MANAGERIAL EMPIRE BUILDING AND SEGMENT REPORTING QUALITY: THE ROLE OF AUDITOR INDUSTRY SPECIALIZATION

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Abstract

This study aims to explore whether empire building firms have lower segment reporting quality under the new accounting standard-IFRS No. 8, Operating Segments. IFRS No. 8 requires firms to report segment information on basis of the management approach, which implying the opportunity of managerial manipulation. We use the sample of 8 countries that have followed IFRS 8 over the period 2009-2011, and find that when managers with high incentives to build managerial empire will conceal segment reporting information on purpose which leads to lower segment reporting quality. Furthermore, our results show that external auditors with industrial experience attenuate the agency problem of managerial empire building and consequently increase segment reporting quality.

Keywords: Managerial Empire Building, Segment Reporting Quality, External Auditing

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1 Introduction

Recent high-profile corporate failures have heightened global awareness of the importance of corporate transparency and accountability. One way to minimize agency problems is to enhance the transparency of financial disclosure on segments, which reduce the asymmetry of information between management and shareholders. Segment information allows external observers to understand the respective risks and value potentials of different lines of business, and thus it is extremely important for financial statement users to monitor managers (Epstein and Palepu, 1999; Berger and Hann, 2003).

To improve segment reporting quality, the International Financial Reporting Standard (IFRS) 8, Operating Segments, which converges with the American SFAS 131, has replaced the original standard of segment reporting (International Accounting Standard 14, IAS 14), effective from 1 January 2009. Abandoning the industry approach under IAS 14, IFRS 8 stipulates that the segment information is to be reported on basis of the management approach, under which the accounting segments should correspond to the divisions used for management reporting purposes inside the company. One of the objectives of the new standard is to increase the relevance of segment reporting by enabling investors to assess the company's business performance from the same perspective used by the management in making decisions about operating matters. The IASB believes that the primary benefits of the new standard are that some companies will report a greater number of segments and more items of information about each segment to achieve higher transparency when implementing IFRS 8. However, the requirement of IFRS 8 that segments should be based on the organizational/reporting structure of the entity is unavoidable subject to management choice.

Previous studies point out the factors which impact segment reporting quality (Prencipe, 2004; Ettredge et al., 2006; Berger and Hann, 2007; Wang et al., 2011). First, based on proprietary cost theory, managers may conceal the signals of a particular segment from potential competitors in order to protect its abnormal returns, and instead present aggregated segment data. Second, some studies state that firms raising external funds induce greater motivations to disclose greater cross-segment differences in earnings growth (i.e. higher segment reporting quality) in order to get better financing opportunities and reduce the inherent risks arising from differences in investor expectations (Frankel et al., 1995; Verrecchia, 2001). Finally, according to agency theory (Jensen and Meckling, 1976), when there is a conflict of interest between managers and shareholders, managers may choose not to disclose segment information for self-interests.

Managers sometimes pursue their own objectives at the expense of shareholders, generating

agency costs. They arguably desire to engage in 'empire building' that benefits themselves to the detriment of investors. Schumpeter (1991) postulates that managers are empire builders, and thus they invest excessively in pursuit of further growth to get greater prestige and job security, although such investments may not be in the best interests of shareholders or lenders. Stulz (1990) indicates that with the growth of the firm managers gain more prestige by increasing the resources employed under their control, and they may also be able to obtain higher compensation if they enlarge the firm. As such, managers with an intention to build an empire may retain those unprofitable businesses just in order to maximize their self-interests. To solve the problem, investors seek high-quality disclosures to monitor managerial decisions and reduce agency costs (e.g., Armstrong et al., 2010; Fu et al., 2012). This provides managers of multi-segment firms a motivation to engage in "strategic" reporting that limits the effective monitoring on segment information. That is, to relieve monitoring, managers are more likely to hide the segment performance information by using the discretion in financial disclosure (Berger and Hann, 2007; Wang et al., 2011).

Based on management approach, IFRS 8 giving managers more judgment on segment disclosures may cause doubt whether the segment reporting quality will solely depend on the firm's subjective internal information system and whether the way management is informed and the needs of financial report users are decided upon by the management who are actually monitored are unclear and worth being examined. The first purpose of this study is to examine whether the quality of segment reporting is lower when a firm's managers have incentives to engage in empire building in the post-IFRS 8 periods. Using 4,511 firm-year observations in 8 countries that have followed IFRS 8 over the period 2009-2011, we find that managerial empire building incentive is negatively associated with cross-segment differences in reported earnings growth. As expected, the result is consistent with the view that, in order to shield their own self-interested activities from monitoring, empire building managers are more likely to conceal differences in earnings growth, which leads to lower segment reporting quality.

Second, we further investigate whether industry specialist auditors serve as a monitoring mechanism to mitigate the possible segment reporting disclosure problem under IFRS 8 when managers are more likely to build empires. Since audit quality receives more attention after the collapse of Enron in 2002, reliable auditors may play an important role in a firm's financial reporting quality. Prior studies indicate that clients of industry specialist auditors are associated with a higher quality of financial reporting (e.g., Balsam et al., 2003; Krishnan, 2003; Dunn and Mayhew, 2004), because the abilities of theses auditors to provide higher quality audits come from their experience in serving other clients in the same industry, and learning and sharing best practices across the industry (e.g., Dunn and Mayhew, 2004; Gul et al., 2009). Thus, specialist auditors with more industry experience are more likely to detect the intentional hiding of segment information by management. Our empirical analysis shows that professional auditors attenuate the impact of MEB on segment reporting quality, suggesting that auditor industry specialization can play an important supervising role on avoiding the lower quality of segment disclosure induced by MEB incentives.

The contributions of this study are two-fold. First, managerial empire building is a common agency problem for worldwide firms and may induce managers to conceal segment information, but unlike proprietary cost motives, these agency cost motives on the impact of segment reporting quality are seldom investigated in prior studies. Besides, most previous studies use U.S. data to discuss the issue related to segment reporting quality, but the various country environment and monitoring mechanism cause the results may not be directly applied to other countries. In this study, we contribute that employing direct proxies for managerial empire building and providing cross-country evidence to offer an insight into the impact of managerial empire building incentives on segment reporting quality in the post-IFRS 8 period. Our empirical results show that in accordance with management approach, the segment reporting quality will be impacted by managerial self-interest incentive (i.e. managerial empire building), and thus this finding may help users to understand the concealed risk in the segment information disclosure. Second, since the corporate governance mechanism play an important role in financial reporting quality, we integrate effectively external governance mechanism, managerial empire building incentive and segment reporting quality to provide a more complete picture of why managers decide not to disclose segment information and how well-experienced auditor can constrain those manipulations.

The remainder of this paper is organized as follows. In Section 2, we summarize the relevant literature and develop our hypotheses. Section 3 presents research designs, including the research model, variable definitions and research sample. In Section 4, we present the empirical results and perform an additional test. Finally, Section 5 concludes this research with a summary of the findings.

2 Literatures review and hypotheses development

2.1 International financial reporting Standard 8

Segment reporting in accordance with IFRS 8, Operating Segments, has been mandatory for annual financial statements after 1 January, 2009. IFRS 8, a management approach, requires public firms to disclose business activities the same as those presented to their managers. On one hand, the new standard is expected to eliminate or mitigate the information asymmetry in order to increase the

relevance of segment reporting by helping users of financial statements to evaluate a firm's business performance on the same basis used by management when making decisions about the allocation of the firm's resources. On the other hand, IFRS 8, on the basis of management approach, may enlarge the manager discretions on determining reportable segments, and thus the segment reporting quality subjective controlled by managers will be in doubt to easily induce the agency cost problem.

2.2 The determinants of segment reporting quality

2.2.1 Proprietary costs of revealing segment information

Firms may limit voluntary disclosure of information to the financial market owing to the existence of the proprietary cost of disclosure (Dye, 1986; Darrough and Staoughton, 1990; Verrecchia, 1990; Wagenhofer, 1990). According to the proprietary cost perspective, when the information would benefit current or potential competitors, managers are motivated to conceal information to protect their firms from greater competition (Hayes and Lundholm, 1996). Concentrating on determinants of the number of segments that firms disclose, most prior studies provide evidence consistent with the existence of proprietary cost of disclosing the number of segments (Hayes and Lundholm, 1996; Harris, 1998; Ettredge et al., 2002; Botosan and Stanford, 2005; Ettredge et al., 2006). They generally find the proprietary cost constrains managers in segment disclosures. In a word, managers have proprietary cost motives to withhold segment data to avoid suffering from major competitors.

2.2.2 Financing incentives of revealing segment information

The expectation that more informative financial reports increase liquidity and decrease the cost of capital (Verrechia, 2001) provides incentives for businesses that depend heavily on capital markets for financing to uncover value-relevant information (Frankel et al., 1995). When firms need external capital, there is positive association between the disclosure of voluntary information at their corporate web sites and the disclosure of segmental difference in profit rates (Ettredge et al., 2002). Wang et al. (2011) also find that firms employing more external financing induce larger difference of sales growth cross segments. Since the higher segment reporting quality may mitigate the information asymmetry between managers and investors, the cost of external capital will be reduced. Therefore, firms relying more on external financing are motivated to disclose greater cross-segment differences in earnings growth.

2.2.3 Agency costs of revealing segment information

Agency theory describes the natural conflict between shareholders and managers, and the conflict arises because individuals choose actions to maximize their own interests (Jensen and Meckling, 1976). In order to maximize self-interests, managers may choose suboptimal decisions resulting to poorer firm performance and ultimately the loss of shareholder value. Segment reporting is potentially fertile ground for examining the impact of agency conflicts on disclosure decisions. A firm with multi-segments may face the problems of diversification strategy and resources allocation which all revealing agency concerns. Prior studies indicate that multi-segment firms often adopt suboptimal manners to distribute capital to segments, and thus, compare to stand-alone firms, diversified firms may suffer diversification discount which is associated with measures of agency problems (e.g., Berger and Ofek, 1995; Lamont, 1997; Shin and Stulz, 1998). Accordingly, in order to conceal negative segment information, managers tend to be more opportunistic in disclosing segment information. Berger and Hann (2007) find when the agency cost motive dominates, managers tend to hide the segment information of lower profit. Wang et al. (2011) exploring the determinants of segment reporting quality find that if managers tend not to hide the lower performance of segment, the deviation of cross-segment reported earnings growth will be larger. Thus, using this difference to measure the segment reporting quality, they find that there is negative relationship between revealed segment earnings growth differences and the proxy of agency costs, indicating agency costs is the motive of managers hiding segment information.

2.3 Managerial empire building and segment reporting quality

In this study, we focus on the agency costs derived from managerial empire building. Empire builders often take on excessive growth and excessive investment to enlarge firm size since in doing so, they can fetch private interests, such as status, power, compensation, and prestige (Williamson, 1974; Jensen, 1986; Schumpeter, 1991). Jensen (1986) presents a “Free cash flow” theory and finds that a manager of a firm with high free cash flows and low investment opportunities has more incentives to expand the size of the company even though this is not the optimal decision. By growing the firm, managers gain more prestige by increasing the resources under their control (Stulz, 1990), and may also be able to obtain higher compensation if they grow the firm, because compensation is positively associated with firm size (Murphy, 1985; Jensen and Murphy, 1990; Rose and Shepard, 1997; Bebchuk and Grinstein, 2005). In a similar vein, Amihud and Lev's (1981, 1999) “managerialism” theory argue that over-growing the firm decreases managers' unemployment risk, creates additional middle manager promotions,

and makes the manager more indispensable to the firm (Shleifer and Vishny, 1989).

Since financial accounting information provides investors to understand how a firm's operation and management decisions impact its performance, high quality of information disclosing may decrease the information asymmetry between management and investors and increase the monitoring power on managers to attenuate the detriment of agency conflict on investor benefits (e.g., Bushman and Smith, 2001; Healy and Palepu, 2001; Hope and Thomas, 2008; Armstrong et al., 2010; Fu et al., 2012). Accordingly, when managers are empire builders, in order to maintain or enlarge firm size, they are more likely to continue operating and investing in stagnant segments or to choose suboptimal decisions, and thus further lead to the poor performance of some segments (Jensen, 1986; Stulz, 1990; Masulis et al., 2007). In order to avoid drawing the attention or relieve monitoring, managers presumably desire to hide information from stakeholders about their self-interested activities. Berger and Hann (2007) and Wang et al. (2011) provide evidence to support that managers tend to conceal segment information due to the agency cost concerns.

Following this rational line, we expect that managers with intent to build empire will be more reluctant to reveal segment-level differences in growth, leading to less reported growth variability. The hypothesis is thus proposed as follows:

H1: Ceteris paribus, the quality of segment disclosure is negatively correlated to managerial empire building.

2.4 The effect of auditor industry specialization on the relationship between segment reporting quality and managerial empire building

When managers aggressively engage in empire building, more difficult internal resources allocation or higher industry complexity may cause higher information asymmetry between managers and investors, and thus investors are less likely to oversee or observe the managerial self-interest behavior. To monitor management decisions and enhance financial reporting quality, an effective corporate governance mechanism is important. In this study, we apply external corporate governance to examine whether auditor's involvement will help to relieve the problem of lower segment reporting quality caused by managerial empire building behavior (e.g., Gramling and Stone, 2001; Balsam et al., 2003; Krishnan, 2003; Dunn and Mayhew, 2004; Gul et al., 2009). Specifically, we emphasize on the impact from the professionalism of auditors. Industry specialists are able to provide better audit quality by discovering irregularities and misrepresentations since they launch more resources in technologies, facilities, personnel training, and organization control mechanism (Simunic and Stein, 1987). Accordingly, we argue that when auditors are industry specialists, with the familiarity to a client's industry and practical experience, they are more capable to identify the managerial empire building incentives and further to evaluate the fairness of financial reporting. Since some previous studies provide evidence that the better corporate governance system may help to reduce diversification discount (Hoechle et al., 2012), avoiding to employ violating shareholder's interests strategies, managers may improve the quality of decision (Salama and Putnam, 2013). That is, high quality of corporate governance mechanism is able to restrain managers' empire-building incentives.

In addition, there is widespread auditing studies have documented the positive effect of auditor industry specialization on financial reporting quality. Dunn and Mayhew (2004) exploring the impact of specialist auditors on a firm' disclosure policy, they find in unregulated industries, the disclosure quality ranked by analysts will be higher if firms are audited by industry specialists than by non-specialists. Owhoso et al. (2002) find that auditors are more likely to detect errors when they work within their industry specialization than in other industries. Carcello and Nagy (2004) indicate that auditing specialists are more likely to follow audit standards than non-specialists, and are negatively correlated with SEC enforcement actions. Some studies find that firms audited by industry specialists are negatively related to accrual-based management and restatement (e.g., Balsam et al., 2003; Krishnan, 2003, 2005; Stanley and DeZoort, 2007; Romanus et al., 2008)

In sum, auditor industry specialization is an effective monitoring mechanism, as their supervision can confirm the disclosure quality of accounting information, and limit managers' inventive to engage in suboptimal decision. Accordingly, we predict that the specialist auditor will mitigate the relationship between managerial empire building and segment reporting quality, as stated in the following hypothesis.

H2: Ceteris paribus, the relationship between managerial empire building and segment reporting quality is attenuated by the specialist auditor.

3 Research design

3.1 Research model

The basic model to be estimated is:

$$SRQ_{i,t} = \alpha_0 + \beta_1 MEB_{i,t} + \beta_2 MEB \times AUD_{i,t} + \beta_3 AUD_{i,t} + \beta_4 ABNPRET_{i,t} + \beta_5 HHI_{i,t} + \beta_6 CAPINTEN_{i,t} + \beta_7 ACCRUAL_{i,t} + \beta_8 EXTFIN_{i,t} + \beta_9 SIZE_{i,t} + \beta_{10} NSEG_{i,t} + \beta_{11} HIGRW_{i,t} + \beta_{12} ENF_{i,t} + \varepsilon_{i,t}$$

3.1.1 Dependent variables (SRQ)

According to Ettredge et al. (2006) and Wang et al. (2011), we use the cross-segment variability of reported earnings growth, CSVEG, to measure segment reporting quality, which is calculated as the highest rate of segment earnings growth minus the lowest. Earnings growth rate is computed as the

yearly change in a segment's operating income, scaled by net segment sales of the prior year. Given that CSVEG is limited on the left at zero, and highly skewed to the right. We use the natural logarithm of CSVEG (LNCSVEG) to be an alternative measure.

3.2.2 Independent variables (MEB)

In this study, the main independent variable of interest is managerial empire building (MEB). Referring to Giroud et al. (2010), we use various proxies for managerial empire building. The first one is capital expenditures divided by total assets. To exclude the possibility that most of the activities are derived from the form of acquisitions, we additionally use total asset growth and PPE growth. Total asset growth is the percentage increase in total assets, while PPE growth is the percentage increase in property, plant, and equipment. The fourth proxy is free cash flow (FCF) for measuring the opportunity to involve in empire building (Jensen, 1986; Shleifer and Vishny, 1997; Richardson, 2006). Jensen (1986) indicates that managers in firms having larger free cash flows have an incentive to disperse organizational resources on projects with negative net present values, rather than pay out the excess cash to shareholders through share repurchases or dividends (Lang et al., 1991; Chung et a1., 2005). The firm having more free cash flows, FCF, probably relates to cash retention and empire building incentive. FCF is calculated as operating cash flow minus cash dividends and capital expenditures, and then scaled by total assets.

We perform a factor analysis using these four proxies for managerial empire building, which we label MEB. Since segment reporting quality is the dependent variable estimated by the cross-segment variability, the smaller the variability is, the lower the segment reporting quality will be. As predicted by H1, we expect a negative association between MEB and revelation of cross-segment growth variability ($\beta 1<0$).

3.2.3 Moderating variables (AUD)

We use external specialist auditors to proxy the auditing quality. Referring to prior research (e.g., Balsam et al., 2003; Lim and Tan, 2008), "industry specialists" is measured based on the audit firm's share of client's sales in the two-digit SIC industry group. In addition, we rank "industry specialists" based on their percentage of sales audited in the industry (AUD) and interact this variable with the measure of managerial empire building (MEB). If the association between MEB and poorer segment reporting quality is a manifestation of agency problem, we expect this behavior to be moderated in the existence of effective external auditing. Hence, consistent with H2, we expect to observe positive coefficients on the interaction of MEB with AUD ($\beta 2>0$).

3.2.4 Control variables

3.2.4.1 Proxies for proprietary costs of revelation

Referring to Wang et al. (2011), our proxies for proprietary costs include a firm's industry-adjusted abnormal profitability (ABNPRFT), Herfindahl Index (HHI), and industry median capital intensity (CAPINTEN). Firms in industries with higher abnormal profits are more likely to protect their information from current and potential competitors. Revealing more growth variance could be harmful for these firms, since it provides competitors with information useful in assessing where profits are growing. We calculate a company's industry-adjusted abnormal profitability (ABNPRFT) as a three-year average of corporate-level return on assets (ROA), minus the average of industry ROAs in the company's primary two-digit SIC industry. Industry ROAs are calculated using only single-segment companies in each industry. We expect a negative association between ABNPRFT and segment report quality.

Operating in highly concentrated industries, firms are more likely to conceal information from their potential or existing competitors (Harris, 1998; Ettredge et al., 2006). In a highly competitive but un-concentrated industry, market shares which are equally distributed among a number of small producers earn no abnormal profit, and thus there is no incentive for such firms to conceal growth information. In contrast, managers in concentrated industries, and facing a small number of powerful competitors, are more reluctant to reveal detailed profitability and growth information since concealing this information helps protect their most profitable and highest-growth operations. Our second measure proxying for proprietary costs motivations is a Herfindahl index (HHI), which is calculated as follows:

$$HHI_j = \sum_{i=1}^{n} \left(\frac{sales_{ij}}{sales_j}\right)^2$$

Where, $sales_{ij}$ is company i's sales (including single-segment companies and multi-segment companies) in industry j, as defined by two-digit SIC codes. $Sales_j$ is the sum of sales for all businesses in industry i. And n is the number of companies in industry j. We expect that HHI concentration index is negatively associated with growth variability, suggesting that managers tend to conceal information to avoid enabling their current or potential competitors to use this information to make strategic decisions.

Entering barriers are determined the threat of competitive attack, in addition to abnormal profits and industry concentration. Following Wang et al. (2011), we use capital intensity measured at the industry-level, CAPINTEN, as a proxy for the barrier to entry. We define a company's capital intensity as the median capital intensity of all single-segment companies in the company's primary two-digit SIC industry. The capital intensity of a single-segment company is computed as corporate net property, plant and equipment, divided by total assets. High costs to enter a segment's line of business, as measured by industry-level capital intensity, mitigate the threat posed by firms' potential competitors. Managers in firms, protected by entry barriers, are willing to reveal more information. Therefore, we expect a positive relation between CAPINTEN (an inverse proxy for

proprietary costs of disclosure) and segment reporting quality.

3.2.4.2 Proxies for agency costs of revelation

We employ a frequently used proxy for agency costs, abnormal accruals (DeFond, 1992; Francis et al., 1999). Abnormal accruals have been widely used as a measure of the extent of earnings management (DeFond and Jiambalvo, 1994; Klein, 2002; Kothari et al., 2005). High abnormal accruals has been empirically observed as one of the agency problems that firms suffer from, such as firms committing financial statement frauds (Richardson et al., 2006) and firms with weaker board monitoring (Klein, 2002). Francis et al. (1999) argue that accruals, raising the need for higher quality external monitoring by Big 6 auditors, increase agency costs. The ACCRUAL variable is based on modified cross-sectional Jones model (Jones, 1991) as described in Dechow et al. (1995). Further, we use the cross-sectional modified Jones model and incorporate current period return on assets (ROA) as suggested by Kothari et al. (2005). We estimate annual parameters for firms in each two-digit SIC industry. As a proxy for agency problems, ACCRUAL is expected to be negatively associated with revelation of cross-segment differences in earnings growth.

3.2.4.3 Proxies for financing incentives of revelation

The proxy for financing incentives is the firm's reliance on external financing (EXTFIN). We capture both firms' external equity financing and debt financing activities. Equity financing equals the proceeds of sales of common stock and preferred stock, minus the purchases of common stock and preferred stock, and less cash dividends paid. Debt financing equals long-term debt issuance minus long-term debt reduction, and minus change in current debt. This variable is scaled by total assets. We expect a positive relation between EXTFIN and cross segment variability in earnings growth.

3.2.4.4 Others

Since larger firms are more likely to hide segment-level sources of profitability for competition advantage (Lang and Lundholm, 1996; Ettredge et al., 2006), we include SIZE, the natural logarithm of totals assets, in the model and predict its coefficient is negative. NSEG (reported number of a company's segments) controls for industry diversification across firms, which may affect overall firm growth and profitability (Bens and Monahan, 2004). Ettredge et al. (2006) also find that the number of line of business segments (NSEG) is positively associated with cross-segment variability in profits, so we expect a positive coefficient for NSEG. Unless all segments are growing at the same rate, diversified firms with unusually high corporate earnings growth (HIGRW) should increase variability in the dependent variable. HIGRW is coded 1 if company-level earnings growth exceeds the sample median, and 0 otherwise. We expect a positive coefficient for the HIGRW variable.
According to prior studies (La Porta et al., 1998; Hope, 2003; Leuz et al., 2003; La Porta et al., 2006; Daske et al., 2008; Djankov et al., 2008), we construct a comprehensive measure of the enforcement strength (ENF) based on several country-level factors: efficiency of judicial system, rule of law, corruption, risk of expropriation, risk of contract repudiation, accounting rating on accounting standards, and GNP per capital. For each of these variables, a higher score represents stronger enforcement. These country-level factors are aggregated into one score by factor analysis. And we do not specify an expected sign for the ENF coefficients.

3.2 Sample selection

In this study, we use eight IFRS adoption countries with enough observations as our sample to investigate the effects after IFRS 8 is effective. These countries include Australia, France, Hong Kong, Italy, Singapore, Sweden, United Kingdom, and Germany, and the sample period is from 2009 to 2011. In order to compute cross-segment variability of reported earnings growth, we require firms have more than one segment. The initial multi-segment observations from Worldscope Database with segment information available are 6,967 firm-years. We exclude financial industries and utilities industries, because these industries are regulated and have fundamentally different financial structures. After deleting observations with missing data, we generate final sample of 4,511 firm-years. The detailed sample selection procedures are described in Table 1.

Table 1. Sample selection

Sample selection	Australia	France	Hong Kong	Italy	Singapore	Sweden	U.K.	Germany	Total
Initial multi-segment samples from with segment information available	868	503	2,105	432	730	314	1,534	481	6,967
Less:									
Regulated industries	(178)	(108)	(418)	(154)	(81)	(44)	(300)	(96)	(1,379)
Missing MEB data	(2)	(1)	(7)	(2)	(0)	(0)	(3)	(2)	(17)
Missing data related to auditor	(30)	(56)	(199)	(9)	(3)	(3)	(44)	(37)	(381)
Missing financial data	(86)	(47)	(204)	(56)	(79)	(48)	(107)	(52)	(679)
Final sample	572	291	1,277	211	567	219	1,080	294	4,511

4 Empirical results

4.1 Descriptive statistics

Table 2 provides the descriptive statistics of variables used in this research. A comparison of the mean (0.1194) versus median (0.0564) values of CSVEG is limited on the left at zero, and is highly skewed to the right. Therefore, we use the natural logarithm transformation, LNCSVEG, as a supplement to CSVEG. The mean of managerial empire building incentive (MEB) in our sample is -0.1336. In Table 2, we also include the auditor continuous market share based upon client sales (AUD*). The higher AUD* shows the higher industry share and industry specialization the auditor possesses. The mean (median) of AUD* is 0.2352 (0.1981). The average of AUD is 0.5687 and the median is 0.6034. On average, companies in this sample disclose 3.6 segments, and tend to be relatively large (mean of SIZE is 13.0027). They have positive mean and median levels of abnormal profitability (mean and median of ABNPRFT are 0.0496 and 0.0497), concentration index (mean and median of HHI are 0.1802 and 0.1333), and hold substantial amounts of fixed assets, CAPINTEN (mean and median are 0.1584 and 0.1098). Their mean and median of accruals (mean and median are -0.0140 and -0.0161), and external financing needs (mean and median are 0.0286 and -0.0098) are close to zero, although there is substantial variability across firms. Finally, the mean of country enforcement (ENF) in our sample is 0.2550.

Table 3 represents the Pearson and Spearman correlation matrix for dependent and independent variables. The correlations of MEB and AUD with segment reporting quality are contrary to our predictions but they are the results derived from univariate analysis. We will focus on the results derived from multivariate analysis of considering other factors. As for the correlations among all the independent variables, most variables are significantly correlated and the coefficients are less than 0.5, indicating multi-collinearity is not a problem. To further investigate whether multi-collinearity appears to be a problem, we examine the variance inflation factors (VIFs) in the later regression results. In this study, we construct comprehensive measures for MEB and ENF based on its individual factors. These individual factors are aggregated into one score by factor analysis for MEB and for ENF. To examine whether these two variable effectively capture variation common to the observable variables, we perform a correlation analysis among the common variable and its individual proxies. We find that correlations for all variables are statistically significant, which suggest that MEB and ENF capture the underlying construct of its individual proxies (untabulated).

Table 2. Descriptive statistics

(N=4,511) Variable	Mean	Min	Lower Quartile	Median	Upper Quartile	Max	Standard Deviation
CSVEG	0.1194	0.0095	0.0230	0.0564	0.1557	0.4440	0.1387
LNCSVEG	-2.7891	-5.2215	-3.7719	-2.8757	-1.8601	0.0122	1.3893
MEB	-0.1336	-0.4585	-0.2505	-0.1581	-0.0604	0.3809	0.1959
AUD*	0.2352	0.0002	0.0391	0.1981	0.3768	0.8991	0.2158
AUD	0.5687	0.0360	0.3571	0.6034	0.8226	0.9575	0.2719
ABNPRFT	0.0496	-0.7712	-0.0043	0.0497	0.1235	0.5258	0.1661
HHI	0.1802	0.0249	0.0630	0.1333	0.2566	0.6238	0.1434
CAPINTEN	0.1584	0.0157	0.0488	0.1098	0.2383	0.5513	0.1327
ACCRUAL	-0.0140	-0.4728	-0.0686	-0.0161	0.0372	0.5153	0.1306
EXTFIN	0.0286	-0.5749	-0.0680	-0.0098	0.0662	1.3490	0.2493
SIZE	13.0027	8.1775	11.5541	12.8643	14.3794	18.3290	2.0824
NSEG	3.6358	2.0000	3.0000	3.0000	4.0000	10.0000	1.4477
HIGRW	0.4890	0.0000	0.0000	0.0000	1.0000	1.0000	0.4999
ENF	0.2550	-0.3306	-0.0032	0.2787	0.4684	0.8084	0.2541

[1]Variable definitions: CSVEG: the highest rate of segment earnings growth minus the lowest; LNCSVEG: the natural logarithm of CSVEG; MEB: a composite variable stand for managerial empire building incentives; AUD*: the audit firm's share of client's sales in the two-digit SIC industry group; AUD is percentile rank of AUD*; ABNPRFT: industry-adjusted abnormal profitability; HHI: Herfindahl Index; CAPINTEN: the median capital intensity of all single-segment companies operating in the company's primary 2-digit SIC industry; ACCRUAL is discretionary accruals; EXTFIN: firms' external equity financing and debt financing activities; Size: the natural log of total assets at the firm level; NSEG: reported number of a company's segments; HIGRW: an indicator variable that equals one if company-level earnings growth exceeds the sample median, and 0 otherwise; ENF: a composite variable stand for country's enforcement.

4.2 Results of regression analysis

Table 4 presents the pooled regression results for testing hypothesis 1 and hypothesis 2. We compute the t-statistics using the two-way cluster robust standard errors (Petersen, 2009; Gow et al., 2010) to adjust standard errors for time-series and cross-sectional correlation. The adjusted R2 in all models are between 11% and 23%, and every model F-value is significant at the 1% level, indicating that the model is well specified. The results of VIF show that the multi-collinearity problem exists between AUD and MEB×AUD, and thus we exclude AUD in our models. Besides, since there is multi-collinearity between ENF and country-dummy variables, we only

incorporate year- and industry-dummy variables in our models to control related fixed effects.

The dependent variable in column (1) and (2) are CSVEG and LNCSVEG, respectively. The coefficient on MEB in column (1) and (2) are both negative (-0.050 and -0.418) and significant at 5% level, suggesting when managers have high incentives to make managerial empire building, they may tend to conceal segment reporting information to lead to lower segment reporting quality. Furthermore, the coefficients on the interaction terms, MEB×AUD, are 0.099 and 0.992, respectively and are statistically significant at 1% level. That is, external auditors with learning experience from investigating industries will lead to attenuating the incentives of managers to build empires which may make lower segment reporting quality. In column (3) and (4), we use new dependent variable New_CSVEG and New_LNCSVEG as an alternative measure for CSVEG and LNCSVEG, respectively. The new dependent variables New_CSVEG and New_LNCSVEG are measured by CSVEG and LNCSVEG minus their industry medians to control the inherent segment earnings growth variability arising from the industry in which a firm operates. The results confirm our findings and further indicate that after controlling the inherent industry differences in segment earnings growth, the revealed segment earnings growth differences may determine managerial empire building incentives. In sum, these results thus support our hypotheses.

With regard to the control variables, most results are consistent in all models. The coefficient on abnormal profitability (ABNPRFT) is negative and significant at 1% level. This evidence provides when abnormal profitability of a firm increases, the firm is more likely to conceal related operation information from its existing and potential competitors so segment reporting quality declines. Most coefficients on Herfindahl Index (HHI) are negative and significant at 1% level, showing that in high industry intensity environment, managers may choose to lower the segment reporting information disclosed in order to prevent data leaked. The coefficient on external financing (EXTFIN) is positive and significant (p-value <0.01), manifesting as firms need external financing, they would like to uncover segment reporting in order to lower the financing cost. Consistent with Ettredge et al. (2006), the coefficients on SIZE and NSEG are negative and positive, respectively (both significant at 1% level). Not as expected, the coefficient on high earnings growth rate (HIGRW) is negative and significant, implying firms with high earnings growth rate may face higher competition pressure so they are unwilling to disclose related segment information. Most coefficients on ENF are negative and significant, indicating that on average, firms in the country with higher enforcement strength may reveal lower segment earnings growth variability. Finally, to test the models' robustness we also use an alternative measure of industry specialization. We define industry specialists by dichotomous variable which equals 1 if the auditor has market share greater than 25%, and 0 otherwise. Although the result doesn't show the relationship between MEB and segment reporting quality, the coefficient of MEB×AUD is still positive and significant, which supporting that industry specialists can attenuate the negative effect of MEB on segment reporting quality (untabulated).

4.3 Additional tests

In contrast to small audit firms, large audit firms possess more enough resources and talents. Besides, concerning brand-name reputation, large audit firms have more to lose, and thus they have more incentive to deter or report questionable or aggressive accounting practice. Therefore, whether a firm is audited by large audit firms is considered as the proxy of audit quality and even the higher quality (e.g., Reynolds and Francis, 2001; Balsam et al., 2003). There may be some difference in audit quality, which is measured by industry specialists, between Big 4 and non-Big 4 auditors. In this study, there are 76% of sample firms audited by Big 4 auditors, and thus in order to figure out whether the auditor is Big 4 or non-Big 4 may impact our results, we reexamine the firms audited only by Big 4 auditors. In table 5, the results show that no matter how the segment reporting quality is measured, the relationship between MEB and segment reporting quality is negative and significant (at least at 5% level), indicating managers with empire building incentives less likely disclose segment information to lead to lower segment reporting quality. Moreover, the coefficient of MEB×AUD is positive and significant at 5% level at least, manifesting that industry specialist may mitigate the negative relationship between MEB and segment reporting quality, and thus our hypotheses are supported.

Table 3. Correction matrix

	CSVEG	LNCSVEG	MEB	AUD	ABNPRFT	HHI	CAPINTEN	ACCRUAL	EXTFIN	SIZE	NSEG	HIGRW	ENF
CSVEG	1.000	0.900 ***	0.031 **	-0.154 ***	-0.214 ***	-0.038 ***	0.038 **	0.038 **	0.190 ***	-0.233 ***	-0.022	-0.098 ***	-0.098 ***
LNCSVEG	0.999 ***	1.000	0.039 ***	-0.143 ***	-0.180 ***	-0.030 **	0.044	0.021	0.177 ***	-0.231 ***	0.024	-0.120 ***	-0.100 ***
MEB	0.015	0.016	1.000	0.038 **	0.041 ***	0.065 ***	0.049	0.064 ***	0.178 ***	0.082 ***	0.024	0.061 ***	-0.012
AUD	-0.129 ***	-0.130 ***	0.044 ***	1.000	0.210 ***	0.091 ***	0.021	-0.021	-0.077 ***	0.423 ***	0.140 ***	0.063 ***	0.059 ***
ABNPRFT	-0.150 ***	-0.151 ***	0.101 ***	0.191 ***	1.000	0.028 *	0.029 *	-0.004	-0.160 ***	0.240 ***	0.042 ***	0.094 ***	0.132 ***
HHI	-0.033 **	-0.033 **	0.083 ***	0.094 ***	0.011	1.000	0.141 ***	0.051 ***	-0.028 *	0.213 ***	0.104 ***	0.005	0.114 ***
CAPINTEN	0.028 *	0.028 *	0.031 **	0.000	-0.162 ***	0.246 ***	1.000	0.067 ***	0.003	0.075 ***	0.006	0.000	-0.244 ***
ACCRUAL	0.012	0.013	0.078 ***	-0.031 **	-0.055 ***	0.056 ***	0.054 ***	1.000	0.046 ***	0.002	-0.025 *	-0.014	-0.058 ***
EXTFIN	0.136 ***	0.136 ***	0.103 ***	-0.057 ***	-0.114 ***	-0.018	0.006	0.028 *	1.000	-0.136 ***	-0.039 ***	-0.007	-0.031 **
SIZE	-0.216 ***	-0.216 ***	0.090 ***	0.401 ***	0.179 ***	0.215 ***	0.090 ***	0.015	-0.076 ***	1.000	0.368 ***	0.107 ***	-0.006
NSEG	0.039 ***	0.040 ***	0.032 **	0.119 ***	0.008	0.113 ***	-0.027 *	-0.008	-0.023	0.324 ***	1.000	0.025 *	0.076 ***
HIGRW	-0.118 ***	-0.119 ***	0.067 ***	0.057 ***	0.151 ***	0.011	-0.005	-0.005	-0.038 ***	0.109 ***	0.027 *	1.000	-0.002
ENF	-0.118 ***	-0.119 ***	0.096 ***	0.065 ***	0.207 ***	0.194 ***	-0.301 ***	-0.080 ***	-0.018	0.008	0.092 ***	-0.003	1.000

[1] The Pearson correlations are in the above diagonal and Spearman correlations are in the below diagonal. [2] *, **, *** denote two-tailed significance at the 0.10, 0.05, and 0.01 levels, respectively. [3]Variable definitions are shown in Table 2.

Table 4. Results for the relationship among managerial empire building, segment reporting quality, and auditor industry specialization (full sample)

Variables	Predicted Sign	Dependent Variable **(N=4,511)**			
		CSVEG	LNCSVEG	New_CSVEG	New_LNCSVEG
Intercept	?	0.292 ***	-0.890 ***	0.246 ***	1.181 ***
		(18.18)	(-5.54)	(15.71)	(7.81)
MEB	-	-0.050 **	-0.418 **	-0.040 **	-0.400 **
		(-2.19)	(-1.92)	(-1.80)	(-1.99)
MEB×AUD	+	0.099 ***	0.992 ***	0.085 **	1.195 ***
		(2.63)	(2.72)	(2.31)	(3.51)
ABNPRFT	-	-0.177 ***	-1.400 ***	-0.154 ***	-1.614 ***
		(-11.95)	(-10.7)	(-10.63)	(-12.00)
HHI	-	-0.054 ***	-0.590 ***	-0.052 ***	0.215 *
		(-3.53)	(-3.69)	(-3.52)	(1.43)
CAPINTEN	+	0.011	0.014	0.017	-0.078
		(0.58)	(0.07)	(0.90)	(-0.43)
ACCRUAL	-	0.019	0.021	0.019	-0.060
		(1.02)	(0.13)	(1.08)	(-0.39)
EXTFIN	+	0.056 ***	0.521 ***	0.054 ***	0.372 ***
		(5.98)	(6.40)	(5.95)	(4.74)
SIZE	-	-0.012 ***	-0.139 ***	-0.011 ***	-0.092 ***
		(-11.02)	(-12.84)	(-10.88)	(-9.06)
NSEG	+	0.006 ***	0.108 ***	0.004 ***	0.087 ***
		(4.40)	(8.18)	(3.44)	(6.79)
HIGRW	+	-0.016 ***	-0.219 ***	-0.016 ***	-0.218 ***
		(-4.25)	(-5.90)	(-4.59)	(-6.20)
ENF	?	-0.048 ***	-0.554 ***	-0.011	0.221 ***
		(-6.38)	(-7.05)	(-1.57)	(3.03)
Year and Industry Dummy		Yes	Yes	Yes	Yes
Model F value		42.70 ***	41.78 ***	35.34 ***	19.96 ***
Adj. R^2		22.28 %	21.89 %	19.10 %	11.53 %

[1] The t-statistics using the two-way cluster robust standard errors (Petersen, 2009; Gow et al., 2010) to adjust standard errors for time-series and cross-sectional correlation. [2]*, **, *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively (a one-tailed test for the coefficients with predicted signs, and a two-tailed test otherwise). [3]An analysis of the Variance Inflationary Factors (VIFs) for each model reveals that VIFs are all smaller than 10, suggesting that multicollinearity is not an issue. [4] New_CSVEG and New_LNCSVEG are measured by CSVEG and LNCSVEG minus their industry medians; Other variable definitions are shown in Table 2.

5 Conclusions

The objective of this study is to explore whether managers with incentives of empire building can manipulate segment reporting under the new accounting standard-IFRS 8. IFRS 8, Operating Segments, has replaced the original standard of segment reporting (IAS 14) starting from financial periods commencing on 1 January 2009. With the release of IFRS 8, the segment information is to be reported on basis of the management approach, under which the accounting segments shall correspond to the divisions used for management reporting purpose inside the company. That is, the firm's internal reporting is based on the chief of operating decision maker, and hence their decision-making may control segment reporting.

Based on agency theory, we argue that if managers are empire builders, they may invest excessively in pursuit of further growth to get greater prestige and job security, although such investments may not be in the best interests of shareholders or lenders. In a segment context, managers may make efforts to expand a business with low-profit lines in order to diversify away the operating risks that they encounter, or enlarge one dimension of the company so that their management is more powerful. We use the 8 countries that have followed IFRS 8 over the period 2009-2011 to be the sample. Our results show that when managers with high incentives to engage in managerial empire building, they will conceal the difference of segment earnings growth on purpose, which leads to lower segment reporting quality. Fortunately, we find that the relationship between managerial empire building and lower segment reporting quality can be attenuated by auditing professionalism. This result indicates that industry specialist auditors play a vital role in constraining self-interested incentive, and thus enhance the segment reporting quality. In additional tests, we obtain the same results when we only apply the firms audited by Big 4 auditors as sample to reexamine our hypotheses.

To academy, our study contributes to provide cross-country evidence to support that under IFRS 8, managerial incentives may dominate the segment reporting quality but with more domain-specific knowledge, specialist auditors may help to solve the agency problem induced by an ambitious manager to protect stakeholders' interests. In practice, our study suggests that in order to maximize self-interests without monitoring, managers may manipulate segment reporting quality, and thus this study can help stakeholders to evaluate a firm's performance and risks reasonably.

Table 5. Results for the relationship among managerial empire building, segment reporting quality, and auditor industry specialization (firms audited by Big4)

Variables	Predicted Sign	Dependent Variable **(N=3,442)**			
		CSVEG	LNCSVEG	New_CSVEG	New_LNCSVEG
Intercept	?	0.292 ***	-0.961 ***	0.237 ***	1.144 ***
		(15.57)	(-5.03)	(12.91)	(6.43)
MEB	-	-0.075 **	-0.628 **	-0.060 **	-0.624 **
		(-2.29)	(-1.86)	(-1.88)	(-1.97)
MEB×AUD	+	0.127 ***	1.241 **	0.103 **	1.498 ***
		(2.48)	(2.32)	(2.04)	(3.00)
ABNPRFT	-	-0.134 ***	-1.056 ***	-0.104 ***	-1.388 ***
		(-6.88)	(-5.84)	(-5.43)	(-7.28)
HHI	-	-0.062 ***	-0.673 ***	-0.058 ***	0.266 *
		(-3.79)	(-3.74)	(-3.73)	(1.57)
CAPINTEN	+	-0.011	-0.152	-0.003	-0.235
		(-0.53)	(-0.73)	(-0.13)	(-1.20)
ACCRUAL	-	0.028	-0.024	0.029 *	-0.091
		(1.25)	(-0.11)	(1.33)	(-0.46)
EXTFIN	+	0.045 ***	0.463 ***	0.041 ***	0.315 ***
		(3.95)	(4.58)	(3.63)	(3.17)
SIZE	-	-0.012 ***	-0.137 ***	-0.011 ***	-0.089 ***
		(-9.77)	(-10.77)	(-9.04)	(-7.52)
NSEG	+	0.004 ***	0.086 ***	0.003 **	0.069 ***
		(2.91)	(6.08)	(2.06)	(4.98)
HIGRW	+	-0.018 ***	-0.254 ***	-0.019 ***	-0.267 ***
		(-4.50)	(-6.02)	(-5.03)	(-6.7)
ENF	?	-0.044 ***	-0.527 ***	-0.013 *	0.152 *
		(-5.67)	(-6.25)	(-1.75)	(1.95)
Year and Industry Dummy		Yes	Yes	Yes	Yes
Model F value		25.29 ***	25.62 ***	18.43 ***	10.58 ***
Adj. R^2		17.95 %	18.15 %	13.57 %	7.95 %

[1] The t-statistics using the two-way cluster robust standard errors (Petersen, 2009; Gow et al., 2010) to adjust standard errors for time-series and cross-sectional correlation. [2]*, **, *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively (a one-tailed test for the coefficients with predicted signs, and a two-tailed test otherwise). [3]An analysis of the Variance Inflationary Factors (VIFs) for each model reveals that VIFs are all smaller than 10, suggesting that multicollinearity is not an issue. [4]Variable definitions are shown in Table 2 and Table 4.

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