**Earnings Management and Underperformance after Seasoned Equity Offerings: A Cross-Country Study**

**Abstract**

**Purpose** –This study uses cross-country data to examine the association between earnings management (accruals earnings management (AEM) and/or real activities manipulation (RAM)) and firm underperformance following seasoned equity offerings (SEOs).

**Design/methodology/approach** – The study applies ordinary least squares regression analyses to a sample of 11,764 observations on firms from 22 countries over the period 2005 to 2017. The methods include weighted least squares regression, sub-sampling approach, and alternative measures of firm performance, earnings management, and legal regime for robustness tests as well as a two-stage least squares instrumental variable (IV) approach to address endogeneity concerns.

**Findings** – The results suggest that RAM has a greater negative impact on post-SEO performance than AEM. The result is economically significant for RAM only. The results also reveal that the negative impact of earnings management, in particular RAM, on post-SEO performance is greater in countries with a strong legal regime than in other countries.

**Practical implications** – Earnings management around SEOs has important implications for investors, regulators, and policymakers. The study suggests that policymakers should improve the current legal conditions to promote fairness in the equity market.

**Originality/value** – The results from the cross-country data support earlier results from single-country studies on the impact of earnings management on post-SEO performance. The study also provides new evidence on the variation in the impact of earnings management according to the strength of the legal regime operating in a country.

*Keywords*: Accruals earnings management; earnings management; legal regime; post-SEO performance; real activities manipulation

*JEL Classification Codes:* G30; K42; M40

**1. Introduction**

This study uses cross-country data to examine the association between earnings management (accruals earnings management (AEM) and/or real activities manipulation (RAM)) and firm underperformance following seasoned equity offerings (SEOs). The success of SEOs relies on the stock price on the date of issue, and the stock price is dependent, at least in part, on earnings. Empirical evidence supports the expectation that firms engage in some form of earnings management prior to SEOs in order to inflate earnings, and with a consequent decline in performance after SEOs (for example, Loughran and Ritter, 1995, 1997). Studies of this phenomenon have tended to focus on AEM (for example, Rangan, 1998; Shivakumar, 2000; Teoh et al., 1998), but a growing number of studies have found that firms engage in both AEM and RAM for this purpose (for example, Cohen and Zarowin, 2010; Kothari et al., 2016). However, the studies to date have all been single-country studies. Our study, being a cross-country study, provides evidence across a set of countries and we are able to report on how the impact of AEM and/or RAM on post-SEO performance varies across countries according to the strength of the legal regime operating in a country.

Understanding the absolute and relative impacts of AEM and RAM is important because each earnings management strategy affects firms’ fundamentals differently. AEM deals with estimates, judgements and assumptions made in financial reporting that cause a misrepresentation of firms’ underlying operating performance, and which may reverse in subsequent periods. RAM, on the other hand, has real economic consequences because it alters real operating decisions through, for example, reduction in investment and research and development, in order to meet short-term goals, but may have severe long-term effects on firms’ economic fundamentals.

The SEO setting is different from the normal reporting setting for firms in that it is typified by a period of deeper scrutiny of firms’ financial information. The features of SEOs may hinder the ability of firms to engage in at least some form of earnings management, the type and the extent of which is likely to be dependent on the legal regime operating in the country. A stronger legal regime is characterised by more vigilant regulators, auditors, and financial analysts. Therefore, it is expected that the strength of the legal regime will affect the relative opacity of AEM and RAM across countries. Legal regimes can affect the relative impact of AEM and RAM and change managers’ choice between AEM and RAM. The existing literature reports a shift from AEM to RAM under intense scrutiny. For example, Cohen et al. (2008) document that firms resorted to RAM after the passage of the “Sarbanes-Oxley Act which sought to limit questionable accrual choices”. Therefore, in a stronger legal regime that is characterised by greater scrutiny, we expect the effect of RAM on firm performance to be more pronounced than that of AEM.

There are good reasons to investigate the impact of AEM and/or RAM on post-SEO performance using a cross-country setting. First, a cross-country study adds to the evidence provided to date by the single-country studies, which have reported on the U.S. (for example, Cohen and Zarowin, 2010; Kothari et al., 2016; Rangan, 1998; Shivakumar, 2000; Teoh et al., 1998), Canada (Pandes, 2010) and a small number of European countries (for example, Gajewski and Ginglinger, 2002; Harakeh et al., 2019; Slovin et al., 2000). In particular, a cross-country study extends the range of the origin of the evidence. Second, and more importantly, a cross-country study facilitates the study of the impact of factors, such as the legal regime, which is given for a single-country study. Admittedly, it might be possible to identify country-specific institutional change over time, but the study of such change is inevitably confounded by other factors. Despite the increase in SEOs, cross-border investment, and market integration and liberalisation in recent years, the literature on post-SEO performance to date, does not include a cross-country study. Our study fills this gap, and we focus on the impact of the legal regime.

Using a sample of 11,764 observations on firms from 22 countries over the period 2005 to 2017, we find the following: first, post-SEO performance is worse for firms that engage in RAM rather than in AEM, and the impact of RAM on average is larger than the impact of AEM. The result is economically significant for RAM only, suggesting its importance in explaining post-SEO performance, as the use of RAM shows a decline in post-SEO performance by 2.7%. Second, we provide evidence that firms’ joint use of AEM and RAM leads to worse post-SEO performance. Third, we find that as the legal regime strengthens, the impact of earnings management reduces. However, the decline in post-SEO performance occurs only when firms engage in RAM as the legal regime strengthens. The impact of AEM on post-SEO performance becomes insignificant in a strong legal regime. Our results are robust to the use of alternative measures of post-SEO performance, earnings management, legal regimes and different model specifications. Our results are consistent with prior studies, that both earnings management strategies persist in a weak legal regime. However, stricter legal regimes restrict the opportunity for AEM and compel SEO firms to use more RAM. This calls for the design of effective institutional systems that monitor excessive earnings management, particularly RAM, in weak legal regimes.

The remainder of the paper is organized as follows. Section 2 reviews the literature and develops our hypotheses. Section 3 describes our research design and Section 4 presents our empirical results. Section 5 reports the result of the additional analyses and Section 6 concludes the paper.

**2. Prior literature and hypotheses development**

Cohen and Zarowin (2010) investigate AEM and RAM around SEOs in the U.S. They find that firms engage in both AEM and RAM in the issuing year, but that post-SEO underperformance is more severe when managers engage in RAM than when they carry out AEM. Kothari et al. (2016) explore the overvaluation of SEOs in the U.S and find that both AEM and RAM are associated with SEO overvaluation, reinforcing the results of Cohen and Zarowin (2010). Kothari et al. (2016) also find that post-SEO return underperformance is driven more by RAM than by AEM. They conclude that, despite the costly nature of RAM, managers are more inclined to use RAM than AEM prior to SEOs, because of the difficulty in detecting real activities manipulation.

Zang (2012) explores the trade-off between AEM and RAM and finds that firms use either AEM or RAM depending on the relative cost of each earnings management strategy. Firms manipulate real activities less when they are not as competitive, when they are financially unstable and when they face higher tax charges. Zang (2012) also finds that RAM precedes AEM as RAM cannot be applied near or after the end of the year. Thus, managers manage earnings through RAM rather than through AEM to meet earnings thresholds. It is also possible that AEM is less costly and more flexible.

As an extension to the studies on earnings management and firm performance, we first examine the relative magnitude of AEM and RAM. Even if both earnings management strategies lead to a decline in performance, the magnitude of the decrease may differ. There are two contrasting predictions on the relative impact of AEM and RAM. Prior research reveals a growing preference by firms for RAM, compared with AEM (for example, Cohen and Zarowin, 2010; Zang, 2012), or a switch from AEM to RAM (for example, Cohen et al., 2008; Garg, 2018). The preference for RAM stems from the fact that regulators, auditors, and financial analysts struggle to detect it. On one hand, owing to the more intense level of scrutiny surrounding SEOs, there is the likelihood of a shift from AEM to RAM (Cohen et al., 2008). Graham et al. (2005) find that firms are penalised by the capital market for negative earnings surprises. Consistent with this view, it is more likely that firms will sacrifice long-term firm value for short-term earnings targets. Thus, RAM will have a larger impact on post-SEO performance. On the other hand, in terms of shareholder wealth, it is more costly to engage in RAM compared with AEM, as it affects the economic fundamentals of a firm and its cash flows (Cohen et al., 2008; Zang, 2012). Therefore, firms could be likely to refrain from using the costly earnings management, RAM and favour the less costly option, AEM.

SEOs create an incentive to manipulate earnings because of the benefits of higher reported earnings prior to an SEO. However, the extent to which managers can manipulate earnings to benefit from higher SEO prices depends on the opacity of the type of earnings management strategy. Thus, post-SEO underperformance is likely to vary by the type of earnings management strategy applied. As RAM is more difficult to detect and affects firms’ economic fundamentals and long-term value, we expect that firms that employ RAM will exhibit more post-SEO performance, despite the level of scrutiny from auditors, analysts and external investors, during the SEO process. Thus, we propose the following hypothesis:

H1: RAM has a greater negative impact on post-SEO performance than does AEM.

We extend the above discussion to examine whether the impact of AEM and RAM varies according to the strength of the legal regime. Opare et al. (2020) find that improvement in post-SEO performance following adoption of IFRS occurs only for firms in countries with strong legal enforcement. The high level of information transfer and disclosure characterising strong legal regimes, suggests that firms have less opportunity to engage in earnings management and consequently financial reports of listed firms are of higher quality. Strong legal regimes have stricter requirements, facilitate better scrutiny, have higher compliance with accounting standards, and are less permissive in choice of accounting treatment (Hope, 2003). Consequently, strong legal regimes enhance the quality of financial reports (as evident in low levels of earnings management) (Christensen et al., 2013; Ernstberger et al., 2012) which can enhance investment efficiency and firm value (Biddle and Hilary, 2006). Thus, regulators and auditors are better able to detect AEM and to protect the rights of investors in strong legal regimes as AEM is likely to trigger violations of accounting standards (Choi et al., 2018). Therefore, it is expected that firms in countries with strong legal regimes will engage in less AEM and, hence, AEM will have a lower impact on post-SEO performance. Furthermore, rather than just lower AEM, the result may also be a shift in focus from AEM to RAM, because the strong legal regime constrains firms from engaging in AEM. However, if RAM becomes more pervasive, there are likely to be more lawsuits (Huang et al., 2020) and the costs of these lawsuits could be much higher and detrimental to firms’ value.

Given the above discussion, on balance, we propose the following hypothesis:

H2: All else being equal, the negative impact of earnings management, in particular RAM, on post-SEO performance is greater in countries with a strong legal regime than in other countries.

**3. Research design**

*3.1. Data and sample selection*

Our sample covers the period from 2005 to 2017 and consists of listed firms from 22 countries. The countries included in the sample were chosen because they were exposed to the same accounting standards, such as IFRS, that produced significant impacts on reporting requirements, information flow among participants in the capital market Ashbaugh (2001), and disclosure (Bae et al., 2008) around equity issues such as SEOs. The data begins from 2005 as from this year all the countries in our sample use a form of international financial reporting standards and adoption of international financial reporting standards prompted the strengthening of legal regimes. For example, countries such as Germany and Spain strengthened the level of enforcement around the change in their accounting standards (Ernstberger et al., 2012; Kvaal and Nobes, 2010). We obtain data on SEOs from the Thomson Reuters SDC database. We match the SDC data with financial data from Compustat using SEDOL codes. First, we exclude firms with missing SEDOL codes and duplicated and missing observations. Second, we exclude utilities and financial institutions from our sample, because of regulatory differences and also differences in their business model and financial reporting requirements. Lastly, we exclude non-public offerings, rights offers, unit offers, warrants, combined offerings of equity and other securities and offerings of non-ordinary shares. Our final sample is 11,764 firm-year observations. All the variables are defined in the Appendix.

**[Insert TABLE 1 about here]**

*3.2. Regression models*

To test our hypotheses, we use OLS to estimate the following regression models.

(1)

(2)

(3)

(4)

where *SEOP* is post-SEO performance which, following Teoh et al. (1998), we measure as unadjusted net income performance (*UNIP*), calculated as net income scaled by the prior year’s total assets. *AEM* is accruals earnings management measured using the modified Jones (1991) model, estimated cross-sectionally (Dechow et al., 1995) with at least ten observations for every industry-year based on four-digit SIC codes. *RAM* is real activities manipulation which, following Cohen and Zarowin (2010) and Roychowdhury (2006), is estimated cross-sectionally for at least ten observations for each industry-year based on four-digit SIC codes. For *RAM*, we estimated abnormal discretionary expenses (*ADISX*) and abnormal production costs (*APROD*). Given a sales level, firms that engage in RAM are likely to have either abnormally low cash flows from operations, abnormally low discretionary expenses, or abnormally high production costs (Cohen and Zarowin, 2010). Consistent with past studies, we multiply *ADISX* by minus one, so that higher values of *ADISX* indicate income-increasing real activities manipulation (e.g., Cohen and Zarowin, 2010; Doukakis 2014; Zang, 2012). We follow Cohen and Zarowin (2010) in aggregating *ADISX* and *APROD* into one proxy measure of real activities manipulation denoted by *RAM*.[[1]](#footnote-1)

As SEO firms are more likely to engage in income-increasing earnings management, we use the signed value for *AEM* and *RAM*. We follow Choi et al. (2021) to convert *AEM* and *RAM* into decile ranks. This is to facilitate comparisons between *AEM* and *RAM*.

Following Badertscher (2011), we combine *AEM* and *RAM* into one measure, *TAR* to capture the total effect of both earnings management strategies. Since, in an SEO event, earnings levels can potentially influence share prices, one can argue that SEO firms are more likely to engage in more egregious earnings management by combining both *AEM* and *RAM* to achieve or exceed earnings targets. Therefore, the larger the level of *TAR* the more likely the firm is to have engaged in earnings management.

The coefficients on *AEM* and *RAM* represent the impacts of the *AEM* and *RAM* strategies, respectively. We expect both coefficients to be negative, as prior studies find that earnings management is detrimental to firm value. *LAW* is measured as the average of the six world governance indicators for each country and year as reported by the World Bank. These indicators range from -2.5 for weak governance to 2.5 for strong governance (World Bank, 2019). We expect that the coefficient on *LAW* could be positive or negative. This is because, on the one hand, countries with stronger legal regimes enhance financial reporting quality, which translates to high firm value. On the other hand, strong legal regimes increase litigation risk and impose extra regulatory costs on firms and, thus, affect firm value negatively.

To test Hypothesis 1, we compare the magnitudes of the coefficients on *AEM* and *RAM* in Equation (1). Specifically, the results would support Hypothesis 1 if the coefficient on *RAM* is larger than that on *AEM*. In Equation (2), we examine the combined effect of both earnings management strategies around SEOs. Equation (3) adds the interaction terms *AEM\*LAW* and *RAM\*LAW* to Equation (1) and provides the basis for the test of Hypothesis H2. The results would support Hypothesis H2 if the coefficient on *RAM\*LAW* is larger than that on *AEM\*LAW*.

Following previous studies, we include several control variables in our regression models that may affect post-SEO performance (e.g., Cohen and Zarowin, 2010; Intintoli et al., 2014; Kurt, 2018; Lee and Masulis, 2009; Lobo and Zhou, 2006; Loughran and Ritter 1997; McLaughlin et al., 1996; Summers and Sweeney, 1998). The control variables we include are size (*SIZE*), leverage (*LEV*), age (*AGE*), capital expenditures (*CAPEX*), cash (*CASH*), market-to-book ratio (*MTB*), global financial crisis (*GFC*) and gross domestic product (GDP).

*SIZE* is measured as the natural logarithm of the book value of total assets. *SIZE* can be positively or negatively related to post-SEO performance. However, larger firms attract more analysts and have highly qualified auditors, who facilitate reporting of high-quality information about the firms (McLaughlin et al., 1996) and ensure transparent financial reporting. In contrast, larger firms may have higher levels of asymmetric information and uncertainty, owing to the complexity of their operations, which causes greater declines in post-SEO performance as a consequence (Lobo and Zhou, 2006). *LEV* is measured as the total book value of long-term debt plus short-term debt included in current liabilities, scaled by total assets. We expect leverage to be related to post-SEO performance negatively. Firms with high leverage are associated with high moral hazard issues (Lee and Masulis, 2009) and, hence, may experience higher declines in post-SEO performance. *AGE* is the natural logarithm of a firm’s age from its listing date. *AGE* can be positively or negatively related to post-SEO performance. Older firms have a long history and may have established a better reputation in the capital market. In contrast, older firms may have been at the decline stage of the business cycle and, hence, would be expected to have higher declines in post-SEO performance. *CAPEX* is the natural logarithm of capital expenditures. *CAPEX* can be positively or negatively related to post-SEO performance. Loughran and Ritter (1997) find that SEO-issuing firms with capital expenditure growth often experience post-SEO earnings declines. On the contrary, *CAPEX* viewed as a proxy for investment, would correlate positively with post-SEO performance (McLaughlin et al., 1996). *CASH* comprises cash and short-term investments scaled by total assets. Firms holding more cash can take better advantage of high valuations prior to SEOs and may have agency problems (Intintoli et al., 2014). On the other hand, firms facing financial constraints may be under capital market pressure (Kurt, 2018), and may experience declines in performance owing to their poor future earnings and cash flow expectations. *MTB* is measured as the market value of equity scaled by the book value of equity. It captures growth firms, which are more likely to be overvalued and tend to experience larger declines in post-SEO performance (Cohen and Zarowin, 2010; Summers and Sweeney, 1998). Hence, we expect *MTB* to be negatively related to post-SEO performance. *GFC* is a dummy variable coded 1 if an SEO occurs in the global financial crisis years 2008 and 2009 and 0 otherwise. Neuhauser (2015) documents that the deepening of the GFC occurred in 2008 while it lasted until 2009. We expect *GFC* to be negatively related to post-SEO performance, as firms generally experienced declines in performance during this period.

*GDP* measures the GDP growth of a country. It is measured as a country’s current year’s GDP minus the previous year’s GDP scaled by the previous year’s GDP. Generally, firms experience an increase in performance in a growing economy as measured by GDP growth. The inclusion of GDP controls for variations in the economic growth of the different countries in our sample. Therefore, we expect GDP to be positively related to post-SEO performance We incorporate industry and year-fixed effects in the regressions to account for unobservable factors associated with industries and time-invariant heterogeneity within our sample.

**4. Empirical results**

*4.1. Sample distribution*

Table 2 reports the annual distribution of our sample by country. There is significant variation in the number of observations across countries. Most of the SEOs are from Australia (5,142 SEOs) and the U.K. (1,688 SEOs) and the fewest are from Austria (43 SEOs) and Portugal (27 SEOs). The sample distribution of SEOs over time is shown in Table 3. The number of SEOs increases significantly from 367 in 2005 to 1,253 in 2017. This suggests an increasing trend in the number of SEOs. The largest percentage increase in the number of SEOs occurred in 2009 (96.21%), and the smallest percentage increase in the number of SEOs was in 2011 (1.74%). There is a decrease of -25.45% in the number of SEOs in 2008 representing the largest decrease and corresponds to the year of the deepening of the GFC.

**[Insert TABLE 2 about here]**

**[Insert TABLE 3 about here]**

*4.2. Descriptive statistics*

Table 4 shows the descriptive statistics for the variables included in our analyses. To reduce the likelihood of outliers unduly influencing our empirical results, we winsorize all continuous variables at conventional levels (1% and 99%). The mean (median) value of *SEOP* is -0.0120 (-0.0313). The mean (median) value of *AEM* is 0.0038 (0.0019), the mean (median) value of *RAM* is 0.0193 (0.0124) and the mean (median) value of *TAR* is 0.0231 (0.0157). The mean (median) value of *LAW* is 1.6225 (1.7520). The average firm in our sample is large (SIZE=7.3576), has a relatively low leverage ratio (LEV=0.1958), moderate growth opportunities (MTB=2.5235), and the average cash and cash equivalent as a percentage of total assets (CASH) is 16.11%. On average, 12.61% of the sample years were during the GFC period (GFC).

**[Insert TABLE 4 about here]**

*4.3 Correlation analysis*

Table 5 presents the Pearson correlation matrix for the full sample. The variable *SEOP*,our measure for post-SEO performance, is negatively and significantly correlated with *AEM* (correlation coefficient = -0.0635, *p*<0.01), *RAM* (correlation coefficient = -0.2327, *p*<0.01) and *TAR* (correlation coefficient = -0.2115, *p*<0.01), providing univariate support for the expectation that earnings management leads to poor post-SEO performance. *SEOP* is significantly correlated with all of the other explanatory variables at the 1% level or stronger, except *LAW*, *GFC*, and *GDP*. Specifically, *SEOP* is positively and significantly correlated with *SIZE*, *AGE*, and *CAPEX* but negatively and significantly correlated with *LEV*, *CASH*, and *MTB*. We compute variance inflation factors (VIFs) when estimating our regression models to test for multicollinearity. Our results (untabulated) show that none of the VIFs exceeds five for any of the explanatory variables, so multicollinearity is not a significant concern in our study (for example, Kutner et al., 2004).

**[Insert TABLE 5 about here]**

*4.4. Regression results*

*4.4.1. Earnings management and post-SEO performance*

To test our hypotheses, we estimate Equations (1) to (4) using OLS, and we report the results in Table 6. Columns (1) to (4) present the results of regression Equations (1) to (4), respectively. In Column (1), the coefficient on *AEM* is -0.0282 (*t*-statistic = -5.4843) and that on *RAM* is -0.1011 (*t*-statistic = -19.3345), both are negative and statistically significant at the 1% level. This suggests that both *AEM* and *RAM* contribute to a decrease in post-SEO performance when both types of earnings management co-exist. Further, we follow the approach by Choi et al. (2021) to compare the coefficients of *AEM* and *RAM* to determine their relative impact on post-SEO performance using an *F*-test. The coefficient on *RAM* is larger than that on *AEM* and we find that the difference between the coefficients is statistically significant at the 1% level (*F*-statistic = 99.38), suggesting that *RAM* has a greater impact on post-SEO performance than does *AEM*. In economic terms, the coefficient on *AEM* is -0.0282 and the standard deviation is 0.1371 (Table 4), implying that a one-standard-deviation increase in *AEM* is associated with a -0.39% decrease in post-SEO performance. The coefficient on *RAM* is -0.1011 and the standard deviation is 0.2604, implying that a one-standard-deviation increase in *RAM* is associated with a -2.63% decrease in post-SEO performance and is greater than the mean value of 1.20% for SEOP. This suggests that *RAM* has a significantly stronger economic impact on post-SEO performance in comparison with *AEM*. We conclude, consistent with our H1, that *RAM* has a greater negative impact on post-SEO performance than does *AEM*. In Column (2), the coefficient on *TAR* is -0.0646 (*t*-statistic = -17.5389) and is statistically significant at the 1% level. This implies that the combination of earnings management practices has a negative impact on post-SEO performance.

The coefficients on the control variables reported are consistent across Columns (1) and (2) and are significant with the expected signs, except for AGE which is not significant. The control variables show that larger firms and firms with high investment have better post-SEO performance, whereas firms with high leverage, more cash, and growth firms have worse post-SEO performance.

*4.4.2. Earnings management, legal regime, and post-SEO performance*

In Columns (3) and (4) of Table 6 we report the results of our analysis of the impact of the strength of the legal regime. In Column (3) we include the interaction of *LAW* with *AEM* and *RAM*, and in Column (4) the interaction of *LAW* with *TAR*. In Column (3), the coefficients on *AEM* (coefficient -0.0349, *t*-statistic = -2.1174) and *RAM* (coefficient -0.0588, *t*-statistic = -3.4908) are both negative and significant at the 5% and 1% level, respectively, indicating that both *AEM* and *RAM* have a negative impact on post-SEO performance for firms in countries with weak legal regimes. The difference in coefficients is -0.0239 (*F*-statistic = 0.88) and is not statistically significant, suggesting that the impact of *AEM* is similar to the impact of *RAM* in countries with weak legal regimes. The coefficient on *AEM\*LAW* (coefficient -0.0041, *t*-statistic = -0.4029) is not significant, but that on *RAM\*LAW* (coefficient -0.0265, *t*-statistic = -2.6104) is negative and significant. This suggests, consistent with Hypothesis H2, that in countries with a strong legal regime, *RAM* worsens post-SEO performance to a greater degree than does AEM. This is confirmed by a comparison of the total coefficients on *AEM* and *RAM* (that is, the sum of the coefficients for *AEM*+*AEM\*LAW* and *RAM*+*RAM\*LAW*). The difference is -0.0463 and is statistically significant at the 1% level, (*F*-statistic = 22.15) indicating that in countries with a strong legal regime, *RAM* has a larger impact on post-SEO performance than does *AEM*.

In Column (4) of Table 7, the coefficient on *TAR* (coefficient -0.0464, *t*-statistic = -4.2818) is negative and significant at the 1% level, indicating that the combination of *AEM* and *RAM* has a total negative effect on post-SEO performance for countries with weak legal regimes. The coefficient on *TAR\*LAW* (coefficient -0.0115, *t*-statistic = -1.7545) is negative and marginally significant at the 10% level, indicating that in countries with a strong legal regime, earnings management has a greater impact on post-SEO performance but comparison with the results in Column (3) indicates that this result is explained by the influence of *RAM*.

**[Insert TABLE 6 about here]**

**5. Additional analyses**

*5.1. Robustness tests*

We perform several robustness tests of our main analyses by re-estimation of Equations (1) to (4). For brevity, we report only the main variables of interest and their test statistics.

*5.1.1. Alternative measures of post-SEO performance*

We test whether our main results are sensitive to the choice of the measure of post-SEO performance. The first alternative measure of post-SEO performance we use is adjusted net income, calculated as the asset-scaled net income of the SEO firm minus the industry median asset-scaled net income (Teoh et al., 1998). This measure adjusts for changing business conditions in the industry. The results reported in Table 7, Columns (1) to (4), are qualitatively similar to our main analyses in terms of both the sign and level of significance of the coefficients and thus consistent with Hypotheses H1 and H2.

Second, we measure post-SEO performance using a market-based measure following Rangan (1998)[[2]](#footnote-2). Because earnings declines associated with earnings management are concentrated in year 1 after the SEO, we focus on stock returns in that year. We compute the full-year market-adjusted return for year 1 post-SEO. The results are reported in Table 7, Columns (5) to (8). Column (5) shows that the coefficient on *AEM* (coefficient -0.0384, *t*-statistic = -0.7404) and on *RAM* (coefficient -0.1381, *t*-statistic = -2.6524) are both negative but only that on *RAM* is statistically significant (at the 1% level). This is consistent with Hypothesis H1, that *RAM* has a greater impact on post-SEO performance. In Column (6), the coefficient on *TAR* is -0.0494 (*t*-statistic = -1.9287) and is marginally statistically significant at the 10% level. This implies that the combination of earnings management practices has a negative effect on post-SEO performance. In Column (7), the coefficient on *AEM\*LAW* (coefficient -0.2310, *t*-statistic = -1.6885) and on *RAM\*LAW* (coefficient -0.02552, *t*-statistic = -1.7476) are both negative but only marginally statistically significant (at the 10% level). However, Column 7 also shows, from comparison of the coefficients on the interaction variables with *LAW* and the total coefficients on *AEM* and *RAM* that, consistent with Hypothesis H2, in countries with a strong legal regime, *RAM* has the larger impact on post SEO performance. Thus, overall, our reported results, using two alternative measures of post-SEO performance, are qualitatively similar to the baseline results.

**[Insert TABLE 7 about here]**

*5.1.2. Alternative measure of earnings management*

As alternative measures for *AEM* and *RAM*, we use *AEMR* and *RAMR*, the raw values of *AEM* and *RAM,* respectively. The results we obtain are reported in Table 8 and are consistent with the main findings. However, we note that the coefficients on *AEMR* and *RAMR* are not directly comparable, as the unit of measurement is different and the variation of *RAMR* is larger than that of *AEMR*. Therefore, we note only the sign of the coefficients. We conclude that our results are robust to an alternative measure of earnings management.

**[Insert TABLE 8 about here]**

*5.1.3. Alternative measures for the legal regime*

We use three alternative measures for the legal regime. First, we test our predictions based on the legal origin (common-law vs code-law) of the country in which a firm is domiciled. We code countries with common-law legal traditions as one and zero otherwise. Countries with common-law legal origins are associated with stronger investor protection (Kamarudin et al. 2020) and enforcement and are therefore likely to mitigate the impact of earnings management on post-SEO performance. Our second measure is based on the anti-director rights index which measures the strength of the legal system in protecting minority shareholders against managers or dominant shareholders (La Porta et al., 1998) in corporate decision-making processes and managerial opportunism. When there is greater legal recourse for investors, managers tend to maintain a higher standard of financial reporting and hence lower earnings manipulation. Our third measure is public enforcement which measures the ability of regulatory agencies to punish or sanction firms for violating securities laws (La Porta et al., 2006).

The results are reported in Table 9. We report results of re-estimation of Equations (3) and (4) as *LAW* is our variable of interest in this analysis. Columns (1) and (2) report the results for common-law vs code-law. When we measure *LAW* using legal origin, the results are qualitatively similar to our main results in Table 6. Columns (3) and (4) report the results of the measure of *LAW* using anti-director rights index and the results are qualitatively similar to our results reported in Table 6 except for the coefficient on *AEM* and *RAM* not being significant. Columns (5) and (6) report the results of the measure of *LAW* using public enforcement and the results are qualitatively similar to our main results in Table 6. We conclude that our results are robust to alternative measures for the legal regime.

**[Insert TABLE 9 about here]**

*5.1.4. Weighted least squares (WLS) regression analysis*

As the number of observations in each country is unequally represented in our sample, we conduct WLS regression analysis as a robustness check. The WLS regression analysis ensures that our results are not biased by countries that are heavily represented in our sample (Greene, 2003; Neter et al., 1996; Solon et al., 2015). This approach weights each observation by the inverse of the number of observations in each country, so that each country receives equal treatment in the estimation (Greene, 2003; Neter et al., 1996).

The WLS regression results are reported in Table 10. Overall, the results for the variables of interest are qualitatively similar to those presented in Table 6, in terms of both the sign of the coefficients and the levels of statistical significance. Consequently, we conclude that our main results are not biased by countries that are heavily represented in our sample.

**[Insert TABLE 10 about here]**

*5.1.5. Regression results after dropping countries with small sample sizes*

To ensure that countries with fewer observations in our sample do not drive our main results, we re-estimate our regression models using only those countries with more than 100 observations. As a result, the observations from Austria, Belgium, Greece, Ireland, Netherlands, and Portugal are dropped from our empirical analysis.

The regression results are presented in Table 11. We observe that the results are comparable to those reported in Table 6, in terms of both the sign of the coefficients and the levels of statistical significance. Consequently, we conclude that countries with fewer observations do not drive our main empirical results.

**[Insert TABLE 11 about here]**

*5.2. Endogeneity tests*

We address endogeneity concerns by implementing a two-stage least-squares (2SLS) regression and stepwise regression. We report our results in Table 12. We use the country-year mean *AEM\_M* (*RAM\_M*) as our instruments.[[3]](#footnote-3) We expect this to affect *AEM* (*RAM*) because a firm’s incentives and ability to engage in earnings management are influenced by its peer’s earnings management practices and the country’s legal regime. We do not expect that the mean *AEM* (*RAM*) will affect post-SEO performance directly. In calculating the instrument, we exclude the focal firm’s *AEM* (*RAM*) to account for the average *AEM* (*RAM*) of peers of the focal firm only.

In the first stage of the regression, we regress *AEM* (*RAM*) on *AEM\_M* (*RAM\_M*) and the control variables that we use in Equation (1). The results are reported in Columns (1) and (3) and these reveal that *AEM\_M* (*RAM\_M*) is a good predictor of *AEM* (*RAM*). In Columns (1) and (3) the coefficient on *AEM\_M* (coefficient 0.9386, *t*-statistic = 13.5367) and on *RAM\_M* (coefficient 0.9325, *t*-statistic = 12.7897) are both positive and significant at the 1% level, indicating that earnings management is determined by country-level characteristics. In the second stage of the regression, we replace the original *AEM* (*RAM*) with the predicted *AEM* (*RAM*) generated from the first stage. The results reported in Columns (2) and (4) show that the coefficient on *AEM* (coefficient -0.0455, *t*-statistic = -1.7123) and on *RAM* (coefficient -0.1684, *t*-statistic = -7.1383) are both positive and significant at the 10% and 1% level, respectively, further supporting our main findings that earning management practices leads to lower post-SEO performance. We perform two tests to check the validity of our instruments. First, the results of the underidenification test, the Kleibergen-Paap rk LM statistic, shows that our model is identified (p = 0.0000). Second, the Kleibergen-Paap rk Wald F statistic (Kleibergen and Paap, 2006) is higher than the Stock-Yogo weak ID test critical values (Stock and Yogo, 2005), confirming that our instruments are not weak.

In our stepwise regression, we re-estimate Equations (1) and (2) and we report the results for only the variables of interest in Columns (5) and (6). The stepwise regression aims to identify the variables that account for most of the variance in our model, to determine the incremental validity of our predictors and to test the association between the dependent and independent variables. Our results in Column (5) show that *AEM*, *RAM*, and *LAW* are among the strongest predictors of post-SEO performance. In Column (6) the coefficient on *TAR* is negative and significant. Overall, our stepwise regression results are qualitatively similar to our main results in Table 6, suggesting that our variables of interest, earnings management and legal regime of a country significantly explain variations in post-SEO performance.

**[Insert TABLE 12 about here]**

**6. Conclusion**

This study examines the association between earnings management (AEM and/or RAM) and post-SEO performance and also the impact of the variation in the impact of earnings management according to the strength of the legal regime operating in a country. Using a sample of observations on firms from 22 countries over the period 2005 to 2017, we find that *RAM* has a greater negative impact on post-SEO performance than does *AEM*. The result is economically significant for RAM. We also find that the negative impact of earnings management, in particular RAM, on post-SEO performance is greater in countries with a strong legal regime that in other countries. Our results are robust to the use of alternative measures of post-SEO performance, alternative measures of earnings management, alternative measures of a country’s legal regime, and tests for endogeneity.

By showing the relative impact of *AEM* and *RAM* and the effect of the strength of legal regimes we provide a generalisation of studies on single countries to the international setting and emphasise the importance of the strength of the legal regime. We do this by showing that the relative impacts of AEM and RAM are conditional on the strength of legal regimes.

Our findings should be interpreted with caution, as is common in empirical research, the results are subject to possible bias as a result of omitted unknown, but relevant, variables. Despite our attempt to confirm the robustness of our results through various sensitivity tests, these concerns may not be resolved completely. Nevertheless, this study provides the first empirical evidence on the association between earnings management and firms’ post-SEO performance in an international setting.

The study has implications for auditors and regulators by encouraging focus on firms that have extreme levels of earnings management prior to their SEOs. Also, our results are valuable for analysts and investors when considering SEOs, and should warn them to exercise caution when investing in firms that are thought to have strongly managed their earnings, through accruals earnings management, real activities manipulation, or both, and to recognise the influence of institutional factors such as the legal regime.

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| APPENDIX: Variable Definitions | |
| Variable | Description |
| *AEM* | Accruals earnings management is decile rank of discretional accruals from the modified Jones model. We estimate the following equation for all firms in the same industry with at least 10 observations for an industry in a particular year:  (A.1)  where ACC is total accruals calculated as earnings before extraordinary items and discontinued operations (IB) minus operating cash flows (OANCF); TA is total assets in year t-1; ΔSALES is change in sales from year t-1 to year t; ∆RECEIV is change in accounts receivable from year t-1 to year t; PPE is gross property plant and equipment; ROA is return on assets measured as earnings before extraordinary items and discontinued operations for the preceding year divided by total assets for the same year. The coefficient estimates from Equation (A.1) are used to estimate the non-discretionary component of total accruals (NDAC) for our sample firms. The discretionary accruals are then the residuals from equation (A.1), i.e., DAC=ACC-NDAC. |
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| *AEMR* | Raw values of *AEM* |
| *AGE* | Natural logarithm of firm age from the date that it was listed. |
| *CAPEX* | Natural logarithm of capital expenditures. |
| *CASH* | Cash and short-term investments scaled by total assets. |
| *LAW* | Governance measure which is an average of six indicators of the level of governance based on their estimates in a range from -2.5 for weak governance to 2.5 for strong governance (World Bank, 2019). |
|  |
| *GDP* | Current year’s GDP minus previous year’s GDP scaled by previous year’s GDP. |
| *GFC* | Dummy variable is coded 1 if the observation occurs in 2008 and 2009 and 0 otherwise. |
| *LEV* | Ratio of total debt to total assets. |
| *MTB* | Common shares outstanding multiplied by price scaled by book value of equity. |
| *RAM* | Decile rank of the sum of APROD (abnormal production costs) and ADISX\*(1-) (abnormal discretionary expenditures) following Cohen and Zarowin (2010) and Roychowdhury (2006). To measure APROD*,* we first estimate the normal level of production costs using equation (A.2) below, following the model developed by Roychowdhury (2006).  (A.2)  where is the sum of the cost of goods sold in year *t* and the change in inventory from to , is the total assets in year , is the net sales in year , is the change in net sales from year to . Equation (A.2) is estimated cross-sectionally for each industry-year with at least 10 observations. The abnormal levels of discretionary production PROD is measured as the estimated residuals from the regression.  Similarly, following Roychowdhury (2006), we first measure the normal level of discretionary expenses (ADISX) using equation (A.3) below.  …………….…………...…….. (A.3)  where is the discretionary expenses (i.e., the sum of R&D, advertising, and SG&A expenditure) in year . We estimate equation (A.3) cross-sectionally for industry-years with at least 10 observations. The abnormal level of DISX is the estimated residuals from the regression. We multiply the residuals by -1 so that the higher values indicate greater amounts of discretionary expenses cut down and, hence, higher RAM. |
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| *RAMR* | Raw values of *RAM* |
| *SEOP* | Post-SEO performance computed in accordance with Teoh et al. (1998), measured as the Unadjusted net income performance calculated as net income scaled by prior year’s total assets. |
|  |
| *SIZE* | Natural logarithm of total assets. |
| *TAR* | The sum of *AEM* and *RAM*. |

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| TABLE 1: Sample construction | |
| Initial sample | 31,166 |
| Exclude missing SEDOL codes | 1,714 |
| Exclude duplicate observations | 3,300 |
| Exclude missing observation | 5,529 |
| Exclude utility and financial institutions | 4,002 |
| Exclude non-public, rights, unit, non-ordinary share offerings, warrants, and combined offerings of equity and other securities | 4,857 |
| Final sample | 11,764 |

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| --- | --- | --- |
| TABLE 2: Distribution of SEOs by country | | |
| Country | N | Percentage (%) |
| Australia | 5,142 | 43.71 |
| Austria | 43 | 0.37 |
| Belgium | 91 | 0.77 |
| Denmark | 101 | 0.86 |
| Finland | 138 | 1.17 |
| France | 516 | 4.39 |
| Germany | 479 | 4.07 |
| Greece | 97 | 0.82 |
| Hong Kong | 1,126 | 9.57 |
| Ireland | 68 | 0.58 |
| Italy | 147 | 1.25 |
| Netherlands | 92 | 0.78 |
| Norway | 237 | 2.01 |
| Philippines | 162 | 1.38 |
| Poland | 184 | 1.56 |
| Portugal | 27 | 0.23 |
| Singapore | 489 | 4.16 |
| South Africa | 147 | 1.25 |
| Spain | 159 | 1.35 |
| Sweden | 494 | 4.2 |
| Turkey | 137 | 1.16 |
| United Kingdom | 1,688 | 14.35 |
| Total | 11,764 | 100 |

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| TABLE 3: Distribution of SEOs by year | | | | |
| Year | No. of SEOs | Percentage (%) | Changes in no. of SEOs | % change in no. of SEOs (%) |
| 2005 | 367 | 3.12 | -37 | -9.16% |
| 2006 | 463 | 3.94 | 96 | 26.16% |
| 2007 | 672 | 5.71 | 209 | 45.14% |
| 2008 | 501 | 4.26 | -171 | -25.45% |
| 2009 | 983 | 8.36 | 482 | 96.21% |
| 2010 | 1,034 | 8.79 | 51 | 5.19% |
| 2011 | 1,052 | 8.94 | 18 | 1.74% |
| 2012 | 935 | 7.95 | -117 | -11.12% |
| 2013 | 1,042 | 8.86 | 107 | 11.44% |
| 2014 | 1,133 | 9.63 | 91 | 8.73% |
| 2015 | 1,172 | 9.96 | 39 | 3.44% |
| 2016 | 1,157 | 9.84 | -15 | -1.28% |
| 2017 | 1,253 | 10.65 | 96 | 8.30% |
| Total | 11,764 | 100.00 |  |  |

TABLE 4: Descriptive statistics

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | N | Mean | Std. dev. | P25 | Median | P75 |
| SEOP | 11,764 | -0.0120 | 0.1306 | -0.0136 | -0.0313 | -0.0818 |
| AEM | 11,764 | 0.0038 | 0.1371 | -0.0574 | 0.0017 | 0.0557 |
| RAM | 11,764 | 0.0193 | 0.2604 | -0.1345 | 0.0124 | 0.0941 |
| TAR | 11,764 | 0.0231 | 0.2900 | -0.1613 | 0.0157 | 0.1164 |
| LAW | 11,764 | 1.6225 | 0.4437 | 1.6269 | 1.7520 | 1.7857 |
| SIZE | 11,764 | 7.3576 | 3.1916 | 5.3231 | 7.3093 | 9.3460 |
| LEV | 11,764 | 0.1958 | 0.1814 | 0.0213 | 0.1584 | 0.3250 |
| AGE | 11,764 | 3.1677 | 0.6475 | 2.6860 | 3.1268 | 3.5553 |
| CAPEX | 11,764 | 3.8442 | 3.5241 | 1.6004 | 3.9469 | 6.0126 |
| CASH | 11,764 | 0.1611 | 0.1788 | 0.0374 | 0.1002 | 0.2166 |
| MTB | 11,764 | 2.5235 | 0.2672 | 0.3196 | 2.5012 | 2.6766 |
| GFC | 11,764 | 0.1261 | 0.3320 | 0.0000 | 0.0000 | 0.0000 |
| GDP | 11,764 | 2.3862 | 2.3689 | 1.8120 | 2.4216 | 3.0543 |

Note: AEM and RAM are reported in their raw values in this table, but are decile ranked in the regressions. All variables are defined in Appendix.

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| TABLE 5: Correlation analysis | | | | | | | | | | | | | | |
| Variables | *SEOP* | *AEM* | *RAM* | *TAR* | *LAW* | *SIZE* | *LEV* | *AGE* | *CAPEX* | *CASH* | *MTB* | *GFC* | *GDP* |
| *SEOP* | 1 |  |  |  |  |  |  |  |  |  |  |  |  |
| *AEM* | ***-0.0635*** | 1 |  |  |  |  |  |  |  |  |  |  |  |
| *RAM* | ***-0.2327*** | ***-0.029*** | 1 |  |  |  |  |  |  |  |  |  |  |
| *TAR* | ***-0.2115*** | ***0.7034*** | ***0.6901*** | 1 |  |  |  |  |  |  |  |  |  |
| *LAW* | 0.0131 | -0.0072 | 0.0041 | -0.0023 | 1 |  |  |  |  |  |  |  |  |
| *SIZE* | ***0.3766*** | -0.0221 | -0.0034 | -0.0184 | -0.0172 | 1 |  |  |  |  |  |  |  |
| *LEV* | ***-0.0827*** | 0.0133 | ***-0.0577*** | ***-0.0314*** | -0.0222 | ***0.1927*** | 1 |  |  |  |  |  |  |
| *AGE* | ***0.0371*** | ***-0.0380*** | 0.0009 | -0.0269 | ***-0.2324*** | ***0.1173*** | ***0.0425*** | 1 |  |  |  |  |  |
| *CAPEX* | ***0.3478*** | -0.0232 | ***0.0551*** | 0.0224 | ***-0.022*** | ***0.9011*** | ***0.1968*** | ***0.1075*** | 1 |  |  |  |  |
| *CASH* | ***-0.1043*** | -0.0195 | ***0.0317*** | 0.0084 | 0.0055 | ***-0.2358*** | ***-0.3835*** | ***-0.086*** | ***-0.2083*** | 1 |  |  |  |
| *MTB* | ***-0.3331*** | ***-0.0593*** | ***-0.0315*** | ***-0.0653*** | ***-0.0371*** | ***-0.1795*** | ***0.5683*** | ***0.0431*** | ***-0.106*** | ***-0.1451*** | 1 |  |  |
| *GFC* | -0.0036 | -0.0039 | 0.0158 | 0.0084 | ***-0.0402*** | -0.0048 | 0.0235 | ***0.1079*** | -0.0031 | -0.0133 | 0.0057 | 1 |  |
| *GDP* | 0.0104 | 0.012 | 0.0212 | 0.0237 | ***-0.0290*** | -0.0095 | -0.0188 | ***-0.0614*** | 0.0025 | 0.0005 | 0.002 | -0.408 | 1 |

Note: Bold and italicized coefficients are significant at the 1% level. All variables are defined in Appendix.

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| TABLE 6: Earnings management, legal regime, and post-SEO performance | | | | |
|  | (1) | (2) | (3) | (4) |
| Variables | AEM&RAM | Sum (AEM&RAM) | AEM&RAM | Sum (AEM&RAM) |
| AEM | -0.0282\*\*\* |  | -0.0349\*\* |  |
|  | (-5.4843) |  | (-2.1174) |  |
| RAM | -0.1011\*\*\* |  | -0.0588\*\*\* |  |
|  | (-19.3345) |  | (-3.4908) |  |
| TAR |  | -0.0646\*\*\* |  | -0.0464\*\*\* |
|  |  | (-17.5389) |  | (-4.2818) |
| AEM\*LAW |  |  | -0.0041 |  |
|  |  |  | (-0.4029) |  |
| RAM\*LAW |  |  | -0.0265\*\*\* |  |
|  |  |  | (-2.6104) |  |
| TAR\*LAW |  |  |  | -0.0115\* |
|  |  |  |  | (-1.7545) |
| LAW | 0.0646\*\*\* | 0.0648\*\*\* | 0.0535\*\* | 0.0540\*\* |
|  | (3.1698) | (3.1626) | (2.4842) | (2.4921) |
| SIZE | 0.0042\*\*\* | 0.0037\*\*\* | 0.0041\*\*\* | 0.0037\*\*\* |
|  | (3.6356) | (3.1889) | (3.5776) | (3.1795) |
| LEV | -0.0205\* | -0.0310\*\*\* | -0.0205\* | -0.0311\*\*\* |
|  | (-1.8337) | (-2.7643) | (-1.8327) | (-2.7710) |
| AGE | -0.0013 | -0.0009 | -0.0012 | -0.0008 |
|  | (-0.5836) | (-0.3932) | (-0.5226) | (-0.3444) |
| CAPEX | 0.0064\*\*\* | 0.0071\*\*\* | 0.0064\*\*\* | 0.0071\*\*\* |
|  | (6.4202) | (7.0782) | (6.4410) | (7.0744) |
| CASH | -0.0548\*\*\* | -0.0514\*\*\* | -0.0553\*\*\* | -0.0516\*\*\* |
|  | (-4.9262) | (-4.5095) | (-4.9751) | (-4.5280) |
| MTB | -0.1222\*\*\* | -0.1172\*\*\* | -0.1227\*\*\* | -0.1175\*\*\* |
|  | (-13.9558) | (-13.2717) | (-14.0086) | (-13.3026) |
| GFC | -0.0186\*\* | -0.0179\*\* | -0.0185\*\* | -0.0179\*\* |
|  | (-2.1207) | (-2.0025) | (-2.1084) | (-2.0075) |
| GDP | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
|  | (0.1355) | (0.1568) | (0.1830) | (0.1983) |
| Constant | -0.1065\*\*\* | -0.1075\*\*\* | -0.0891\*\* | -0.0907\*\* |
|  | (-2.7797) | (-2.7846) | (-2.2454) | (-2.2694) |
| RAM-AEM | -0.0729\*\*\* |  | -0.0239 |  |
| *(F-statistics)* | [99.38] |  | [0.88] |  |
| RAM\*LAW-AEM\*LAW |  |  | -0.0224\*\* |  |
| *(F-statistics)* |  |  | [3.93] |  |
| [RAM+RAM\*LAW]-[AEM+AEM\*LAW] | |  | -0.0463\*\*\* |  |
| *(F-statistics)* |  |  | [22.15] |  |
| Industry FE | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes |
| Observations | 11,764 | 11,764 | 11,764 | 11,764 |
| Adj. R2 | 0.2822 | 0.2679 | 0.2829 | 0.2681 |

Note: This table reports results for earnings management, legal regime, and post-SEO performance. Columns (1) and (2) [(3) and (4)] present results of estimation of Equations (1) and (2) [(3) and (4)], respectively. Robust *t*-statistics are in parenthesis. \*\*\*, \*\*, \* indicate significance at the 1%, 5% and 10% levels, respectively. All variables are defined in Appendix.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| TABLE 7: Alternative measures of post-SEO performance | | | | | | | | |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|  | DV = Industry-adjusted net income performance | | | | DV = Market-adjusted returns | | | |
| Variables | AEM&RAM | Sum (AEM&RAM) | AEM&RAM | Sum (AEM&RAM) | AEM&RAM | Sum (AEM&RAM) | AEM&RAM | Sum (AEM&RAM) |
| AEM | -0.0211\*\*\* |  | -0.0335\*\* |  | -0.0384 |  | -0.4276\* |  |
|  | (-4.6708) |  | (-2.1723) |  | (-0.7404) |  | (-1.8218) |  |
| RAM | -0.0755\*\*\* |  | -0.0505\*\*\* |  | -0.1381\*\*\* |  | -0.5680\*\* |  |
|  | (-16.5267) |  | (-3.0888) |  | (-2.6524) |  | (-2.2693) |  |
| TAR |  | -0.0483\*\*\* |  | -0.0416\*\*\* |  | -0.0494\* |  | -0.0415\*\*\* |
|  |  | (-14.8819) |  | (-3.9883) |  | (-1.9287) |  | (-3.2479) |
| AEM\*LAW |  |  | -0.0077 |  |  |  | -0.2310\* |  |
|  |  |  | (-0.8257) |  |  |  | (-1.6885) |  |
| RAM\*LAW |  |  | -0.0156\*\* |  |  |  | -0.2552\* |  |
|  |  |  | (-1.9655) |  |  |  | (-1.7476) |  |
| TAR\*LAW |  |  |  | -0.0142\* |  |  |  | -0.0148\*\* |
|  |  |  |  | (-1.6665) |  |  |  | (-2.0486) |
| LAW |  |  | 0.0322\* | 0.0326\* |  |  | 0.0069 | 0.0374\*\* |
|  |  |  | (1.8556) | (1.7020) |  |  | (0.0594) | (2.3222) |
| Constant | -0.0689\* | -0.0696\* | -0.0623\* | -0.0635\* | 0.2581\* | 0.2611\* | 0.2866 | 0.2522 |
|  | (-1.9394) | (-1.9574) | (-1.6934) | (-1.7229) | (1.6913) | (1.7079) | (1.2056) | (1.0591) |
| RAM-AEM | -0.0544\*\*\* |  | -0.0170 |  | -0.0997\*\*\* |  | -0.1404\*\*\* |  |
| *(F-statistics)* | [72.88] |  | [0.50] |  | [5.90] |  | [8.02] |  |
| RAM\*LAW-AEM\*LAW |  |  | -0.0079 |  |  |  | -0.0242\*\*\* |  |
| *(F-statistics)* |  |  | [2.62] |  |  |  | [5.67] |  |
| [RAM+RAM\*LAW]-[AEM+AEM\*LAW] | |  | -0.0249\*\*\* |  |  |  | -0.1646\*\*\* |  |
| *(F-statistics)* |  |  | [13.94] |  |  |  | [10.46] |  |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 11,764 | 11,764 | 11,764 | 11,764 | 11,764 | 11,764 | 11,764 | 11,764 |
| Adj. R2 | 0.1758 | 0.1643 | 0.1761 | 0.1643 | 0.0097 | 0.0062 | 0.0123 | 0.0054 |

Note: This table reports results for earnings management, legal regime, and post-SEO performance using alternative measures of post-SEO performance. Columns (1) to (4) report results for industry adjust net income performance and Columns (5) to (8) report results for market-adjusted returns. Columns (1), (2), (5) and (6) [(3), (4), (7) and (8)] present results of estimation of Equations (1) and (2) [(3) and (4)], respectively. Robust *t*-statistics are in parenthesis. \*\*\*, \*\*, \* indicate significance at the 1%, 5% and 10% levels, respectively. All variables are defined in Appendix.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TABLE 8: Alternative measure of earnings management | | | | |
|  | (1) | (2) | (3) | (4) |
| Variables | AEM&RAM | Sum (AEM&RAM) | AEM&RAM | Sum (AEM&RAM) |
| AEMR | -0.0597\*\*\* |  | -0.0245\* |  |
|  | (-4.7569) |  | (-1.7700) |  |
| RAMR | -0.1026\*\*\* |  | -0.0382\*\* |  |
|  | (-14.9649) |  | (-2.0725) |  |
| TARR |  | -0.0937\*\*\* |  | -0.0555\*\*\* |
|  |  | (-15.4963) |  | (-3.3178) |
| AEMR\*LAW |  |  | -0.0151 |  |
|  |  |  | (-1.4222) |  |
| RAMR\*LAW |  |  | -0.0998\*\*\* |  |
|  |  |  | (-9.4515) |  |
| TARR\*LAW |  |  |  | -0.0242\*\* |
|  |  |  |  | (-2.3630) |
| LAW |  |  | 0.0333 | 0.0654\*\*\* |
|  |  |  | (1.6040) | (3.1828) |
| Constant | -0.0301 | -0.0301 | -0.0400 | -0.0358 |
|  | (-0.7879) | (-0.7885) | (-1.0508) | (-0.9365) |
| Controls | Yes | Yes | Yes | Yes |
| Industry FE | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes |
| Observations | 11,764 | 11,764 | 11,764 | 11,764 |
| Adj. R2 | 0.2718 | 0.2702 | 0.2822 | 0.2709 |

Note: This table reports results for earnings management, legal regime, and post-SEO performance an alternative measure of *AEM* and *RAM* using the raw values. Columns (1) and (2) [(3) and (4)] present results of estimation of Equations (1) and (2) [(3) and (4)], respectively. Robust *t*-statistics are in parenthesis. \*\*\*, \*\*, \* indicate significance at the 1%, 5% and 10% levels, respectively. All variables are defined in Appendix.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| TABLE 9: Alternative measures for the legal regime | | | | | | |
|  | (1) | (2) | (3) | (4) | (5) | (6) |
|  | LAW=Common-law vs Code-law | | LAW=Anti-director rights | | LAW=Public enforcement | |
| Variables | AEM&RAM | Sum (AEM&RAM) | AEM&RAM | Sum (AEM&RAM) | AEM&RAM | Sum (AEM&RAM) |
| AEM | -0.0307\* |  | -0.0364 |  | -0.0322\*\* |  |
|  | (-1.8557) |  | (-0.6514) |  | (-2.2632) |  |
| RAM | -0.0588\*\*\* |  | -0.0736 |  | -0.0629\*\*\* |  |
|  | (-3.5065) |  | (-1.3727) |  | (-4.2649) |  |
| TAR |  | -0.0447\*\*\* |  | -0.0604\* |  | -0.0479\*\*\* |
|  |  | (-4.1067) |  | (-1.6731) |  | (-4.9989) |
| AEM\*LAW | -0.0003 |  | -0.0185\* |  | -0.0022 |  |
|  | (-0.1463) |  | (-1.8880) |  | (-0.2795) |  |
| RAM\*LAW | -0.0050\*\*\* |  | -0.0249\*\* |  | -0.0226\*\*\* |  |
|  | (-2.6210) |  | (-2.4591) |  | (-2.7318) |  |
| TAR\*LAW |  | -0.0024\* |  | -0.0227\*\*\* |  | -0.0100\* |
|  |  | (-1.9017) |  | (-3.3816) |  | (-1.8483) |
| LAW | 0.0066 | 0.0066 | 0.0279\*\* | 0.0269\*\* | 0.0325\*\* | 0.0315\*\* |
|  | (1.4596) | (1.4625) | (2.2996) | (2.2223) | (2.1588) | (2.0786) |
| Constant | -0.0586 | -0.0597 | 0.1621\*\* | 0.1553\*\* | 0.0666\*\* | 0.0639\*\* |
|  | (-1.3243) | (-1.3393) | (2.3149) | (2.2233) | (2.1298) | (2.0264) |
| RAM-AEM | -0.0281 |  | -0.0372 |  | -0.0307 |  |
| *(F-statistics)* | [1.23] |  | [0.21] |  | [1.97] |  |
| RAM\*LAW-AEM\*LAW | -0.0047\* |  | -0.0064 |  | -0.0204\*\*\* |  |
| *(F-statistics)* | [3.35] |  | [0.19] |  | [4.10] |  |
| [RAM+RAM\*LAW]-[AEM+AEM\*LAW] | -0.0328 |  | -0.0436 |  | -0.0511\*\*\* |  |
| *(F-statistics)* | [2.20] |  | [0.43] |  | [25.33] |  |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 11,764 | 11,764 | 11,764 | 11,764 | 11,764 | 11,764 |
| Adj. R2 | 0.2824 | 0.2677 | 0.2823 | 0.2681 | 0.2823 | 0.2674 |

Note: This table reports results for earnings management, legal regime, and post-SEO performance using alternative measures of legal regime. Columns (1) and (2) report results for the legal regime measured as common-law vs code law, Columns (3) and (4) report results for the legal regime measured as anti-director right index, and Columns (5) and (6) report results for legal regime measured as public enforcement. The table presents the results of the estimation of Equations (3) and (4) as *LAW* is our variable of interest. Robust *t*-statistics are in parenthesis. \*\*\*, \*\*, \* indicate significance at the 1%, 5% and 10% levels, respectively. All variables are defined in Appendix.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TABLE 10: Weighted Least Squares regression analysis | | | | |
|  | (1) | (2) | (3) | (4) |
| Variables | AEM&RAM | Sum (AEM&RAM) | AEM&RAM | Sum (AEM&RAM) |
| AEM | -0.0195\*\* |  | -0.0254 |  |
|  | (-2.3155) |  | (-1.5322) |  |
| RAM | -0.0826\*\*\* |  | -0.0597\*\*\* |  |
|  | (-9.3604) |  | (-3.4328) |  |
| TAR |  | -0.0500\*\*\* |  | -0.0415\*\*\* |
|  |  | (-8.2553) |  | (-3.6937) |
| AEM\*LAW |  |  | -0.0045 |  |
|  |  |  | (-0.3831) |  |
| RAM\*LAW |  |  | -0.0183\*\* |  |
|  |  |  | (-2.5297) |  |
| TAR\*LAW |  |  |  | -0.0167\* |
|  |  |  |  | (-1.9027) |
| LAW |  |  | 0.0602\*\* | 0.0550\*\* |
|  |  |  | (2.3002) | (2.1133) |
| Constant | -0.0816\* | -0.0685 | -0.0752 | -0.0622 |
|  | (-1.6653) | (-1.4010) | (-1.5167) | (-1.2514) |
| RAM-AEM | -0.0631\*\*\* |  | -0.0343 |  |
| *(F-statistics)* | [26.28] |  | [1.79] |  |
| RAM\*LAW-AEM\*LAW | |  | -0.0138 |  |
| *(F-statistics)* |  |  | [1.62] |  |
| [RAM+RAM\*LAW]-[AEM+AEM\*LAW] | |  | -0.0481 |  |
| *(F-statistics)* |  |  | [18.98] |  |
| Controls | Yes | Yes | Yes | Yes |
| Industry FE | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes |
| Observations | 11,764 | 11,764 | 11,764 | 11,764 |
| Adj. R2 | 0.3392 | 0.3288 | 0.3401 | 0.3290 |

Note: This table reports results for earnings management, legal regime, and post-SEO performance using the weighted least squares regression. Columns (1) and (2) [(3) and (4)] present results of estimation of Equations (1) and (2) [(3) and (4)], respectively. Robust *t*-statistics are in parenthesis. \*\*\*, \*\*, \* indicate significance at the 1%, 5% and 10% levels, respectively. All variables are defined in Appendix.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TABLE 11: Regression results after dropping countries with small sample sizes | | | | |
|  | (1) | (2) | (3) | (4) |
| Variables | AEM&RAM | Sum (AEM&RAM) | AEM&RAM | Sum (AEM&RAM) |
| AEM | -0.0277\*\*\* |  | -0.0321\* |  |
|  | (-5.2645) |  | (-1.8662) |  |
| RAM | -0.1023\*\*\* |  | -0.0626\*\*\* |  |
|  | (-19.1463) |  | (-3.5841) |  |
| TAR |  | -0.0650\*\*\* |  | -0.0468\*\*\* |
|  |  | (-17.3129) |  | (-4.2343) |
| AEM\*LAW |  |  | -0.0026 |  |
|  |  |  | (-0.2506) |  |
| RAM\*LAW |  |  | -0.0246\*\* |  |
|  |  |  | (-2.3542) |  |
| TAR\*LAW |  |  |  | -0.0114\* |
|  |  |  |  | (-1.6985) |
| LAW |  |  | 0.0595\*\* | 0.0631\*\*\* |
|  |  |  | (2.4526) | (2.5766) |
| Constant | -0.1166\*\*\* | -0.1239\*\*\* | -0.0995\*\* | -0.1072\*\* |
|  | (-2.7058) | (-2.8385) | (-2.2362) | (-2.3845) |
| RAM-AEM | -0.0746\*\*\* |  | -0.0305 |  |
| *(F-statistics)* | [98.89] |  | [1.30] |  |
| RAM\*LAW-AEM\*LAW | |  | -0.0220\* |  |
| *(F-statistics)* |  |  | [2.86] |  |
| [RAM+RAM\*LAW]-[AEM+AEM\*LAW] | |  | -0.0525\*\*\* |  |
| *(F-statistics)* |  |  | [22.35] |  |
| Controls | Yes | Yes | Yes | Yes |
| Industry FE | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes |
| Observations | 11,346 | 11,346 | 11,346 | 11,346 |
| Adj. R2 | 0.2798 | 0.2648 | 0.2803 | 0.2650 |

Note: This table reports results for earnings management, legal regime, and post-SEO performance after dropping Austria, Belgium, Greece, Ireland, Netherlands, and Portugal. Columns (1) and (2) [(3) and (4)] present results of estimation of Equations (1) and (2) [(3) and (4)], respectively. Robust *t*-statistics are in parenthesis. \*\*\*, \*\*, \* indicate significance at the 1%, 5% and 10% levels, respectively. All variables are defined in Appendix.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| TABLE 12: Endogeneity tests | | | | | | |
|  | (1) | (2) | (3) | (4) | (5) | (6) |
|  | 2SLS | | | | Stepwise regression | |
| Variables | AEM | SEOP | RAM | SEOP | AEM&RAM | Sum (AEM&RAM) |
| AEM\_M | 0.9386\*\*\* |  |  |  |  |  |
|  | (13.5367) |  |  |  |  |  |
| RAM\_M |  |  | 0.9325\*\*\* |  |  |  |
|  |  |  | (12.7897) |  |  |  |
| AEM |  | -0.0455\* |  |  | -0.0270\*\*\* |  |
|  |  | (-1.7123) |  |  | (-5.1632) |  |
| RAM |  |  |  | -0.1684\*\*\* | -0.1017\*\*\* |  |
|  |  |  |  | (-7.1383) | (-19.0859) |  |
| TAR |  |  |  |  |  | -0.0646\*\*\* |
|  |  |  |  |  |  | (-17.2748) |
| LAW |  |  |  |  | 0.0740\*\*\* |  |
|  |  |  |  |  | (4.6494) |  |
| Constant | 0.1274 | 0.0231 | 0.1072 | -0.0489\*\*\* | -0.1398\*\*\* | -0.0124\*\* |
|  | (1.1244) | (1.1188) | (0.9177) | (-2.6459) | (-4.6316) | (-2.0353) |
| Controls | Yes | Yes |  | Yes | Yes |  |
| Industry FE | Yes | Yes |  | Yes | Yes |  |
| Year FE | Yes | Yes |  | Yes | Yes |  |
| Observations | 11,764 | 11,764 | 11,764 | 11,764 | 11,764 | 11,764 |
| Adj. R2 (Centred R2) | 0.0520 | (0.2158) | 0.0514 | (0.2469) | 0.2801 | 0.2647 |
| Underidentification test: |  |  |  |  |  |  |
| Kleibergen-Paap rk LM statistic |  | 183.034 |  | 223.782 |  |  |
| p-value |  | 0.0000 |  | 0.0000 |  |  |
| Weak identification test: |  |  |  |  |  |  |
| Kleibergen-Paap rk Wald F statistic |  | 249.56 |  | 286.61 |  |  |
| Stock-Yogo weak ID test critical values |  | 16.38 |  | 16.38 |  |  |
| RAM-AEM |  |  |  |  | -0.0747\*\*\* |  |
| *(F-statistics)* |  |  |  |  | [99.91] |  |

Note: This table presents the endogeneity test results. Columns (1) to (4) present the 2SLS regression results. *AEM\_M* and *RAM\_M* in Columns (1) and (3), respectively are the country-year mean *AEM* and *RAM* used as the instruments. Columns (5) and (6) present the results for the stepwise regression. Robust *t*-statistics are in parenthesis. \*\*\*, \*\*, \* indicate significance at the 1%, 5% and 10% levels, respectively. All variables are defined in Appendix.

1. We do not include abnormal cash flow from operations in the aggregate measure because, as Cohen and Zarowin (2010) and Roychowdhury (2006) indicate, the same activities that lead to abnormally high production costs also lead to abnormally low cash flow from operations. Thus, including both amounts would result in double counting. [↑](#footnote-ref-1)
2. Rangan (1998) uses quarterly data to compute full year market-adjusted return. However, quarterly data is not available for all of our sample. Therefore, we rely on annual data in our computations. [↑](#footnote-ref-2)
3. We acknowledge the limitation inherent in selecting country-year average as the instrument. Larcker and Rusticus (2010) suggest that empirical accounting studies often address endogeneity concerns using regulatory changes as a quasi-experiment. However, owing to the cross-country nature of our study, we could not identify a universal regulatory shock. [↑](#footnote-ref-3)