used the market share of the audit firm as a proxy. Contrary, Setiawati (2006) examined 64 Indonesian companies and found that audit quality, proxied by audit firm size, does influence the firm's ERC. It significantly has a positive association with the ERC. Audit firm size is measured by the Big 5 and Nonbig 5 categories.

Interestingly, she also found that there is no significant difference in ERC between firms audited by big audit firms and small audit firms. Setiawati (2006) assumed that it happened since the investors did not look at the audit firm who conduct the audit for the financial statement, because of many other factors, such as political events, social events, etc. that can influence the investor's decisions. Same as Setiawati (2006), Mayangsari (2004) found that audit quality, proxied with auditor specialist, positively influence the ERC. The specialization of auditors is measured with the criteria of minimum audit 15% of the total companies. Both of Setiawati (2006) and Mayangsari (2004) use the association between audit quality and UE regressed with the CAR to test the association between an independent variable and dependent variable. Differently, Mulyaniet al. (2007) use the direct association between audit quality

variable and the ERC. They found that the association is not significant.

According to the theory and research results above, this research hypothesizes that auditor quality has an association with the ERC. The high quality of auditor will give the best effort in auditing the company's financial statement to defend their reputation. Thus, the good news comes from the companies that have high audit quality will be responded by the high buying level of company stock. This condition will increase the market price and stock return response to GN so that a higher ERC will be reached.

H9: *Auditor quality has a positive association with the ERC.*

2.10 The effect of Voluntary Disclosure to ERC

Dewi (2010), Murwaningsari (2011), and Widiastuti (2002) found a positive association between voluntary disclosure and the ERC. Contrary, Kartadjumena et al. (2011) and Rahayu (2011) found that voluntary disclosure has negatively associated with the ERC. This research hypothesizes that voluntary disclosure has a positive association with the ERC. Because the high discloser firms usually have good news, thus investors will be more responsive to this kind of firms.

H10: *Voluntary disclosure has a positive association with the ERC.*

2.11 The effect of Voluntary Disclosure to ERC

Dewi (2010), Murwaningsari (2011), and Widiastuti (2002) found a positive association between voluntary disclosure and the ERC. Contrary, Kartadjumena et al. (2011) and Rahayu (2011) found that voluntary disclosure has negatively associated with the ERC. This research hypothesizes that voluntary disclosure has a positive association with the ERC. Because the high discloser firms usually have good news, thus investors will be more responsive to this kind of firms.

H10: *Voluntary disclosure has a positive association with the ERC.*

2.12 The effect of CSR Disclosure to ERC

Sayekti and Wondabio (2007) found that there was a negative association between CSR disclosure and ERC. Kartadjumena et al. (2010) found an insignificant

association between these variables. This result indicates that investors appreciate CSR information disclosed in the company's financial report. CSR disclosure has an impact on the company because this information can increase a company's reputation. This research hypothesized that the CSR disclosure has a negative association with the ERC. As the increase of the company's informative, the earnings announcement becomes irrelevant to the investors. Thus, the ERC will be lower.

H11: *CSR disclosure has a negative association with the ERC.*

2.13 The effect of Timeliness to ERC

Timeliness means having information available to the decision-makers before it loses its capacity to influence decisions. (Kieso et al., 2011:47) Having relevant information sooner can enhance its ability to influence decisions. Timeliness becomes one of the enhancing qualities of fundamental characteristics of financial reporting.

In another research, the term "timeliness" also called "reporting lags". It is the gap between the announcement date and the publication date of the financial statement. The publication date in Indonesia can be varied, such as the BAPEPAM delivering date, newspaper advertisement date, and PRPM registration date. Jaswadi (2004) examined the reporting lag of financial statement in Indonesia. He divided his research became two, semi-annual data and annual data. Finally, he found that the relationship between timeliness and ERC is negative.

Syafrudin (2004) examined the influence of un-timeliness to the ERC. He found that un-timeliness had a negative association with the credibility and earnings quality (measured by ERC). Un-timeliness is perceived as the information comes from the financial statement containing noise. Another research by Murwaningsari (2011), used timeliness as the intervening variable between independent (firm size) and control variables (audit opinion) to the ERC. She found that timeliness has a significant positive association with the ERC.

Based on the theory and previous research, this research hypothesizes that timeliness has an association with the ERC. The earlier submissions are considered as

the good news, and the delay of submissions is the bad news. When the company delayed announcing the earnings information, investors will not respond to this information by buying this company's shares. Thus, the market response for the bad news will be lower, hence lower ERC.

H12: *Timeliness has a positive association with the ERC.*

2.14 The effect of the Audit Committee to ERC

The role of the audit committee is significant in a company. Investors, as the outsider party, need to get credible information in assessing the investment decisions. Audit committee performance will influence the investor valuation for evaluating a company's earnings quality. (Dewi, 2010).

Anderson et al. (2003) found that audit committee characteristics, such as independencies, activities, and size of the audit committee, have an association with the ERC. The audit committee's role is controlling the company to do an effective and efficient performance and make sure that the company reports their financial condition in compliance with the financial accounting standard. In line with these findings, Suaryana (2005) also found a positive association between the audit committee and ERC. The investors will more respond the excellent news from the firms that have an audit committee in their organizational structure, thus, higher ERC. Surprisingly, Dewi (2010) found that the audit committee has the insignificant effect on the ERC. It happened because in her sampling period (2005-2006) all of the company is already having the audit committee.

H13: *The audit committee has a positive association with the ERC.*

2.15 The effect of Transaction Gain/Losses to ERC

The two accounting methods of transaction gain (losses) issued by Indonesian Capital Market Supervisory Agency and Indonesian Institute of Accountant provide an exciting and essential glimpse of economic consequences in action (Chandrarin, 2003). These two different treatments of accounting methods will lead to a different response in the market. The proposed new accounting standard usually will impact the

ERC (Suwardjono, 1997).

Further, Chandrarin (2003) did panel regression analysis to test whether treatment of transaction gain (losses) under three standards did influence the ERC or not. Her research showed that in Panel A, transaction gain (losses) has the significant adverse effect on the ERC. However, Panel B and C showed that the effect of transaction gain (losses) on ERC is not statistically significant.

According to the theory and research results above, this research hypothesizes that transaction gain (losses) has an association with the ERC.

H14: *Transaction gain (losses) has a negative association with the ERC*

3. Research Methodology

In testing the hypotheses and explaining the result, the approach used in this research is the meta-analysis method. Meta-analysis is a quantitative review method for standardizing and aggregating findings across empirical studies (Greenberg, 1992). The population included in this research is all of the articles published in five accredited journals and *Simposium Nasional Akuntansi* (SNA) that used the earnings response coefficient as the dependent variable. This research use published and unpublished ERC articles in Indonesia for ten years from 2002 until 2011. It is assumed that ten years observations will be able to arrest the development process of ERC researches along the period.

Sampling technique used is purposive sampling technique. It draws the sample according to specific criteria. In controlling the quality of the journals being researched, the criteria is set first. The criteria of these journals are:

a) The journal should have B grade minimum for two years until 2011, based on the SK DirjenDikti. This criterion is used to control the quality of the ERC articles.

b) The journal should only publish accounting research articles. As it solely focused on serving the result of accounting and finance researches.

The appropriate journals for the criteria above are:

1. Jurnal Riset Akuntansi Indonesia (JRAI) has been issued by Ikatan Akuntansi Kompartemen Akuntan Pendidik, Universitas Gajah Mada. This journal has been published since 1998 and has been accredited B until 2012 based on Surat Keputusan Direktur Jenderal Pendidikan Tinggi (SK Dirjen Dikti) No. 83/Dikti/Kep./2009.

2. Accounting DepartmentUniversitas Indonesia has issued Jurnal Akuntansi dan Keuangan Indonesia (JAKI) since 2004. This journal has been accredited B until2012 based on Surat Keputusan Direktur Jenderal Pendidikan Tinggi (SK Dirjen Dikti) No. 110/Dikti/Kep./2009.

3. JurnalAkuntansi (JAK) has been issued by Economic Faculty,UniversitasTarumanegara Jakarta since 1997. This journal has been accredited B until 2012 based on Surat Keputusan Direktur Jenderal Pendidikan Tinggi (SK Dirjen Dikti) No. 83/Dikti/Kep./2009.

4. Akuntabilitas issued by Accounting Departmentof UniversitasPancasila Jakarta. This journal has been issued since 2001 and has been accredited B until 2012 based on Surat Keputusan Direktur Jenderal Pendidikan Tinggi (SK Dirjen Dikti) No. 110/Dikti/Kep./2009.

5. Jurnal Akuntansi dan Auditing Indonesia (JAAI) has been issued byEconomic Faculty ofUniversitas Islam Indonesia since 2007. This journal has been accredited B until2011based onSurat Keputusan Direktur Jenderal Pendidikan Tinggi (SK Dirjen Dikti) No. 65a/Dikti/Kep./2008.

The only one accredited accounting national conference in Indonesia is Simposium Nasional Akuntansi (SNA) that held annually by the Ikatan Akuntansi Indonesia – Kompartemen Akuntan Pendidik (IAI-KAPd) since 1997 until now. The papers produced there are considered as the representative for the unpublished journals. According to the

Anwar (2005), the unpublished journals should be included to avoid the publication bias.

This research uses the meta-analysis method in Soussii and Khlif (2010) and Ahmed et al. (2012). Both of them use the method conducted by Hunter et al. (1982).

The first step according to Hunter et al. (1982) is to determine the mean correlation ( ) and the estimate of the population variance as follows.

The mean correlation is computed as:

$$\bar{r} = \frac{\sum(N_i r_i)}{\sum N_i} \quad\quad\quad .... (18)$$

where N_i is the sample size for study i and r_i the Pearson correlation coefficient for study i.

The unbiased estimate of the population variance S_p^2 is represented by S_e^2

$$S_P^2 = S_r^2 - \quad\quad ……………………………………..(19)$$

where:

S_r^2 = the observed variance and equals to $(\sum[N_i(r_i - \bar{r})^2])/\sum N_i.$

S_e^2 = the estimate of sampling error variance and equals $((1 - \bar{r}^2)^2 K)\sum N_i$ where K is the number of individual studies included in the analysis.

Ahmed and Courtis (1999) in Soussii and Khlif (2011) assume that the observed.

variance S_r^2 is explained by the variance estimate of sampling errors S_e^2, which implies that S_p^2 is reduced to zero.

Effect size (r) is used to denote the magnitude of the relationship between the dependent.

Variable (for example ERC) and a specific independent variable (for example earnings persistence) (Ahmed and Courtis, 1999). Every single study contributes to varied effect sizes in the relationship between each independent variable and the dependent variable (ERC).

In the implementation step of the meta-analysis, sometimes the empirical studies do not report Pearson's coefficient (r) but include other statistics such as t-statistics. The following expression allows for the conversion into r statistics:

$$r_{y,x} = \sqrt{\frac{t^2}{(t^2+df)}} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (20)$$

After being converted, the original sign (+/ -) of t-statistics should be put on the $r_{y,x}$. So, the direction of the relationship among variables can be determined (Table 2).

The second step is to determine the 95 percent confidence interval. As the sample sizes are more significant than 30, the z -statistic are determined as follows:

$$\left[\bar{r} - S_p Z\, 0.975 , \bar{r} + S_p Z 0.975\right] \approx \left[\bar{r} - S_p(1.96), \bar{r} - S_p(1.96)\right] \quad \ldots (21)$$

The confidence interval is used to test whether the relationship is significant or not. When the mean correlation is between the minimum and maximum area of a confidence interval, and the values are all positive or all negative, then the relationship is significant. If one value is negative and other is positive, then we can say the mean correlation is not significant. For example, if the mean r is 0.20 and then 95% confidence level varies between

-0.10 and +0.30 we cannot say mean r is significant even if 0.20 is significant. To confirm the hypotheses, both values should be positive (+).

Hunter et al. (1982) have proposed the following statistic x^2 to test for the statistical validity of the model:

$$X^2_{k-1} = \frac{N\, s_{\bar{r}}^2}{(1-\square^2)^2} = K \frac{S_{\bar{r}}^2}{S_{\hat{e}}^2} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(22)$$

The association investigated is unmoderated when this statistic is found to be trivial, but high value, generally superior to $X^2_{(k-1,0.05)}$, indicates the need to perform tests using subgroups meta-analysis, which represents the third and ultimate step of this approach.

The subgroup meta-analysis is also used to reduce heterogeneity. Related studies are classified according to proxies used to measure the dependent and explanatory (independent) variables. These sub-groups depend on the method used to compute Earning Response Coefficient (ERC), including direct computation for ERC (ERC

Direct) and use the relationship between CAR and UE (CAR & UE Relationship). Furthermore, the capital structure or leverage is divided into total debt to total equity (D/E) and total debt to total assets (D/A). Firm size includes the market value of equity (MVE), total firm assets (TA), and the log of market capitalization (MC). And the last, timeliness in divided into time lag (TIME) and a dummy variable for un-timeliness (DM).

5. Result and Discussion

5.1 Earnings Persistence

The result of total sample meta-analysis indicates that earnings persistence is significantly associated with the ERC ($\bar{r}$ = 0.2946), with 95% confidence interval between0.1717 and 0.4175 (Table 3). This result reflects a positive effect between earnings persistence and ERC. The computed chi-square statistic confirms the strong empirical validity of this finding by shown the number of 121.935. It is higher than the value of chi-square table that showed 32.000 for 0.01 significant levels. Then, subgroup meta-analysis is undertaken to reduce heterogeneity. The relationship is found to be statistically significant when the ERC is computed by CAR&UE Interaction (= 0.2741, with 95% confidence interval of [0.2320; 0.3162]). Additionally, the computation using ERC Direct also supports the significant association between earnings persistence and ERC. From all of the meta analysis's result, it can be concluded that H1 is accepted.

5.2 Earnings Growth

The total sample meta-analysis based on 18 articles indicates the existence of a significant association between earnings growth and ERC (Table 3). This variable is positively associated with a mean association of $\bar{r}$ = 0.1208 and 95% confidence interval of [0.1006; 0.1410].

To test the heterogeneity, the chi-square statistic amounts to 38.527, higher than chi-square table $X^2_{0,01}$=33.409) indicating that sub-group meta-analysis is needed in examining the moderator variables that may influence the association between

earnings growth and ERC. When ERC is measured using direct computation, it shows a significant association with a confidence interval between 0.1006 and 0.1410. The same result is also shown when ERC computed using CAR and UE Interaction with a sample from five studies, and the mean association is 0.1719. At all, the hypothesis (H2) is accepted.

5.3 Earnings Predictability

The evidence from the meta-analysis testing the linkage between ERC and earnings predictability is significant. The total sample meta-analysis provides support for the significant association between ERC and earnings predictability (Table 3). The mean association for this variable is 0.1438 with 95% confidence interval of [0.0524; 0.2353]. Furthermore, the computed chi-square statistic confirms the strong empirical validity of this finding $X^2_{0.01}$23.209). Since, all of the studies that include this variable have the same measurement for both the dependent variable and explanatory variable, so no subgroup test be undertaken. H3 is accepted because the result shows a positive association between earnings predictability and ERC.

5.4 Beta Risk

The beta risk variable is associated with a mean association of = -0.0988 and $\bar{r}$a confidence interval of [-0.1295; -0.0681] (Table 3). This evidence suggests that beta risk is significantly associated with the ERC. If further test generated to compute the value of r statistic using the original sign of each article's results, beta risk's mean association is negative. So, the association between beta risk and ERC is negative, and H4 is accepted. The chi-square statistic amounts to 39.717, higher than chi-square table 30.578. Similar results are obtained from the subgroup meta-analysis, all of the group show strong association and negative confidence interval (-0.0940; -0.349), (-0.1774; -0.1774), respectively.

5.5 Capital Structure

The total sample meta-analysis based on 17 studies indicates an insignificant

X^2_0

$\bar{r}$

association between ERC and capital structure proxied by leverage. The capital structure variable has a very low mean the association of = -0.0417 with a 95% confidence interval between -0.0841 and 0.006 (Table 3). Since the meta-analytic result include the positive area of the confidence interval, the association became insignificant.

The computed chi-square statistic equals to 59.885(chi-square table is 32.000) and the error variance only 28.39% of the total observed variance, so subgroup meta-analysis is conducted. The association is found to be statistically not significant when ERC is measured by ERC Director TD/TE, resulting in the mean association of -0.0452 and -0.0531, respectively. However, when CAR&UE Interaction or TD/TE measure the capital structure, the result is significant with = 0.1240 and = -0.0288, respectively. The different sign of mean association in CAR&UE Interaction measurement is caused by a limited number of empirical studies used this measurement. Two studies from Mayangsari (2004) and Rahayu (2011) have a contradictive result of r statistic. In which Mayangsari (2004) has r statistic as

0.15 and Rahayu (2011) -0.0698, this condition cause become $\bar{p}$ositive (following the significant value from Mayangsari (2004)). Hence, to generalize this result, the researcher needs more empirical studies to be tested.

Finally, the meta-analysis did not accept the hypothesis of H5.

5.6 Industry Type

The total sample meta-analysis based on six articles indicates the existence of a significant association between ERC and industry type (Table 3). This variable is associated with a mean association of = 0.1493 and 95% confidence interval of [0.0699; 0.2287]. The positive sign indicates that earnings growth has a positive association with the ERC. The chi-square statistic amounts to 29.051, higher than chi-square table $X^2_{0,01}$=15.086). Even

though chi-square statistic indicates the moderator variable may exist, no different measurement in six studies, so subgroup cannot be conducted. Finally, the H6 is accepted.

5.7 Firm Size

The evidence from all sample in the meta-analysis do not show the significant linkage between ERC and firm size by computed nearly zero mean association of 0.0114 and include a negative value in the confidence interval [-0.0424; 0.0653] (Table 3).

Given the significant X^2_{k-1} value of 80.567 (above the chi-square table$(X^2_{0.01})$ of 36.191), the subgroup meta-analysis is undertaken to reduce heterogeneity. The association is found to be statistically significant when the ERC is measured by CAR & UE Interaction or TA, resulting in the mean values of 0.2416 and 0.0358, respectively. However different results are obtained when ERC Direct and MVE measure firm size, the association are not significant with mean values of -0.0288 and -0.0039. This different result provides evidence that different measures of firm size can influence the association between firm size and ERC. Then, general meta-analysis supports that H7 is not accepted.

5.8 Income Smoothing

The total sample meta-analysis indicates that there is no significant relation between ERC and income smoothing. Since a mean association shows some -0.0104 and confidence interval of [-0.0732; 0.0523] (Table 3). The chi-square for this variable only significant at 0.05 by showing the amount of 6.5463 (the chi-square table (= **3.841**). This insignificant result is because only two studies are testing the association between income smoothing and ERC. So, general meta-analysis concludes H8 is not accepted.

$X^2_{0.05}$

5.9 Audit Quality

Total three studies using audit quality variable indicate a mean association of 0.1889 and 95% confidence interval between 0.1389 and 0.2389. This result represents the significant and positive association between audit quality and ERC. In deepening our analysis, and because the total sample from 467 companies results in chi-square value

of 15.8120, higher than chi-square table $X_{0.01}^2 = 9.210$), heterogeneity test is conducted by sub-grouping the data. The subgroup analysis for ERC Direct results significant association between audit quality and ERC by 0.0956 mean association and confidence interval between 0.0712 and 0.1200 (Table 3).

Finally, general and subgroup meta-analysis support the acceptance of positive association between audit quality and ERC. Hence, H9 is accepted.

5.10 Voluntary Disclosure

The voluntary disclosure variable has low mean association of = 0.0385 and $\bar{a}$ confidence interval of [-0.0370; 0.1140] (Table 3). This evidence suggests that voluntary disclosure is not necessarily conducive to increase ERC. Furthermore, chi-square amounts to 25.0910 $X_{k-1}^2 > X_{0.1}^2 = 13.277$), indicating that the sub-group analysis is needed to test more specific consideration.

The sub-group analysis supports this finding by showing insignificant association for ERC Direct, and CAR&UE Interaction measurements show a negligible association, judging from the confidence interval of [-0.0066; 0.1044] and [-0.1630; 0.1507], respectively. It probably because of nearly zero mean association resulted in the meta-analysis. Thus, the maximum area of confidence interval becomes positive.In the end, this research cannot prove the association between voluntary disclosure and ERC. Hence H10 is not accepted.

5.11 CSR Disclosure

Based on two articles as the sample of meta-analysis, the association between CSR Disclosure and ERC is negative and significant with the mean association of -0.0701 and 95% confidence interval between -0.0701 and -0.0701. Chi-Square statistic X_{k-1}^2 of 0.0542 (Table 3), the subgroup is not needed. Then H11 is accepted.

5.12 Timeliness

The evidence from the meta-analysis testing the linkage between ERC and timeliness is significant. The total sample meta-analysis provides support for the significant association between ERC and timeliness by showing a mean association of -0.1586

and confidence interval of [-0.2316; -0.0855] (Table3).

From total sample 318 companies, the chi-square value is 17.4668, higher than chi-square table $X^2_{0.01}$= **13.277**). Furthermore, the subgroup analysis supports the significant association between timeliness and ERC for CAR&UE Interaction and DM. This result supports the fact that H12 is accepted.

5.13 Audit Committee

A total sample of meta-analysis indicates a significant association between the audit committee and ERC. The mean association for this variable is positive with a value of 0.0386 and confidence interval of [0.0227; 0.0545]. Computed chi-square is 5.3349 (Table 3), higher than chi-square table at 0.1 significance level $X^2_{0.1}$= 4.609). So, this meta-analysis accepts H13.

5.14 Transaction Gains (Losses)

The evidence from the total sample of the meta-analysis suggests that there is a negative and significant association between transaction gains (losses) and ERC. It shows a mean association $\bar{r}$)of -0.1262 with a 95% confidence interval between -0.1685 and -0.0840 (Table 3). The error variance accounts for less than 75% of the observed variance, and then a moderator variable may exist due to the different sample size. This result indicates that H14 is accepted.

4.15. Sensitivity Analysis

Avoiding the publication bias, this research includes both published (i.e., appearing in five accredited journal) and unpublished studies (i.e., available on SNA) in conducting the meta-analysis. Hunter et al. (1982:30) suggest that most of the difference between the average effect size of the published and unpublished studies are due to differences in the methodological quality. To know whether published and unpublished studies have an association with the relationship between variables, this research sub-divide the overall sample into published versus unpublished studies to

assess if publication status is a moderating factor.

When focused only for the SNA (unpublished studies), earning persistence variable results a mean association of 0.1103 representing a significantly positive association between earnings persistence and ERC. Thansub group meta-analysis results in 0.3153 mean associations refer to the relationship between variables for accredited journals (published studies) category. This suggests that publication status has not moderated the earnings persistence effect on ERC since both of the results showed the same finding with general meta-analysis.

The results for subgrouping the earnings growth, coincidentally be spread evenly. Nine studies represent the SNA category and the same amount of studies for accredited journals. Both of their mean associations show a positive and significant relationship between earnings growth and ERC, 0.1049 and 0.1342, for SNA and accredited journals respectively. This finding became evidence that publication status has not moderated the variables.

For the earnings predictability, are computed for 0.1298 (SNA) and 0.1504 (accredited journals) respectively. This amount $\bar{r}$ shows the same result with general meta-analysis, that is a significantly positive relationship between earnings predictability and ERC. Generally, beta risk also results indifferently after being subgrouped for SNA and accredited journals, and the mean association generated the value of -0.1075 and -0.0676 stands for a significantly negative association. Thus, the moderator variable does not exist for both variables. Furthermore, the voluntary disclosure also results from the same with a general meta-analysis that shows insignificant association for both SNA and accredited journals category. The means association are 0.0116 (-0.0176; 0.2500) and 0.0047 (-0.0384; 0.0477) for SNA and accredited journals, respectively. Thus, the publication status is not moderated variables.

Differently, the variable of capital structure shows the significantly negative result when sub-grouped only for SNA studies (= -0.0741). It contradicts the result from a general meta-analysis that suggests no significant association between capital structure

and ERC. However, the subgroup of accredited journals shows insignificant association among variables (= - 0.0249 and confidence interval of -0.0622; 0.0124). It is probably caused by the variation on the effect size (r_i) of the studies. SNA group has less variety if it is compared to an accredited journals group (see Appendix 6) This variation is due to the different amount of sample, the period used, or probably the industry type. Other variables that not mentioned in this section do not have different publication status, or the source of publication is homogeneous (whether all come from accredited journals or all from SNA).

5. Conclusion and Suggestions

5.1 Conclusion

Using meta-analysis to test the association among variables, this research found that ten variables can be considered as the determinant variables of ERC. Earning persistence, earnings growth, earnings predictability, beta risk, industry type, audit quality, CSR disclosure, timeliness, audit committee, and transaction gains (losses) are the factors which significantly associate with the earnings response coefficient (ERC). Meanwhile, capital structure, firm size, income smoothing, and voluntary disclosure are found to be not significantly associated with the ERC.

The magnitude of the relationship between independent variables and ERC, called as effect size, differ across studies. The factors that associate with this heterogeneous result is moderating variable. A moderating variable can be the measurement of ERC, measurement of independent variables, or publication status.

5.2 Suggestions

Answering the research limitation, researcher suggests some actions should be undertaken for the next meta-analysis research about ERC. It can be explained as follows. 1) n order to expand the meta-analysis result on determinants of ERC, the future researcher should use not only studies from Indonesia but also from all over the world, such as *Journals of Accounting and Economics, Journal of Accounting Research, the International Journal of Accounting, Journal of International Accounting, Auditing, and Taxation*, etc. However, specific criteria should be built to

keep the quality of studies used as the sample. The expansion of period taken as the sample criteria also can be the alternative to be done to get more studies. If many studies used as the sample of the meta-analysis, the next researcher will get more variables to be tested in investigating the determinants of investor's response to the earnings information. 2) Since no previous research using meta-analysis in

determining the factors that associate with ERC, the next researcher can use this research as the basis to conduct the meta-analysis and determine the subgroup category. The future researcher also can use the meta-analysis studies conducted by Ahmed et al. (1999,2012) and Klif and Soussii (2011) as they have the similar model of meta-analysis with this research

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Attachment

Figure1. Conceptual Framework
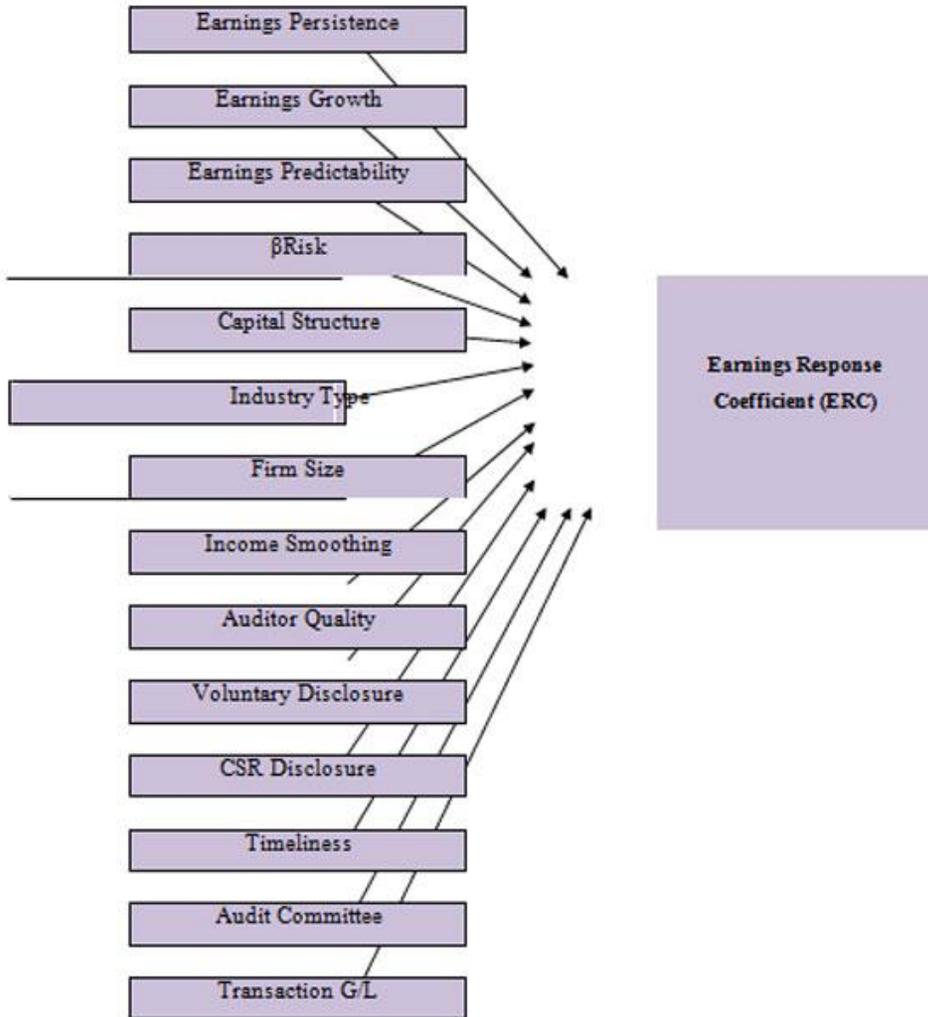
Table 1. Sample Selection Procedure

	Sample Criteria	Amount
1.	Total ERC articles published in five accredited journals in The year 2002-2011	16
2.	Total ERC articles in SNA V – SNA XIV	13
	TOTAL	29
3.	The journals used data from the countries outside Indonesia	(3)
4.	Journals eliminated due to only one data found for each variable	(6)
	TOTAL SAMPLE	**20**

Source: Processed data.

Table 2. Effect Size (*r*)

No.	Authors	Publisher	Dependent Variables	Sample	Effect Size (*r*)				
					TG/L	EPrst	EGrw	Eprdc	βRIsk
1	Bonny et.al. (2004)	Akuntabilitas (1): 19-27	*ERC Direct*	60		0,1309		0,4284	0,2783
2	Chandradarin (2003)	JRAI 6 (3):217-231	*ERC Direct*	225	-0,1895	0,1496	0,0309	0,2253	0,0444
3	Chandradarin (2003)	JRAI 6 (3):217-231	*ERC Direct*	134	-0,1826	0,2065	-0,0057	-0,2600	-0,3419
4	Chandradarin (2003)	JRAI 6 (3):217-231	*ERC Direct*	60	-0,1764	-0,0004	0,0185	0,1300	-0,0832
5	Chandradarin (2003)	JRAI 6 (3):217-231	*ERC Direct*	31	0,2143	-0,2362	0,0439	0,9668	-0,0196
6	Dewi (2010)	JAK (14): 75-87	*ERC Direct*	312					
7	Harahap (2004)	SNA VII	*ERC Direct*	82		-0,0666	-0,1572	0,2610	-0,0466
8	Jang et.al. (2006)	Akuntabilitas 6 (2): 142-149	*ERC Direct*	44		0,3487	0,4734		
9	Jaswadi (2004)	JRAI 7 (3): 295-315	*ERC Direct*	47		0,1101	0,3203	0,2006	0,1459
10	Jaswadi (2004)	JRAI 7 (3): 295-315	*ERC Direct*	47		0,7599	0,1676	0,0451	0,0743
11	Kartadjumena et al. (2011)	JAK (15):262-275	*ERC Direct*	50					
12	Mayangsari (2004)	JRAI 7 (2): 154-178	*CAR & UE Interaction*	148		0,1800	0,2100		-0,1340
13	Midiastuty and Machfoedz (2003)	SNA VI	*ERC Direct*	300			0,0739		
14	Mulyani et.al. (2007)	JAAI 11 (1): 35-45	*ERC Direct*	255		0,6585	0,1939		-0,1327
15	Murwaningsari (2011)	SNA XIV	*ERC Direct*	60		-0,1593	0,5578		
16	Naimah and Utama (2007)	JRAI 10 (3): 287-302	*CAR & UE Interaction*	122		0,4686			
17	Rahayu (2011)	SNA XIV	*CAR & UE Interaction*	31		-0,0422	0,0052		0,2580
18	Riduwan (2004)	SNA VII	*ERC Direct*	111		0,1925		0,0563	
19	Sayekti and Wondabio (2007)	SNA X	*CAR & UE Interaction*	108			0,2120		-0,2010
20	Setiati and Kusuma (2004)	SNA VII	*ERC Direct*	46		0,4600	-0,1213	0,0743	-0,0358
21	Setiati and Kusuma (2004)	SNA VII	*ERC Direct*	46		0,3315	0,0906	0,1288	-0,2804
22	Setiawati (2006)	JAK 10 (3): 224-243	*ERC Direct*	64					
23	Suaryana (2005)	SNA VIII	*CAR & UE Interaction*	97					
24	Syafrudin (2004)	SNA VII	*CAR & UE Interaction*	82			0,1637		-0,3325
25	Syafrudin (2004)	SNA VII	*CAR & UE Interaction*	82			0,1217		-0,2341
26	Widiastuti (2002)	SNA V	*CAR & UE Interaction*	67					

Table 2. Effect Size (*r*)(cont.)

No.	Authors	Publisher	Dependent Variables	Sample	Effect Size (*r*)				
					CS	INDUSTRY	SIZE	RL	IS
1	Bonny et al. (2004)	Akuntabilitas (1): 19-27	*ERC Direct*	60			0,0222		0,2405
2	Chandradarin (2003)	JRAI 6 (3):217-231	*ERC Direct*	225	0,0216	0,0715	-0,0736		
3	Chandradarin (2003)	JRAI 6 (3):217-231	*ERC Direct*	134	-0,0204	0,3451	-0,1410		
4	Chandradarin (2003)	JRAI 6 (3):217-231	*ERC Direct*	60	-0,1844	-0,1901	-0,1926		
5	Chandradarin (2003)	JRAI 6 (3):217-231	*ERC Direct*	31	-0,0083	-0,3099	-0,1803		
6	Dewi (2010)	JAK (14): 75-87	*ERC Direct*	312	-0,0360		-0,0290		
7	Harahap (2004)	SNA VII	*ERC Direct*	82	-0,2265		0,2889		-0,1941
8	Jang et.al. (2006)	Akuntabilitas 6 (2): 142-149	*ERC Direct*	44	0,6458		-0,6387		
9	Jaswadi (2004)	JRAI 7 (3): 295-315	*ERC Direct*	47	-0,1783	0,3384	-0,2118	-0,1771	
10	Jaswadi (2004)	JRAI 7 (3): 295-315	*ERC Direct*	47	-0,2159	0,5107	-0,1806	-0,2036	
11	Kartadjumena et al. (2011)	JAK (15):262-275	*ERC Direct*	50					
12	Mayangsari (2004)	JRAI 7 (2): 154-178	*CAR & UE Interaction*	148	0,1500		0,3350		
13	Midiastuty and Machfoedz (2003)	SNA VI	*ERC Direct*	300	0,1286		0,0267		
14	Mulyani et.al. (2007)	JAAI 11 (1): 35-45	*ERC Direct*	255	-0,1730		0,1407		
15	Murwaningsari (2011)	SNA XIV	*ERC Direct*	60	-0,2788		-0,3336		
16	Naimah and Utama (2007)	JRAI 10 (3): 287-302	*CAR & UE Interaction*	122					
17	Rahayu (2011)	SNA XIV	*CAR & UE Interaction*	31	-0,0698		0,2692		
18	Riduwan (2004)	SNA VII	*ERC Direct*	111	-0,2035		-0,1420		
19	Sayekti and Wondabio (2007)	SNA X	*CAR & UE Interaction*	108					
20	Setiati and Kusuma (2004)	SNA VII	*ERC Direct*	46	-0,3277		-0,0376		
21	Setiati and Kusuma (2004)	SNA VII	*ERC Direct*	46	-0,2947		0,4160		
22	Setiawati (2006)	JAK 10 (3): 224-243	*ERC Direct*	64					
23	Suaryana (2005)	SNA VIII	*CAR & UE Interaction*	97					
24	Syafrudin (2004)	SNA VII	*CAR & UE Interaction*	82			0,1815		
25	Syafrudin (2004)	SNA VII	*CAR & UE Interaction*	82			0,1226		
26	Widiastuti (2002)	SNA V	*CAR & UE Interaction*	67					

Table 2. Effect Size (*r*)(cont.)

No.	Authors	Publisher	Dependent Variables	Sample	Effect Size (*r*)				
					Rep.Aud	VDisclosure	CSRIndx	TIME	AudCom
1	Bonny et.al. (2004)	Akuntabilitas (1): 19-27	*ERC Direct*	60					
2	Chandradarin (2003)	JRAI 6 (3):217-231	*ERC Direct*	225					
3	Chandradarin (2003)	JRAI 6 (3):217-231	*ERC Direct*	134					
4	Chandradarin (2003)	JRAI 6 (3):217-231	*ERC Direct*	60					
5	Chandradarin (2003)	JRAI 6 (3):217-231	*ERC Direct*	31					
6	Dewi (2010)	JAK (14): 75-87	*ERC Direct*	312		0,0710			-0,0250
7	Harahap (2004)	SNA VII	*ERC Direct*	82					
8	Jang et.al. (2006)	Akuntabilitas 6 (2): 142-149	*ERC Direct*	44					
9	Jaswadi (2004)	JRAI 7 (3): 295-315	*ERC Direct*	47					
10	Jaswadi (2004)	JRAI 7 (3): 295-315	*ERC Direct*	47					
11	Kartadjumena et al. (2011)	JAK (15):262-275	*ERC Direct*	50		-0,4094	-0,0443		
12	Mayangsari (2004)	JRAI 7 (2): 154-178	*CAR & UE Interaction*	148	0,3900				
13	Midiastuty and Machfoedz (2003)	SNA VI	*ERC Direct*	300					
14	Mulyani et.al. (2007)	JAAI 11 (1): 35-45	*ERC Direct*	255	0,0272				
15	Murwaningsari (2011)	SNA XIV	*ERC Direct*	60		0,3160		0,2543	
16	Naimah and Utama (2007)	JRAI 10 (3): 287-302	*CAR & UE Interaction*	122					
17	Rahayu (2011)	SNA XIV	*CAR & UE Interaction*	31		-0,4721			
18	Riduwan (2004)	SNA VII	*ERC Direct*	111					
19	Sayekti and Wondabio (2007)	SNA X	*CAR & UE Interaction*	108			-0,0820		
20	Setiati and Kusuma (2004)	SNA VII	*ERC Direct*	46					
21	Setiati and Kusuma (2004)	SNA VII	*ERC Direct*	46					
22	Setiawati (2006)	JAK 10 (3): 224-243	*ERC Direct*	64	0,3680				
23	Suaryana (2005)	SNA VIII	*CAR & UE Interaction*	97					0,2431
24	Syafrudin (2004)	SNA VII	*CAR & UE Interaction*	82				-0,3105	
25	Syafrudin (2004)	SNA VII	*CAR & UE Interaction*	82				-0,2722	
26	Widiastuti (2002)	SNA V	*CAR & UE Interaction*	67		0,2094			