The Effect of Competition on Real Earnings Management – A Re-examination

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Abstract

This study examines the effect of competition in the product and labour markets on real earnings management (REM). REM is accomplished by firms changing investing or operating decisions primarily to increase current period earnings and can affect future cash flows negatively. Using data from Standard and Poor's 1500 index firms from 1992 to 2015, I find strong support for the prediction that managers in more competitive labour markets are more inclined to use REM activities. However, I find little evidence that firms in more competitive product markets will reduce their engagement in REM activities. The results from the interaction of these two markets show that managers are more inclined to use REM activities whenever they face high labour market competition. This suggests that managers' primary concern as they make REM decisions is the impact on their career.

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Table of Contents

List of Tables

1. Introduction

Stakeholders have expressed concern about managers concentrating more on short-term interests to the detriment of long-run firm value. For example, at a symposium in 2003, William Donaldson, then U.S. Securities and Exchange Commission (SEC) Chairman in his address entreated business leaders and managers to focus on managing the firm for "long-term results". One of the mechanisms which managers could employ to destroy long-term firm value is manipulating earnings with real activities. Real earnings management (REM) occurs when managers attempt to manipulate earnings through altering the timing, or structuring, of operating or investment decisions to boost current period earnings (Gunny 2010; Zang 2012).Though there are many types of earnings management, this study identifies the two main types: accruals management and earnings management through real activities.

I focus on REM for two reasons. First, it is more costly to long-term firm value because it may affect future cash flow negatively (Roychowdhury 2006; Laksmana and Yang 2014). Not only does REM have costs for the firm and shareholders, it also has negative implications for the economy due to managers foregoing necessary investments and projects which would benefit the firm and economy in the long run. Second, after the implementation of the Sarbanes-Oxley Act of 2002 (hereafter, SOX) REM has become more popular relative to accruals management because REM is perceived as being less costly for managers because auditor scrutiny of accruals management has improved after enactment of SOX (Cohen et al. 2008). For example, the Public Company Accounting Oversight Board (PCAOB) was instituted by SOX to regulate the activities of accounting firms providing audit services to public companies. Also, SOX mandates managers to certify reported financial statements, thus increasing the litigation risk of firms employing accruals management. After SOX, managers are still able to make REM decisions

without auditors' approval which makes it very difficult for auditors to detect (Cohen et al. 2008; Cohen and Zarowin 2010).

Despite the high cost of REM to firms (Roychowdury 2006; Laksmana and Yang 2014), little research has examined what factors mitigate its negative effect on shareholder value. The capital markets may not be effective in mitigating REM because there is a reward for firms that meet earnings expectations and punishment for those that do not (Barth, Elliot and Finn 1999; Skinner and Sloan 2002). Therefore managers will be inclined to manipulate earnings, especially through REM in order to meet the earnings expectations of the capital market. In addition, prior literature (Cohen et al. 2008; Bartov and Cohen 2009) provides evidence that REM has become more prevalent after the enactment of SOX, suggesting that financial regulation introduced to curb accruals management appear to exacerbate REM.

Product market competition (PMC) is one mechanism that can help to mitigate managers' myopic behaviour, including REM, and promote the focus on long-run firm value. Conversely, labour market competition (LMC) in the form of higher CEO turnover, or increased threat of dismissal may result in greater REM because of manager career concerns. Ali and Zhang (2015) show that CEOs in their early years, who face dismissal threats because the market is uncertain about their managerial ability have greater motivation to manipulate earnings. Their paper focuses on earnings management through discretionary accruals but they also examine one REM activity, decreasing discretionary expenditure as well. Given that managers are faced with both kinds of competition, I examine whether and how the interaction of the product and labour markets influence REM.

In this study, I use data from S&P 1500 index firms from 1992 to 2015. First, I examine product market competition and REM. I find little to no evidence that managers in highly

competitive markets will reduce their engagement in REM activities. Then, I examine the relation between labour market competition and REM. I find strong empirical evidence that managers in more competitive labour markets increase REM activities. The results suggest that managers are more inclined to overproduce more goods than needed and reduce discretionary expenditure to increase current period earnings. Finally, I analyse the relation between the interaction of these two markets and REM activities. My results indicate that managers are more concerned about their career security and thus, more likely to use REM activities whenever they are in a competitive labour market. Even in low product market competition, I still find evidence that managers in more competitive labour markets will engage in REM activities to boost earnings.

My study contributes to the literature on REM activities which have increased after SOX, and which may have severe negative consequences for firms. Specifically, I extend Laksmana and Yang (2014) who examine the effect of competition on both accruals management and REM. Unlike their paper, this study examines both product and labour market competition to determine their individual and interaction effects on REM activities. Also, while Laksmana and Yang (2014) use a sample of all U.S. firms in unregulated industries from 1988 to 2007, this study uses data from S&P 1500 index firms from 1992 to 2015. Thus, this study is able to better capture managers' use of REM activities which has gained more prominence after 2002.

The remainder of the paper proceeds as follows: Section 2 reviews prior literature and develops hypotheses on the relation between REM and competition from the product and labour markets. Section 3 describes the methodology used for the study: sample selection procedure, description of the REM and competition measures and model development. Section 4 reports the test results and Section 5 presents the conclusion and implications.

2. Literature Review And Hypotheses Development

2.1. Real Earnings Management

Roychowdhury (2006) defines real earnings management (REM) as "departures from normal operational practices, motivated by managers' desire to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations." Thus, if managers alter certain operating decisions in an attempt to meet an earnings benchmark, it can be considered as real earnings management (Roychowdhury 2006). Although these deviations help managers to meet reporting goals, they may not fundamentally add to firm value. Examples of the real activities that managers might undertake to manipulate earnings include reducing discretionary research and development (R&D) expense, decreasing discretionary selling, general and administration (SG&A) expense and overproduction with the purpose of reducing cost of goods sold (COGS) (Roychowdhury 2006; Gunny 2010). [1]Although REM may decrease firm and investor value, it is still a legal practice and is not a breach of financial reporting regulations. Even if found out, it would not lead to financial fraud charges or earnings restatements (Carcello et al. 2006).

REM can affect firm value negatively because decisions to manipulate current period earnings may affect future cash flows negatively (Laksmana and Yang 2014). Managers may engage in real earnings management for different reasons. Roychowdury (2006) and Gunny (2010) show that managers use REM strategies to prevent recording losses and meet earnings targets. Managers also practice REM to maintain positive earnings numbers (Baber et al. 1991; Bartov 1993) and increase their equity-based compensation (Bens et al. 2002). Moreover,

[1] According to Gunny (2010), REM occurs when managers try to manipulate recorded current earnings through operating decisions that are not in line with the normal business practice. Zang (2012) also describes real earnings management (REM) as managers' deliberate attempts to change reported earnings which is accomplished through altering the timing or structure of financial transactions with the goal to meet financial reporting objectives.

managers may use REM to improve their integrity and reputation with stakeholders (Bartov et al. 2002; Gunny 2010).

Previous studies show the significance of REM in both prevalence and magnitude. Graham et al. (2005) who interview financial executives report that a majority of the executives expressed a disposition to manipulate earnings by decreasing discretionary expenditure to meet financial reporting targets. Specifically, their study documents that 80% of the surveyed executives admitted that they would reduce R&D and advertising expenditure, while 55% reported that they would suspend implementing a fresh project in an effort to achieve an earnings benchmark. A recent stream of literature has documented that the use of REM by firms has become more prevalent after the passage of SOX. This is likely a result of the improved scrutiny of accruals management and increased penalties imposed by SOX (Bartov and Cohen 2009; Cohen et al. 2008; Graham et al. 2005).

However, researchers have not reached a consensus on the effects of REM on subsequent firm performance. Bhojraj et al. (2009) and Cohen and Zarowin (2010) show that engaging in REM has an adverse effect on firms' future earnings and operating performance. Bhoraj et al. (2009) demonstrate that firms which employ REM activities to meet analysts' expectations experience relatively worse performance in the capital market for the subsequent three years compared to their peers. Cohen and Zarowin (2010) argue that even though REM may have less administrative costs because it is hard to detect, the future costs to firm value are higher than using accrual management techniques. On the contrary, Gunny (2010) provides evidence that there is improved future firm value for companies engaging in REM. She points out that meeting earnings benchmarks by engaging in REM enables firms to maintain or improve their credibility with stakeholders such as suppliers. Also, managers meeting earnings targets by undertaking

REM are able to signal future growth prospects. Interestingly, Taylor and Xu (2010) report no association between REM and future operating performance for firms that use REM activities occasionally.

2.2. Product Market Competition

Product market competition can help to control managerial behaviour (Hart 1983; Meyer & Vickers 1997) and promote managers' focus on long-run firm value because managers of firms in competitive industries feel immense market pressure to act efficiently and minimize the risk of bankruptcy (Shleifer and Vishny 1997).Therefore, product market competition helps to align managers and investors interests in concentrating on long-term firm value (Guadalupe & Perez-Gonzalez 2010; Giroud & Mueller 2010) and restraining managers from making decisions that will hurt their firms' interests as firms contest for market shares in the industry (Dhaliwal et al. 2014). In view of this, Laksmana and Yang (2014) show empirically that firms in industries with greater product market competition are less inclined to manipulate earnings through both discretionary accruals and REM. Of significance to this study is their result on how effective product market competition can be in mitigating REM. Laksmana and Yang (2014) find that firms which operate in industries with greater product market competition are less inclined to employ three forms of REM activities: accelerating the timing of sales, overproducing more goods than necessary and reducing discretionary expenditures to boost current period earnings. They attribute this finding to the notion that product market competition is a control mechanism that discourages earnings manipulation and ensures that managers focus on investors' interests. They also examine whether firms in high or low competition industries use REM activities to meet important earnings targets and find that firms in less competitive product markets are more

inclined to employ REM strategies to meet earnings targets than their counterparts. Thus, an alternative explanation they give for their results is that, firms in less competitive product markets are more severely punished by the market if they miss important earnings targets such as analysts' forecasts. Unlike their paper, this study segments competition into product and labour markets to see how they individually influence REM activities. I also examine the interaction effects of competition from these two markets on the various REM activities.

In a recent study, Liao and Lin (2016) also examine whether product market competition can help to control firms' tendency to use both accruals management and REM strategies around firms' share repurchase announcements and find results similar to Laksmana and Yang (2014). Using data from U.S. firms that declare share repurchase programs from 1990 to 2007, Liao and Lin (2016) show that repurchasing firms in highly competitive industries are less inclined to use both earnings management strategies. They also attribute their findings to the disciplinary role of product market competition. More specifically, they document that their findings on the relation between product market competition and accruals management is just evident in the pre-SOX period. However, their results for REM are evident both before and after the passage of SOX, suggesting that managers have increased REM activities relative to accruals management post-SOX period.

In addition, product market competition results in enhanced productivity and efficiency of firms (Nickell 1996; Griffith 2001). Nickell (1996) finds that an increased number of competitors in an industry results in a higher total productivity growth rate because firms in that industry strive to find innovative ideas and minimize costs in order to keep a competitive edge. Griffith (2001) also lends more support to this view and argues that increases in product market competition results in enhanced productivity and growth rates of firms. In line with this,

Laksmana and Yang (2014) contend that product market competition can help to decrease managers' disposition to use REM activities because firms in more competitive industries that decrease discretionary expenditure such as R&D and advertising could threaten their own competitive advantages and long-term value.

On the other hand, product market competition can also increase REM. Empirical studies document that the capital market rewards firms that report consistent earnings increases and are able to meet earnings expectations, and punishes those that do not meet expectations (eg. Barth, Elliot and Finn 1999; Skinner and Sloan 2002). In view of this, Markarian and Santalo (2010) argue that market rewards for meeting earnings expectations is particularly important in highly competitive product markets as firms which present good earnings figures experience an increment in market value. Therefore, managers of such firms are more inclined to manipulate earnings if analysts and shareholders cannot monitor the firms' true output in the marketplace. Product market competition also increases capital market pressures in the sense that many firms in an industry contend for insufficient funds in the market (Balakrishnan & Cohen 2013). Since most investors base their decisions on earnings figures of firms, managers of firms in competitive industries are more motivated than their counterparts to manipulate earnings in an effort to solicit limited funds from investors.

Notwithstanding this conflicting evidence, I argue that REM is costly to firms in competitive product markets. Therefore, I expect REM to be negatively related to product market competition leading to my first hypothesis:

H1: There is a negative association between product market competition and REM

2.3. Labour Market Competition

Competition in the managerial labour market predisposes managers to focus on their career concerns to the detriment of firm long-term value. This is because labour market competition raises the dismissal threat (Trojanowski and Renneboog 2003) when a large pool of suitable replacement CEO candidates is available (Defond and Park 1999). This is likely because companies observe their CEOs' activities more keenly (Karuna 2007) in an industry where there are available CEO replacement candidates. In such industries, termination of managers is more likely to be a result of poor performance (Conyon and Florou 2002). Thus, managers who want to keep their reputation in the labour market have incentives to make decisions that improve their short-run performance to the detriment of long-term shareholder value (Narayanan 1985). In support of this, Ali and Zhang (2015) show that CEOs in their early years, who face dismissal threats because the market is uncertain about their managerial ability are more inclined to use accruals management and REM. Their study focuses on one REM strategy, decreasing discretionary expense such as R&D and advertising. They find that CEOs in their early years are more inclined to decrease discretionary expenditure in an attempt to increase current period earnings. They suggest that these CEOs have greater motivation to manage earnings because they want to influence the market's impression of managerial ability to secure their careers. I extend their study by employing all three proxies for REM as developed by Roychowdhury (2006) in my analysis.

Contrary to Ali and Zhang (2015), Demers and Wang (2010) argue that because managers want to maximize their lifetime compensation, younger CEOs have little motivation to engage in both accruals management and REM activities. Their study claims that younger

managers are less inclined to manipulate earnings since these managers will be penalized in later years as accruals reverse or REM result in firm value decline. They argue that older managers have greater tendency to manipulate earnings because the accruals reversal or firm value decline will be detected after they are retired, and thus will not be penalized for earnings management. Thus, younger managers are less inclined to use REM strategies. Unlike Demers and Wang (2010) who use executives' age to predict REM use, I use labour market competition as a predictor of REM. I develop a comprehensive proxy, *AVGTENURE* that is the average number of years CEOs in an industry typically remain in office before replacement to measure competition in the labour market.

Notwithstanding the conflicting evidence regarding younger CEOs to reduce REM, I argue that managers generally in competitive labour markets are more keen about their career and may be more inclined to engage in REM. Therefore, I expect more real earnings management from managers in competitive labour markets, leading to my second hypothesis:
H2: There is a positive association between labour market competition and REM

H1 and H2 focus on competition from the product and labour markets separately but managers face competition from both markets simultaneously. The remaining hypotheses consider the interaction of competition from both markets. First, the level of competition from both markets could give managers the same incentives to either increase or decrease REM activities, leading to these hypotheses:
H3a: There is a negative association with REM for firms that face high product market competition and low labour market competition

H3b: There is a positive association with REM for firms that face low product market competition and high labour market competition

The final hypothesis examines when competition from these two markets present managers with conflicting incentives regarding REM activities. In a highly competitive product market, managers are expected to focus on firm long-term value. However managers in competitive labour markets are not motivated to exert effort when rewards will not be realized before their contract ends (Uribe and Xu 2016). On the other hand, managers with less labour market concerns are motivated to exert effort because rewards will be achieved before their contract ends. Thus, I argue that when managers are in a situation where they have to choose between concentrating on the firm long-term value and protecting their career interests, they would consider their career concerns primarily. Therefore, I expect these managers to be more inclined to use REM activities.

H4: There is a positive association with REM for firms that face high labour market competition and high product market competition

3. Methodology

3.1. Real Earnings Management Measures

Following Roychowdhury(2006), I construct my proxies for REM activities using the abnormal cash flow levels, discretionary expenses and production. First, managers can try to manipulate sales figures for the current period in order to boost reported earnings. They can do this by offering 'short-time' price discounts or providing more attractive credit policies, to briefly drive up sales in the current period. These 'short-time' price discounts or credit policies which are usually provided at year end attempt to shift sales from the subsequent fiscal year into

the present period. The increased sales figures are unlikely to be sustainable as the firm returns to the initial prices. Assuming positive margins, the extra sales will raise reported earnings in that fiscal year. However, the price discounts and attractive credit policies will lead to a decline in cash inflow for the current period. Thus, a negative, abnormal residual from the following cash flow model indicates REM activity.

$$\frac{CFO_t}{A_{t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{t-1}}\right) + \beta_1\left(\frac{S_t}{A_{t-1}}\right) + \beta_2\left(\frac{\Delta S_t}{A_{t-1}}\right) + \epsilon_t \quad \text{.....(1)}$$

Where CFO is Cash flow from Operations, A is Total Assets and S is Sales

In addition, managers may reduce discretionary expenditures to manipulate earnings. Discretionary expenditures such as R&D and advertising are required to be expensed as incurred because their future benefits are not certain. Thus, managers can decrease discretionary expenditure to boost earnings in the current period particularly if such expenses will not yield instant income. If such expenditures are generally paid in cash, it can result in higher cash flow for the current period to the detriment of future cash flows. Thus, a negative, abnormal residual from the following discretionary expenditure model also indicates REM activity.

$$\frac{DISX_t}{A_{t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{t-1}}\right) + \beta_1\left(\frac{S_{t-1}}{A_{t-1}}\right) + \epsilon_t \quad \text{.....(2)}$$

where DISX is discretionary expenses (the sum of research and development expenses, advertising expenses, and selling, general and administrative expenses), A and S are as defined above.

Finally, managers can produce more goods than needed in an attempt to boost earnings. Cash flow from Operations will be lower given sales levels because the firm will still have production and inventory costs on the items not sold in the current year. Hence, a positive, abnormal residual from the following production model is also an indication of REM activity.

$$\frac{PROD_t}{A_{t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{t-1}}\right) + \beta_1\left(\frac{S_t}{A_{t-1}}\right) + \beta_2\left(\frac{\Delta S_t}{A_{t-1}}\right) + \beta_3\left(\frac{\Delta S_{t-1}}{A_{t-1}}\right) + \epsilon_t \quad \text{.....(3)}$$

where PROD is production cost (the sum of cost of goods sold and change in inventory).

Since negative abnormal cash flow and discretionary expenditures levels and a positive abnormal production level indicates REM activity, I multiply the residuals from both the cash flow and discretionary expense models by -1 to ensure that all REM activities are in the same direction. I then use the residuals from the individual REM models to create one REM proxy.

3.2. Product Market Competition Measures

I use the Herfindahl Hirschman Index *(HHI)* as the first proxy of the level of product market competition. The *HHI* measures the level of concentration in an industry and thus is inversely related to market competition. The index is computed as the sum of squares of market shares of the firms operating in each industry (based on four-digit SIC classification) as shown in the following equation.

$$HHI = \sum_{i=1}^{N} s_i^2 \quad \ldots\ldots(4)$$

I calculate a firm's market share as the firm's sales relative to the total net sales of all firms in the industry. The index ranges from almost zero (many small firms) to one (a monopoly). Since *HHI* is negatively related to market competition, a high index value is indicative of a less competitive industry where the market share is concentrated among a few firms whilst a low value means many firms compete for market shares in the industry. Therefore, I multiply *HHI* by -1 so that the *HHI* variable is now positively related to product market competition.

My second proxy of product market competition is product substitutability. Following Karuna (2007) and Li (2010), I use the Price-cost margin (*INDMGN*) to determine the extent of product substitutability in the market. The Price-cost margin signifies the operating costs a firm incurs to generate sales and is computed as aggregate sales of firms in an industry divided by aggregate

operating costs of firms in an industry. Similar to the *HHI* variable, the *INDMGN* variable is also inversely related to product market competition such that a high value indicates a less competitive industry where there are no close substitutes for the products and a low value signifies a more competitive industry with available product substitutes. Therefore, I also multiply *INDMGN* by -1 so that it is now positively related to product market competition. I use both measures (*HHI* and *INDMGN*) to create a factor score as my third competition measure. The factor score (REMFCT) is created with principal component analysis of the residuals of the individual product market competition measures using varimax rotation method.

3.3. Labour Market Competition Measures

I use the average CEO tenure *(AVGTENURE)* in an industry to measure the level of competition in the labour market. I calculate the *AVGTENURE* as the average of the number of years (tenure) that CEOs stay in office in each industry (based on a four-digit SIC classification). The *AVGTENURE* is also inversely related to labour market competition such that a high number indicates a less competitive labour market where CEOs spend longer years in office before they are replaced. Similar to the *HHI* variable, I multiply *AVGTENURE* by -1 so that the *AVGTENURE* variable is now positively related to labour market competition.

3.4. Sample

The sample selected for this study is made up of firms that constitute the S&P 1500 index from 1992 to 2015. Annual company financial data used for the study will be obtained from the COMPUSTAT database and data on CEO tenure obtained from Execucomp. The sample is limited to post-1991 data because CEO tenure data is not available on Execucomp before 1992. I

start with 24,370 firm-years with 1,497 firms and delete 465 firms (7,103 firm-year observations) in regulated industries (SIC codes 4000 – 4999) and financial industries (SIC codes 6000 – 6999) because managers in such industries may have different incentives to manage earnings because of additional regulation (Burgstahler and Eames 2003). The sample consists of 1,032 firms or 17,267 firm-years for Hypothesis 1. The sample is finally reduced to 16,575 firm-year observations due to missing data from Execucomp required to calculate CEO tenure and the product and labour market interaction variable, *COMPINT* for Hypotheses 2, 3 and 4.

(Insert Table 1 here)

3.5. Model

The first hypothesis states that there is a negative association between product market competition and REM. To test this hypothesis, I run the following regression modified from Laksmana and Yang (2014):

$$REM_{i,t} = \beta_0 + \beta_1 HHI_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 MTB_{i,t} + \beta_4 ROA_{i,t} + \beta_5 LEVERAGE_{i,t} \ \beta_6 SOX_{i,t} + \beta_7 AM_{i,t} + \beta_8 BIG8_{i,t} + \beta_9 LITIGATION_{i,t} + \varepsilon_{i,t} \quad \text{……..(5)}$$

Where

REM is defined as one of the real earnings management measurement proxies defined above and also the factor score created from the individual REM variables. To get the REM factor score (*REMFCT*), I conduct principal component analysis using varimax rotation method on the residuals of the individual REM variables. *HHI* is a product market competition proxy and the main variable of interest to test the first hypothesis. A statistically significant and negative coefficient estimate of *HHI* is an indication that product market competition has a negative

relation to *REM* activities, as I predict. Following prior research, I control for factors that could influence *REM* activities. Cohen et al. (2008) provide evidence that REM activities became more prevalent after SOX was enacted in 2002. To control for this change in regulation, following Cohen et al. (2008), I include *SOX*, an indicator variable that equals 1 for fiscal years 2003 upward and 0 otherwise. Thus, I expect *SOX* to be positively related to REM activities. Also, following Cohen et al. (2008), I include *TIME*, defined as difference between fiscal year and 1992, to determine the impact of normal time trend. Following previous research (Laksmana and Yang 2014), I also include firm characteristics that might be related to REM. Firm size, proxied by *SIZE* is measured as the natural logarithm of the market value of equity. Growth, proxied by *MTB* is measured as the market to book ratio. A measure of firm performance, *ROA,* is defined as the return on assets. I control for *SIZE*, *MTB* and *ROA* because the REM estimation models do not sufficiently capture the impact of size, performance or growth of firms. I do not have predictions for these variables. Zang (2012) documents that managers employ accrual management *(AM)* and *REM* as substitutes. To control for the effect of accruals management, I follow Zang (2012) and include *AM* as a proxy for accruals-based earnings management measured with nondiscretionary accruals developed from the modified Jones model (Dechow et al. 1995).[2] Therefore, I expect *AM* to be negatively related to REM since managers use them as substitutes. Following Laksmana and Yang (2014), I include BIG8 to control for effect of BIG8 audit firms since these auditors increase the rate at which accruals management can be detected.

[2] The equation for estimating Accruals is as follows:

$$\frac{TA_{i,t}}{ASSET_{i,t-1}} = \beta_0 \frac{1}{ASSET_{i,t-1}} + \beta_1 \frac{(\Delta REV_{i,t} - \Delta REC_{i,t})}{ASSET_{i,t-1}} + \beta_2 \frac{PPE_{i,t}}{ASSET_{i,t-1}} \quad \text{.....(2)}$$

Where
Total Accruals (TA) is difference between income before extraordinary items and operating cash flows.
Change in net revenues (ΔREV) is the revenues in year t minus year t-1.
PPE is the gross value of Property, Plant and Equipment
Asset is Total Assets.

BIG8 is a dummy variable that equals 1 for firms audited by a big 8 audit firm and 0 otherwise. I expect BIG8 to have a positive sign because BIG8 auditors may not detect REM. Cheng and Warfield (2005) argue that the propensity for firms to manage earnings increases with their litigation risk. To control for firms' litigation risk, I follow Cheng and Warfield (2005) and include an industry-based litigation dummy variable *(LITIGATION)* which is equal to 1 for firms in highly litigious industries, namely,-pharmaceutical/biotechnology (SIC codes 2833–2836, 8731–8734), computer (3570–3577, 7370–7374), electronics (3600–3674), or retail (5200–5961), and 0 otherwise. I expect *LITIGATION* to be negatively related to REM. Following (Ettredge et al. 2010), I include *LEVERAGE*, a measure of firm financial distress, defined as long-term debt of a firm divided by total assets. Managers of firms in poor financial condition are more predisposed to use accruals management (Ettredge et al. 2010). Thus, I argue that firms in bad financial condition will be more inclined to use REM activities. Therefore, I expect the sign to be positive.

The second hypothesis predicts that there is a positive relationship between labour market competition and REM activities. To test this hypothesis, I run the following regression with the *AVGTENURE* variable:

$$REM_{i,t} = \beta_0 + \beta_1 AVGTENURE_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 MTB_{i,t} + \beta_4 ROA_{i,t} + \beta_5 LEVERAGE_{i,t} \ \beta_6 SOX_{i,t} + \beta_7 AM_{i,t} + \beta_8 BIG8_{i,t} + \beta_9 LITIGATION_{i,t} + \varepsilon_{i,t} \ \text{……..(6)}$$

Where AVGTENURE is defined as the average tenure of CEOs in an industry. Similar to the HHI variable, my proxy for labour market competition *AVGTENURE* is now positively related to labour market competition since it is multiplied by -1. Thus, a statistically significant and positive coefficient estimate of *AVGTENURE* signifies that labour market competition is positively related to REM activities. All other variables are as described as above.

The third and fourth hypotheses look at the association between the interaction of the product and labour market competition variables and the REM variables. To test these interactions, I create an interaction variable *COMPINT*, which will be the main variable of interest used to test the interaction hypotheses H3a, H3b and H4. I use the medians of the *HHI* and *AVGTENURE* variables which are -0.416 and -10.553 respectively to create these interactions. Industries with HHI value greater than the median (-0.416) are classified as high product market competition and industries with HHI value less than the median are classified as low product market competition. Similarly, industries with AVGTENURE greater than the median (-10.553) are classified as high labour market competition and industries with AVGTENURE less than the median are classified as low labour market competition. Thus, the *COMPINT* variable has four different sectors that show the various interactions between product market competition and labour market competition. The first sector *COMPINT1* which tests H3a looks at a situation where product market competition is high (high *HHI*) and labour market competition is low (low *AVGTENURE*). The second sector *COMPINT2* tests H3b and examines a market with low product market competition (low *HHI*) and high labour market competition (high *AVGTENURE*). The third sector *COMPINT3* looks at a market where product market competition is high (high *HHI*) but labour market competition is also high (high *AVGTENURE*). Thus, *COMPINT3* will be the main variable to test H4. Finally, *COMPINT4* examines a situation where there is low product market competition (low *HHI*) and low labour market competition (low *AVGTENURE*). Due to model over specification error, I omit *COMPINT4* from the regression and run equation (7) as follows:

$$REM_{i,t} = \beta_0 + \beta_1 COMPINT1_{i,t} + \beta_2 COMPINT2_{i,t} + \beta_3 COMPINT3_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 MTB_{i,t} + \beta_6 ROA_{i,t} + \beta_7 LEVERAGE_{i,t} + \beta_8 SOX_{i,t} + \beta_9 AM_{i,t} + \beta_{10} BIG8_{i,t} + \beta_{11} LITIGATION_{i,t} + \varepsilon_{i,t} \quad \text{.....(7)}$$

All variables are as defined above. Consistent with H3a, I predict a negative coefficient for *COMPINT1* and consistent with H3b and H4, I predict positive coefficients for both *COMPINT2* and *COMPINT3*.

3.6 Descriptive Statistics

Table 2, Panel A provides the summary statistics for the 17,267 firm-year observations. The mean (median) residual from the cash flow model is -0.000 (-0.002) while the mean (median) residual from the discretionary expense and production models are 0.001 (0.043) and 0.001 (0.013) respectively. The medians of the *HHI* and *AVGTENURE* variables are -0.416 and -10.553 respectively. The mean of the *BIG8* variable is 0.939 indicating that most of the firms in the sample employ the services of Big 8 audit firms. The average return on assets is 6.0% while the average leverage ratio is 17.3%.

Table 2, Panel B partitions the sample by median HHI. From Panel B, the means of most of the variables used are statistically different between the two groups. I find that firms in industries with less competition have more REM activities. This provides initial support for H1. These firms are smaller, have more financial distress, less growth opportunities and operate in less litigation industries.

Table 2, Panel C partitions the sample by AVGTENURE. From Panel C, the differences in means of most of the variables are statistically significant. I find that managers in industries with

high labour market competition engage in more REM activities. These are bigger firms that have more growth opportunities and operate in highly litigious industries.

Table 2, Panel D lists the distribution of the 17,267 total observations by industry (based on two-digit SIC classification). From the table, the Business Services industry (SIC Code 73) has the most number of observations of 2,044 accounting for about 11.84% of the total sample. This is closely followed by the Chemical and Allied Products industry (SIC code 28) which has 1,620 observations constituting about 9.38% of the total sample. The Agricultural Production - Livestock industry (SIC code 02) has the least number of observations with just 9 observations of the total sample.

⟨Insert Table 2 about here⟩

3.7 Correlation Analysis

Table 3 reports the correlation coefficients between the various variables used for the study. From the table, HHI is negatively correlated with AVGTENURE and LEVERAGE implying that high product market competition is related with lower labour market competition and lower financial distress. However, HHI has a positive correlation with MTB, ROA and LITIGATION suggesting that firms in high product market competition have higher growth, more profitability and higher litigation risk. For the AVGTENURE variable, I find that it is positively correlated with SIZE, LEVERAGE and LITIGATION. This suggests that high labour market competition is associated with firms that are bigger, have more financial distress, and operate in industries with higher litigation risk.

⟨Insert Table 3 here⟩

4. Results

4.1. Main Results

The first hypothesis is tested with Equation 5. Table 4 reports the results of REM regressions on HHI with the control variables discussed above. I predict a negative relation between the HHI variable and the various REM activities. Model 1 examines product market competition and REM through temporarily increasing sales. The coefficient of HHI is negative (-0.026) and statistically significant (at the 1% level, t=-9.75) implying that highly competitive firms have less tendency to drive up current period sales by offering short-time price discounts or attractive credit policies. However, in Models 2 and 3, the coefficients are positive and statistically significant at the 1% and 5% levels respectively. These results imply that firms in industries with high competition are more inclined to decrease discretionary expenditure to increase earnings and more inclined to overproduce more goods than necessary to manipulate earnings. Model 4 also shows a statistically significant (t= 4.99) and positive HHI coefficient (0.139) indicating that firms in industries with high competition more inclined to employ all three types of REM activities. Overall the results from Table 4 are mixed, but do not provide much support for my first hypothesis. Unlike Laksmana and Yang (2014) who use all U.S firms on Compustat to examine the impact of product market competition on REM, this study uses data from S&P 1500 index firms which are high performing firms in very competitive markets. Thus, a possible explanation for these results is that, in highly competitive product markets, firms are more inclined to employ REM activities to signal better performance since the capital market rewards firms that are able to meet expectations (Skinner and Sloan 2002). For my control variables, as expected, SOX is positively related to REM activities consistent with the prior research that show that managers' use of REM activities has increased after the enactment of SOX (Cohen et al. 2008; Bartov and Cohen 2009). Also, LITIGATION is statistically

significant (at the 1% level) and negative in all models implying that highly litigious firms are more inclined to use REM activities. Contrary to my expectation, AM is positively related to REM activities suggesting that managers actually use accruals management and REM activities concurrently.

⟨Insert Table 4 about here⟩

Table 5 reports the regression results that analyze the relation between competition in the labour market and REM activities. I predict a positive relation between labour market competition variable and the various REM activities. In Model 1, AVGTENURE has a negative (0.000) and statistically significant coefficient (at the 5% level, t=-2.28) indicating that managers in highly competitive labour market are less inclined to boost earnings through short-time price discounts and attractive credit policies. However, in Models 2 and 3, the coefficients of AVGTENURE are positive and statistically significant (both at the 1% level) implying that managers in more competitive industry tend to decrease discretionary expenditure in an attempt to boost earnings. These managers are also more inclined to overproduce goods to manipulate current period earnings. This is also true for Model 4 which has a positive (0.009) and statistically significant coefficient (at the 1% level, t=4.97) suggesting that managers in highly competitive industries are inclined to employ all three forms of REM activities. Overall, these results lend support to the second hypothesis. For the control variables, SOX and LEVERAGE are positively related to REM activities while LITIGATION is negatively related to REM. All these are consistent with expectation. However, AM is positively related to REM activities contrary to my expectation.

In all my tests, the results from the cash flow model are opposite to that of the other REM models. A possible explanation is that, as Roychowdhury (2006) points out, the net effect from the cash flow model is ambiguous and it is difficult to predict how REM impacts this construct.

⟨Insert Table 5 about here⟩

Table 6 reports regression results with interactions from product market competition (PMC) and labour market competition (LMC). The main variable of interest here is COMPINT which has four different sectors. COMPINT1, the major variable to test H3a models a market where there is high product market competition (PMC) and low labour market competition (LMC). The coefficient of COMPINT1 is negative and statistically significant in Models 1 and 2 (both at the 1% level). These results suggest strongly that managers in such an environment are less inclined to offer limited-time price discounts and reduce discretionary expenditure in an attempt to increase earnings. COMPINT1 is also negative and statistically significant (at the 10% level) implying that managers in such firms are also less inclined to overproduce goods to boost earnings. COMPINT2 examines a scenario where there is low PMC and high LMC and is the main variable to test H3b. COMPINT2 has positive and statistically significant coefficients in Models 2, 3 and 4 (all at the 1% level) implying that managers in such a situation are more likely to reduce discretionary expenditure, overproduce more goods and engage in all REM activities in order to increase current period earnings. These results provide strong support for my prediction in H3b. The last hypothesis is tested with the interaction variable COMPINT3 and examines a situation where there is high product market competition (PMC) but labour market competition (LMC) is also high. I predict a positive relation between COMPINT3 and REM. From the

results, the coefficient of COMPINT3 in Model 1 is negative (-0.013) and statistically significant (at the 1% level, t=-6.34) indicating that managers in a market where there is high PMC and high LMC have lower tendency to manipulate earnings through temporarily increasing sales. However COMPINT3 has positive and statistically significant coefficients (at the 1% level) in both Models 2 and 4 suggesting that managers in a market with high PMC but high LMC are more inclined to decrease discretionary expenditures and also more inclined to employ the various REM activities combined to boost current period earnings. These results are consistent with my prediction for the last hypothesis.

(Insert Table 6 about here)

4.2. Robustness Analyses

I conduct additional analyses to test for the robustness of my results. First, I conduct supplementary analyses to test the robustness of my results from the product market competition regression. Thus, I run the regression for Equation 5 with the second product market competition measure (*INDMGN* for product substitutability) and the factor score from both product market competition variables (*PMCFCT*). Tables 7 and 8 report the results from these regressions. From Table 7, the coefficient of *INDMGN* is negative but not statistically significant in Model 1. However, *INDMGN* is positive and statistically significant in Models 2, 3 and 4 (all the 1% level) indicating that firms in highly competitive product markets are more inclined to decrease discretionary expenditure and overproduce extra goods to boost current period earnings. These results conform with, and are very similar to the main results with the *HHI* variable.

⟨Insert Table 7 about here⟩

Table 8 presents the results from the product market competition regression with the *PMCFCT* variable. From Table 8, *PMCFCT* is negative but not statistically significant in Model 1. However, the coefficient of *PMCFCT* is positive and statistically significant in Models 2, 3 and 4 (all at the 1% level). These results are also quantitatively very similar to the main results with the *HHI* variable. Therefore, the results from the product market competition (PMC) regression are robust to the other PMC variable and the factor score from both PMC variables as well.

⟨Insert Table 8 about here⟩

Next, I replicate the results from Tables 4 and 5 after controlling for industry effects. Tables 9 and 10 report the regressions for these analyses. Comparing the results in Table 4 and Table 9, the results for the product market competition regressions after controlling for industry effects are quantitatively similar to the results for the previous section. The significance level of HHI in Model 3 is still 5% while all the other models are still significant at 1%. The coefficients for HHI remain the same for all four models. Similar to the main results, these results suggest that firms in industries with high product market competition have greater tendency to use REM activities.

⟨Insert Table 9 about here⟩

Comparing the results in Table 5 and Table 10, the results for the labour market competition regressions after controlling for industry effects are similar to the main results. The significance

level of AVGTENURE in Model 1 is still at 5% with all the other models being still significant at 1%. The coefficients for AVGTENURE remain the same for all four models. Just as the main results, the results in Table 10 imply that firms in highly competitive labour markets are more inclined to use REM activities. Therefore, I believe the results are robust to controlling for industry effects.

(Insert Table 10 about here)

Prior research provides evidence that REM activities have increased after the implementation of SOX (Cohen et al. 2008; Cohen and Zarowin 2010). Therefore I conduct supplementary analyses to examine the effect of the enactment of SOX on my sample. Table 11 presents results from the product market competition regression with SOX interaction variables whilst Table 12 reports results from the labour market competition regression with SOX interaction variables. From Table 11, SOXHHI has negative and statistically significant coefficients in Models 2 and 4 (both at the 1% level) and also a negative and significant coefficient in Model 3 (at the 5% level). These results imply that, after the passage of SOX, firms in highly competitive products have reduced their tendency to engage in REM by decreasing discretionary expenditure and overproducing more goods than necessary to boost earnings. However, from Table 12, there is a positive and statistically significant coefficient of SOXAVGTEN in Models 2 and 4 (both at the 1% level). These results imply that managers in more competitive labour markets are actually inclined to increase REM through decreasing discretionary expenditure to boost earnings figures after the implementation of SOX, conforming to prior literature.

⟨Insert Tables 11 & 12 about here⟩

Advertising could be argued to be an important expense to firms and thus, not discretionary. Therefore, I re-run equations 5 and 6 without advertising expense included in the Discretionary Expense and REM factor models to determine the robustness of my results. The results from these analyses, which are presented in Table 13, are quantitatively very similar to the main results. The coefficient of HHI is still positive and statistically significant in both Models 2 and 4. The coefficient of HHI in Model 2 is 0.011 (significant at the 5% level) and the coefficient in Model 4 is 0.121(significant at the 1% level). Similarly, for the AVGTENURE variable, the coefficient is still positive and statistically significant in Model 2 (0.002 significant at 1% level) and Model 4 (0.011 significant at 1% level.) Therefore, the results still hold even if Advertising Expense is deleted from the Discretionary Expense (Model 2) and the REM Factor (Model 4).

⟨Insert Table 13 about here⟩

5. Conclusion

REM is more costly to long-term firm value relative to accruals management. However, despite the high cost of REM to firm value (Roychowdury 2006; Laksmana and Yang 2014), little research has examined what factors can help to control its negative effect. This study examines whether competition from the product market can be effective in mitigating REM even with labour market competition. Using data from S&P 1500 index firms from 1992 to 2015 available from Compustat, I find little evidence that firms in more competitive product markets reduce their REM activities. However extending the study of Laksmana and Yang(2014), I provide

evidence on whether competition from the labour market has an influence on REM activities. I find strong support for the prediction that managers in more competitive labour markets will be inclined to increase REM activities relative to their peers. This result implies that managers who find themselves in highly competitive labour markets will reduce discretionary expenditures and overproduce more goods than necessary to boost current period earnings. This gives support to the argument that managers want to secure their jobs and thus will provide more favourable earnings figures to stakeholders. I also study the effect of the interaction between competition from these two markets (product and labour) on REM. I find that managers give priority to their career security and will be induced to use REM activities whenever they face high labour market competition. Even in the presence of low product market competition, I still provide evidence that managers in more competitive labour markets will indulge in REM activities to increase earnings than their counterparts in less competitive labour markets. These results suggest that labour market concerns are of paramount interest to CEOs as they make earnings management choices.

This study is not without limitations. First, the study does not provide analysis for the different REM models across different industries. There is the possibility that the impact of competition on specific REM activities could be more profound for one industry than the other. For instance, firms in the retail and automobile industry could be more inclined to offer limited-time price discounts and credit policies and firms in the pharmaceutical industry could be more inclined to reduce discretionary expenditure relative to the other REM strategies to meet earnings targets. Also, the study does not control for corporate governance factors that might influence REM activities. For example, a firm where the CEO is chairman of the board of directors could

be more inclined to employ REM strategies relative to a firm where the board is independent of the CEO.

This study examines the association between REM and competition from both the product and labour markets. Therefore, further research could look at the factors which actually cause managers to engage in REM activities. For instance, a change in regulation which can introduce shock for a particular industry such as manufacturing, and thus could induce managers to employ REM strategies. Also, I use data from S&P 1500 index firms traded on the U.S. stock markets, leaving examining REM choices in different countries to see how variations in labour market competition affect REM choices for further research.

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Table 1

Sample Selection and Composition

Sample Selection	Firms	Firm-years
S&P1500 firms with available data on Compustat during 1992-2015	1,497	24,370
Less: observations in regulated and financial industries (SIC codes 4000-4999 & 6000-6999)	465	7,103
Remaining firms	1,032	17,267
Less: missing data from Execucomp to calculate CEO tenure and interaction variable to give Sample for H2, H3 and H4	0	692
Final Sample	1,032	16,575

Table 2

Univariate Analyses

Panel A. This table summarizes the descriptive statistics of key variables of the full sample. See Appendix 1 for variable definitions. See Table 1 for a description of sample selection.

Variable	N	Mean	Median	Std Dev	Lower Quartile	Upper Quartile	Kurtosis
HHI	17,267	-0.490	-0.416	0.269	-0.659	-0.280	-0.675
AM	17,267	0.000	0.017	0.086	-0.034	0.051	0.686
SIZE	17,267	7.645	7.483	1.615	6.477	8.676	-0.145
LEVERAGE	17,267	0.173	0.153	0.155	0.020	0.270	0.3119
SOX	17,267	0.672	1	0.469	0	1	-1.465
BIG8	17,267	0.939	1	0.238	1	1	11.719
MTB	17,267	3.292	2.516	3.943	1.629	4.029	10.395
ROA	17,267	0.060	0.062	0.085	0.031	0.098	8.473
LITIGATION	17,267	0.229	0	0.421	0	0	-0.345
CFO	17,267	-0.000	-0.002	0.092	-0.054	0.051	0.431
DISEXP	17,267	0.001	0.043	0.214	-0.114	0.134	0.605
PROD	17,267	0.001	0.013	0.218	-0.104	0.130	1.556
REMFCT	17,267	0.003	0.131	0.965	-0.487	0.633	0.822
AVGTENURE	17,052	-11.184	-10.553	4.028	-13.032	-8.556	4.136
COMPINT	16,575	5.159	4.283	3.534	2.931	6.269	13.151

Panel B: Sample Partitioned by HHI.

This table presents the descriptive statistics of key variables of the full sample partitioned by high and low product market competition. See Appendix 1 for variable definitions.

	Low HHI			High HHI			Difference	
Variable	**N**	**Mean**	**Median**	**N**	**Mean**	**Median**	**Means**	**t-value**
AM	8,803	0.001	0.019	8,464	-0.001	0.013	-0.002	-1.72
SIZE	8,803	7.632	7.480	8,464	7.659	7.487	0.027	-7.81***
LEVERAGE	8,803	0.182	0.169	8,464	0.164	0.136	-0.018	-14.96***
SOX	8,803	0.587	1.000	8,464	0.760	1.000	0.173	52.04***
BIG8	8,803	0.939	1.000	8,464	0.940	1.000	0.001	-6.22***
MTB	8,803	3.202	2.443	8,464	3.384	2.599	0.182	0.45
ROA	8,803	0.058	0.059	8,464	0.062	0.065	0.004	-3.6***
LITIGATION	8,803	0.166	0	8,464	0.295	0	0.129	17.67***
CFO	8,803	0.011	0.007	8,464	-0.011	-0.013	-0.022	-21.46***
DISEXP	8,803	0.016	0.058	8,464	-0.017	0.025	-0.033	-13.99***
PROD	8,803	0.012	0.027	8,464	-0.012	0.008	-0.024	-9.68***
REMFCT	8,803	0.050	0.131	8,464	-0.046	0.131	-0.096	-9.35***

Panel C: Sample Partitioned by AVGTENURE.

This table presents the descriptive statistics of key variables of the full sample partitioned by high and low labour market competition. See Appendix 1 for variable definitions.

	Low AVGTENURE			High AVGTENURE			Difference	
Variable	**N**	**Mean**	**Median**	**N**	**Mean**	**Median**	**Means**	**t-value**
AM	8,233	0.006	0.018	8,555	0.008	0.020	0.002	2.33**
SIZE	8,233	7.652	7.511	8,555	7.661	7.483	0.009	-21.48***
LEVERAGE	8,233	0.172	0.151	8,555	0.176	0.157	0.004	2.53**
SOX	8,233	0.694	1.000	8,555	0.703	1.000	0.009	5.84***
BIG8	8,233	0.945	1.000	8,555	0.938	1.000	-0.007	-17.44***
MTB	8,233	3.239	2.494	8,555	3.341	2.524	0.102	-1.7
ROA	8,233	0.062	0.063	8,555	0.059	0.062	-0.003	-3.16***
LITIGATION	8,233	0.195	0	8,555	0.262	0	0.067	10.38***
CFO	8,233	-0.008	-0.007	8,555	-0.004	-0.005	-0.012	3.33***
DISEXP	8,233	-0.022	0.023	8,555	0.008	0.037	0.03	12.32***
PROD	8,233	-0.012	0.015	8,555	0.006	0.025	0.018	6.96***
REMFCT	8,233	-0.065	0.131	8,555	0.041	0.132	0.106	10.01***

Panel D. Sample Distribution by Industry.

This table presents the sample classified by industry type(according to two-digit SIC code)

SIC Code (Two-digit)	Industry	N
01	Agricultural Production – Crops	16
02	Agricultural Production – Livestock	9
07	Agricultural Services	15
10	Metal, Mining	69
12	Coal Mining	21
13	Oil & Gas Extraction	864
14	Nonmetallic Minerals, Except Fuels	61
15	General Building Contractors	225
16	Heavy Construction, Except Building	156
17	Special Trade Contractors	52
20	Food & Kindred Products	703
21	Tobacco Products	53
22	Textile Mill Products	106
23	Apparel & Other Textile Products	196
24	Lumber & Wood Products	158
25	Furniture & Fixtures	191
26	Paper & Allied Products	294
27	Printing & Publishing	164
28	Chemical & Allied Products	1620
29	Petroleum & Coal Products	160
30	Rubber & Miscellaneous Plastics Products	181
31	Leather & Leather Products	107
32	Stone, Clay, & Glass Products	97
33	Primary Metal Industries	378
34	Fabricated Metal Products	380
35	Industrial Machinery & Equipment	1369
36	Electronic & Other Electric Equipment	1492
37	Transportation Equipment	727
38	Instruments & Related Products	1262
39	Miscellaneous Manufacturing Industries	157
50	Wholesale Trade - Durable Goods	493
51	Wholesale Trade - Nondurable Goods	253
52	Building Materials & Gardening Supplies	98
53	General Merchandise Stores	253
54	Food Stores	109
55	Automative Dealers & Service Stations	174
56	Apparel & Accessory Stores	442
57	Furniture & Homefurnishings Stores	112
58	Eating & Drinking Places	448
59	Miscellaneous Retail	353
70	Hotels & Other Lodging Places	39

SIC Code (Two-digit)	Industry	N
72	Personal Services	108
73	Business Services	2044
75	Auto Repair, Services, & Parking	56
78	Motion Pictures	51
79	Amusement & Recreation Services	75
80	Health Services	366
82	Educational Services	95
87	Engineering & Management Services	291
99	Non-Classifiable Establishments	58

Table 3.

Pearson Correlation Matrix

Pearson Correlation Coefficients Prob > |r| under H0: Rho=0 Number of Observations													
	HHI	**AVGTENURE**	**AM**	**SIZE**	**LEVERAGE**	**BIG8**	**MTB**	**ROA**	**LITIGATION**	**CFO**	**DISEXP**	**PROD**	**REMFCT**
HHI	1.00000												
AVGTENURE	**-0.181** <.0001	1.00000											
AM	**-0.029** 0.0002	**-0.030** 0.0001	1.00000										
SIZE	0.007 0.3443	**0.025** 0.0016	**-0.016** 0.0340	1.0000									
LEVERAGE	**-0.040** <.0001	**0.024** 0.0020	**0.015** 0.0561	**0.082** <.0001	1.0000								
BIG8	-0.006 0.4387	0.008 0.3250	**0.039** <.0001	**-0.019** 0.0097	**0.015** 0.0520	1.00000							
MTB	**0.026** 0.0008	0.010 0.1827	**-0.015** 0.0454	**0.327** <.0001	**-0.023** 0.0026	**-0.028** 0.0003	1.00000						
ROA	**0.024** 0.0021	**-0.013** 0.0860	-0.004 0.6151	**0.229** <.0001	**-0.222** <.0001	-0.011 0.1605	**0.266** <.0001	1.0000					
LITIGATION	**0.180** <.0001	**0.030** 0.0001	**-0.103** <.0001	**-0.017** 0.0313	**-0.053** <.0001	**-0.045** <.0001	0.002 0.8189	**0.014** 0.0678	1.00000				
CFO	**-0.099** <.0001	**-0.024** 0.0020	**0.229** <.0001	**-0.014** 0.0642	0.007 0.3943	**-0.021** 0.0058	-0.004 0.5855	**-0.014** 0.0648	**-0.055** <.0001	1.0000			
DISEXP	**-0.014** 0.0779	**0.033** <.0001	**0.079** <.0001	**0.039** <.0001	**0.031** <.0001	**-0.036** <.0001	-0.000 0.9818	0.008 0.3009	**-0.229** <.0001	**0.177** <.0001	1.0000		
PROD	-0.002 0.7810	**0.015** 0.0529	**0.119** <.0001	**0.032** <.0001	0.012 0.1206	0.004 0.5942	0.004 0.6361	0.004 0.6070	**-0.147** <.0001	**0.467** <.0001	**0.776** <.0001	1.0000	
REMFCT	0.009 0.2542	**0.031** <.0001	**0.062** <.0001	**0.042** <.0001	**0.025** 0.0011	**-0.018** 0.0177	0.002 0.7812	0.011 0.1618	**-0.212** <.0001	**0.152** <.0001	**0.968** <.0001	**0.868** <.0001	1.00000

Table 4.

Product Market Competition Regression with Full Sample (Main Results).

This table presents estimation results from REM model regressions on Product market competition with HHI variable. See Appendix 1 for variable definitions. The reported *t*-statistics are based on heteroscedasticity consistent standard errors. All continuous variables are winsorized at the 1% and 99% levels. ***, **, * represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

	Model (1)		**Model (2)**		**Model (3)**		**Model (4)**	
Dep. Var.	**CFO**		**DISEXP**		**PROD**		**REMFCT**	
Variable	Coef.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Intercept	0.035	6.76***	0.078	6.60***	0.016	1.30	0.193	3.59***
HHI	-0.026	-9.75***	0.018	3.01***	0.014	2.14**	0.139	4.99***
Accrual	0.133	16.28***	0.042	2.24**	0.251	12.86***	0.407	4.76***
Size	-0.000	-0.77	0.004	3.93***	0.005	4.28***	0.022	4.52***
Time	-0.003	-12.83***	-0.002	-5.00***	-0.001	-1.73*	-0.003	-1.56
Leverage	-0.003	-0.57	0.021	1.96**	0.003	0.31	0.073	1.52
SOX	0.012	4.36***	0.008	1.31	0.003	0.45	0.005	0.17
BIG8	-0.017	-5.79***	-0.053	-7.93***	-0.018	-2.55**	-0.154	-5.05***
MTB	0.000	0.66	-0.0018	-1.92*	-0.001	-1.36	-0.004	-1.93*
ROA	-0.015	-1.74*	0.023	1.16	0.007	0.32	0.117	1.28
Litigation	-0.006	-3.32***	-0.116	-30.11***	-0.074	-18.68***	-0.476	-27.25***
N	17,267		17,267		17,267		17,267	
Adj. R^2	0.040		0.057		0.033		0.046	

Table 5.

Labour Market Competition Regression with full sample.

This table reports regression results from equation (6), labour market competition on the REM models. See Appendix 1 for variable definitions. The reported *t*-statistics are based on heteroscedasticity consistent standard errors. All continuous variables are winsorized at the 1% and 99% levels. ***, **, * represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

	Model (1)		**Model (2)**		**Model (3)**		**Model (4)**	
Dep. Var.	**CFO**		**DISEXP**		**PROD**		**REMFCT**	
Variable	Coef.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Intercept	0.026	5.11***	0.051	4.11***	-0.008	-0.60	0.077	1.36
AvgTenure	-0.000	-2.28**	0.002	5.30***	0.001	2.68***	0.009	4.97***
Accrual	0.262	30.72***	0.149	7.29***	0.263	12.30***	0.491	5.25***
Size	-0.001	-1.33	0.005	4.62***	0.005	4.45***	0.025	5.12***
Time	-0.002	-10.33***	-0.001	-2.26**	-0.000	-0.15	0.001	0.37
Leverage	0.000	0.07	0.026	2.40**	0.008	0.68	0.089	1.82*
SOX	0.015	5.46***	0.011	1.62	0.003	0.50	0.006	0.19
BIG8	-0.015	-5.09***	-0.044	-6.34***	-0.006	-0.76	-0.106	-3.33***
MTB	0.000	0.33	-0.001	-1.68*	-0.000	-0.82	-0.003	-1.46
ROA	-0.009	-1.13	0.027	1.34	0.009	0.41	0.124	1.32
Litigation	-0.007	-4.42***	-0.116	-30.39***	-0.078	-19.57***	-0.482	-27.50***
N	16,575		16,575		16,575		16,575	
Adj. R^2	0.062		0.063		0.036		0.051	

Table 6.

Product and Labour Market Competition Interaction Regression.

This table summarizes regression results from the REM models and the interaction of product and labour market competition. See Appendix 1 for variable definitions. The reported *t*-statistics are based on heteroscedasticity consistent standard errors. All continuous variables are winsorized at the 1% and 99% levels. ***, **, * represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

	Model (1)		**Model (2)**		**Model (3)**		**Model (4)**	
Dep. Var.	**CFO**		**DISEXP**		**PROD**		**REMFCT**	
Variable	Coef.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Intercept	0.035	7.29***	0.022	1.89*	-0.024	-1.99**	-0.057	-1.08
CompInt1	-0.017	-8.82***	-0.015	-3.25***	-0.008	-1.67*	-0.019	-0.93
CompInt2	-0.0016	-0.37	0.026	5.68***	0.024	5.03***	0.125	5.97***
CompInt3	-0.013	-6.34***	0.029	6.07***	0.008	1.58	0.129	5.75***
Accrual	0.259	30.69***	0.143	7.09***	0.263	12.42***	0.482	5.19***
Size	-0.001	-1.54	0.005	4.31***	0.005	4.21***	0.024	4.85***
Time	-0.002	-9.27***	-0.001	-2.29**	0.000	0.09	0.001	0.25
Leverage	-0.002	-0.49	0.022	2.06**	0.002	0.17	0.072	1.49
SOX	0.015	5.70***	0.011	1.68*	0.004	0.62	0.007	0.24
BIG8	-0.014	-4.92***	-0.044	-6.51***	-0.007	-1.01	-0.113	-3.59***
MTB	0.000	0.70	-0.001	-1.90*	-0.000	-1.02	-0.004	-1.76*
ROA	-0.011	-1.29	0.033	1.63	0.009	0.43	0.144	1.54
Litigation	-0.006	-3.41***	-0.121	-30.28***	-0.077	-18.29***	-0.494	-26.97***
N	16,788		16,788		16,788		16,788	
Adj. R^2	0.068		0.069		0.038		0.054	

Table 7.

Product Market Competition Regression with Full Sample (INDMGN).

This table presents estimation results from REM model regressions on Product market competition with INDMGN Variable. See Appendix 1 for variable definitions. The reported *t*-statistics are based on heteroscedasticity consistent standard errors. All continuous variables are winsorized at the 1% and 99% levels. ***, **, * represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

	Model (1)		**Model (2)**		**Model (3)**		**Model (4)**	
Dep. Var.	**CFO**		**DISEXP**		**PROD**		**REMFCT**	
Variable	Coef.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Intercept	0.134	23.39***	0.235	15.79***	0.221	15.41***	0.854	12.68***
IndMgn	-0.001	-0.35	0.089	8.52***	0.053	5.28***	0.369	7.82***
Accrual	0.230	31.88***	0.095	5.10***	0.459	25.52***	0.792	9.34***
Size	-0.014	-33.84***	-0.019	-17.96***	-0.014	-13.69***	-0.054	-11.38***
Time	-0.000	-1.90*	-0.001	-2.09**	-0.001	-2.33**	-0.004	-2.03**
Leverage	0.023	5.81***	0.206	19.87***	0.122	12.19***	0.799	17.04***
SOX	0.003	1.04	0.011	1.69*	0.014	2.25**	0.055	1.92*
BIG8	-0.003	-1.16	-0.004	-0.65	-0.008	-1.19	-0.026	-0.86
MTB	-0.001	-8.13***	-0.010	-23.78***	-0.008	-19.58***	-0.043	-22.22***
ROA	-0.416	-53.53***	-0.019	-0.92	-0.792	-40.87***	-0.857	-9.40***
Litigation	-0.003	-2.31**	0.005	1.34	-0.000	-0.02	0.023	1.32
N	17,267		17,267		17,267		17,267	
Adj. R^2	0.275		0.098		0.199		0.090	

Table 8.

Product Market Competition Regression with Full Sample (PMCFCT).

This table presents estimation results from REM model regressions on Product market competition with PMCFCT Variable. See Appendix 1 for variable definitions. The reported *t*-statistics are based on heteroscedasticity consistent standard errors. All continuous variables are winsorized at the 1% and 99% levels. ***, **, * represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

	Model (1)		**Model (2)**		**Model (3)**		**Model (4)**	
Dep. Var.	**CFO**		**DISEXP**		**PROD**		**REMFCT**	
Variable	Coef.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Intercept	0.136	32.50***	0.154	14.16***	0.172	16.51***	0.516	10.51***
PmcFct	-0.000	-0.42	0.014	8.63***	0.009	5.53***	0.061	8.01***
Accrual	0.229	31.82***	0.095	5.08***	0.459	25.50***	0.791	9.33***
Size	-0.014	-33.83***	-0.019	-17.86***	-0.014	-13.65***	-0.053	-11.29***
Time	-0.000	-1.90*	-0.001	-2.04**	-0.001	-2.30**	-0.004	-1.99**
Leverage	0.023	5.78***	0.205	19.80***	0.121	12.16***	0.797	16.98***
SOX	0.003	1.04	0.011	1.69*	0.014	2.24**	0.055	1.92*
BIG8	-0.003	-1.34	-0.008	-1.17	-0.009	-1.51	-0.039	-1.32
MTB	-0.001	-8.18***	-0.010	-23.75***	-0.008	-19.58***	-0.043	-22.20***
ROA	-0.415	-53.51***	-0.019	-0.98	-0.792	-40.94***	-0.862	-9.46***
Litigation	-0.003	-2.29**	0.006	1.46	0.000	0.08	0.025	1.44
N	17,267		17,267		17,267		17,267	
Adj. R^2	0.275		0.098		0.199		0.090	

Table 9.

Product Market Competition Regression with Full Sample (Robustness).

This table presents estimation results from REM model regressions on Product market competition after controlling for industry effects. See Appendix 1 for variable definitions. The reported *t*-statistics are based on heteroscedasticity consistent standard errors. All continuous variables are winsorized at the 1% and 99% levels. ***, **, * represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

	Model (1)		**Model (2)**		**Model (3)**		**Model (4)**	
Dep. Var.	**CFO**		**DISEXP**		**PROD**		**REMFCT**	
Variable	Coef.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Intercept	0.035	6.52***	0.078	6.48***	0.016	1.27	0.193	3.54***
HHI	-0.026	-9.84***	0.018	3.06***	0.014	2.17**	0.139	5.09***
Accrual	0.133	11.63***	0.042	1.99**	0.251	11.08***	0.407	4.29***
Size	-0.000	-0.76	0.004	3.94***	0.005	4.28***	0.022	4.54***
Time	-0.003	-13.16***	-0.002	-5.16***	-0.001	-1.77*	-0.003	-1.61
Leverage	-0.003	-0.58	0.021	1.89*	0.003	0.30	0.073	1.47
SOX	0.012	4.39***	0.008	1.33	0.003	0.45	0.005	0.17
BIG8	-0.017	-5.36***	-0.053	-7.90***	-0.018	-2.50**	-0.154	-4.96***
MTB	0.000	0.65	-0.001	-1.81*	-0.001	-1.33	-0.004	-1.83*
ROA	-0.015	-1.72*	0.023	1.07	0.007	0.30	0.117	1.19
Litigation	-0.006	-3.16***	-0.116	-27.86***	-0.074	-17.61***	-0.476	-25.48***
N	17267		17267		17267		17267	
Adj. R^2	0.041		0.058		0.033		0.047	

Table 10.

Labour Market Competition Regression with Full Sample (Robustness).

This table presents estimation results from REM model regressions on Labour market competition after controlling for industry effects. See Appendix 1 for variable definitions. The reported *t*-statistics are based on heteroscedasticity consistent standard errors. All continuous variables are winsorized at the 1% and 99% levels. ***, **, * represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

	Model (1)		**Model (2)**		**Model (3)**		**Model (4)**	
Dep. Var.	**Cash Flow**		**Disc. Expense**		**Production**		**REM Factor**	
Variable	Coef.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Intercept	0.026	4.86***	0.051	4.06***	-0.008	-0.59	0.077	1.35
AvgTenure	-0.000	-2.34**	0.002	5.41***	0.001	2.58***	0.009	4.82***
Accrual	0.262	20.71***	0.149	6.20***	0.263	9.97***	0.491	4.48***
Size	-0.001	-1.31	0.005	4.60***	0.005	4.42***	0.025	5.11***
Time	-0.002	-10.60***	-0.001	-2.33**	-0.000	-0.16	0.001	0.39
Leverage	0.000	0.07	0.026	2.33**	0.008	0.68	0.089	1.78*
SOX	0.015	5.55***	0.011	1.66*	0.003	0.50	0.006	0.20
BIG8	-0.015	-4.62***	-0.044	-6.29***	-0.006	-0.75	-0.106	-3.26***
MTB	0.000	0.33	-0.001	-1.58	-0.000	-0.80	-0.003	-1.39
ROA	-0.009	-1.11	0.027	1.24	0.009	0.38	0.124	1.24
Litigation	-0.007	-4.15***	-0.116	-27.42***	-0.078	-18.03***	-0.482	-24.97***
N	16575		16575		16575		16575	
Adj. R^2	0.062		0.064		0.036		0.051	

Table 11.

Product Market Competition Regression with SOX Interaction.

This table presents estimation results from REM model regressions on Product market competition with SOX interaction variables. See Appendix 1 for variable definitions. The reported *t*-statistics are based on heteroscedasticity consistent standard errors. All continuous variables are winsorized at the 1% and 99% levels. ***, **, * represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

	Model (1)		**Model (2)**		**Model (3)**		**Model (4)**	
Dep. Var.	**CFO**		**DISCEXP**		**PROD**		**REMFCT**	
Variable	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat
Intercept	0.067	6.41***	0.114	4.58***	0.025	0.98	0.256	2.28**
HHI	-0.027	-6.20***	0.054	5.17***	0.033	3.09***	0.294	6.17***
Accrual	0.105	8.37***	0.010	0.35	0.227	7.37***	0.327	2.42**
Size	-0.002	-2.75***	0.002	0.89	0.003	1.46	0.013	1.63
Time	-0.008	-20.52***	-0.007	-7.37***	-0.002	-1.75*	-0.008	-1.88*
Leverage	-0.002	-0.23	0.011	0.56	-0.025	-1.30	-0.015	-0.18
SOX	-0.056	-4.51***	-0.069	-2.33**	-0.022	-0.70	-0.145	-1.08
BIG8	-0.011	-1.38	-0.019	-1.01	0.011	0.55	-0.006	-0.07
MTB	0.000	1.41	-0.001	-1.94*	-0.001	-1.48	-0.004	-2.12**
ROA	-0.006	-0.38	0.017	0.47	-0.002	-0.05	0.078	0.49
Litigation	0.001	0.37	-0.132	-19.28***	-0.078	-10.96***	-0.541	-17.29***
SOXHHI	0.005	0.87	-0.053	-4.05***	-0.028	-2.10**	-0.232	-3.92***
SOXAM	0.167	10.05***	0.151	3.84***	0.071	1.73*	0.251	1.39
SOXSIZE	0.002	2.19**	0.004	1.63	0.003	1.35	0.013	1.29
SOXTIME	0.007	15.21***	0.006	5.28***	0.001	0.90	0.006	1.15
SOXLEV	-0.004	-0.38	0.011	0.46	0.041	1.71*	0.121	1.16
SOXBIG8	0.001	0.17	-0.033	-1.64	-0.031	-1.47	-0.162	-1.77*
SOXMTB	0.000	0.21	-0.000	-1.81*	-0.000	-1.71*	-0.000	-1.97**
SOXROA	-0.007	-0.38	0.017	0.39	0.011	0.24	0.059	0.30
SOXLIT	-0.009	-2.64***	0.022	2.67***	0.002	0.28	0.083	2.18**
N	16941		16941		16941		16941	
Adj. R^2	0.078		0.063		0.035		0.049	

Table 12.

Labour Market Competition Regression with SOX Interaction.

This table presents estimation results from REM model regressions on Labour market competition with SOX interaction variables. See Appendix 1 for variable definitions. The reported *t*-statistics are based on heteroscedasticity consistent standard errors. All continuous variables are winsorized at the 1% and 99% levels. ***, **, * represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

	Model 1		**Model 2**		**Model 3**		**Model 4**	
Dep. Var.	**CFO**		**DISCEXP**		**PROD**		**REMFCT**	
Variable	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat
Intercept	0.057	5.24***	0.031	1.14	-0.015	-0.55	-0.059	-0.49
AvgTenure	0.000	1.13	0.000	0.12	0.000	0.03	-0.001	-0.17
Accrual	0.310	21.95***	0.201	5.82***	0.256	7.08***	0.536	3.39***
Size	-0.003	-3.27***	0.003	1.57	0.003	1.40	0.018	2.11**
Time	-0.006	-13.63***	-0.003	-3.20***	0.001	0.97	0.003	0.75
Leverage	0.008	0.94	0.025	1.25	-0.022	-1.07	0.012	0.13
SOX	-0.045	-3.47***	0.019	0.59	0.008	0.24	0.156	1.08
BIG8	-0.006	-0.71	-0.014	-0.71	0.008	0.41	-0.005	-0.06
MTB	0.000	1.18	-0.001	-1.73*	-0.000	-1.06	-0.004	-1.74*
ROA	-0.009	-0.61	0.025	0.65	-0.006	-0.14	0.108	0.62
Litigation	0.002	0.76	-0.131	-18.46***	-0.084	-11.27***	-0.547	-16.84***
SOXAVGTEN	-0.001	-2.81***	0.003	3.12***	0.002	1.63	0.013	3.27***
SOXAM	-0.015	-0.84	-0.034	-0.79	0.023	0.50	-0.027	-0.14
SOXSIZE	0.002	2.63***	0.003	1.38	0.004	1.58	0.012	1.18
SOXTIME	0.005	9.53***	0.003	2.30**	-0.001	-1.21	-0.004	-0.69
SOXLEV	-0.012	-1.25	-0.003	-0.13	0.040	1.63	0.097	0.90
SOXBIG8	-0.004	-0.44	-0.027	-1.29	-0.013	-0.60	-0.101	-1.04
SOXMTB	0.000	0.37	-0.000	-1.83*	-0.000	-1.68*	-0.000	-1.98**
SOXROA	0.003	0.16	0.006	0.14	0.016	0.35	0.017	0.08
SOXLIT	-0.012	-3.46***	0.020	2.40**	0.006	0.67	0.087	2.25**
N	16401		16401		16401		16401	
Adj. R^2	0.084		0.066		0.037		0.052	

Table 13.

Discretionary Expense and REM Factor Models without Advertising Expense.

This table presents estimation results from Discretionary Expense and REM Factor models without Advertising Expense included in the models. See Appendix 1 for variable definitions. The reported *t*-statistics are based on heteroscedasticity consistent standard errors. All continuous variables are winsorized at the 1% and 99% levels. ***, **, * represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

	Model (2)		**Model (4)**		**Model (2)**		**Model (4)**	
Dep. Var.	**DISEXP**		**REMFCT**		**DISEXP**		**REMFCT**	
Variable	Coef.	t-stat	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat
Intercept	0.068	6.23***	0.183	3.41***	0.052	4.52***	0.093	1.65*
HHI	0.011	1.98**	0.121	4.33***				
AvgTenure					0.002	6.80***	0.011	5.90***
Accrual	0.027	1.55	0.375	4.38***	0.134	7.05***	0.489	5.23***
Size	0.004	3.89***	0.022	4.47***	0.005	4.72***	0.025	5.16***
Time	-0.002	-4.80***	-0.003	-1.50	-0.001	-2.14**	0.001	0.40
Leverage	0.019	1.98**	0.075	1.55	0.025	2.52**	0.094	1.91*
SOX	0.009	1.54	0.009	0.33	0.011	1.78*	0.009	0.31
BIG8	-0.050	-8.09***	-0.158	-5.17***	-0.043	-6.61***	-0.112	-3.51***
MTB	-0.001	-1.74*	-0.004	-1.81*	-0.001	-1.66*	-0.003	-1.44
ROA	0.019	1.02	0.110	1.21	0.026	1.36	0.128	1.36
Litigation	-0.107	-29.92***	-0.476	-27.20***	-0.108	-30.31***	-0.484	-27.50***
N	17,267		17,267		16,575		16,575	
Adj. R^2	0.056		0.046		0.064		0.051	

Appendix 1. Variable Description

Variable	Definition
HHI	Herfindahl-Hirschman Index, product market competition proxy. The HHI is computed as the sum of squares of market shares of firms in an industry (based on four-digit SIC codes). $HHI = \sum_{i=1}^{N} s_i^2$ where s is a firm's net sales (Compustat data 12)
REMFCT CFO PROD DISEXP	Real earnings management measure. Following Roychowdhury (2006), I measure REM using abnormal cash flow levels, discretionary expense and production costs. These three variables are derived from the estimated residuals from the following three Roychowdhury (2006) equations: $\frac{CFO_t}{A_{t-1}} = \alpha_0+\alpha_1(\frac{1}{A_{t-1}})+\beta_1(\frac{S_t}{A_{t-1}}) + \beta_2(\frac{\Delta S_t}{A_{t-1}})+\epsilon_t$ $\frac{DISX_t}{A_{t-1}} = \alpha_0+\alpha_1\left(\frac{1}{A_{t-1}}\right)+\beta_1\left(\frac{S_{t-1}}{A_{t-1}}\right) + \epsilon_t$ $\frac{PROD_t}{A_{t-1}} = \alpha_0+\alpha_1(\frac{1}{A_{t-1}})+\beta_1(\frac{S_t}{A_{t-1}}) + \beta_2(\frac{\Delta S_t}{A_{t-1}}) + \beta_3(\frac{\Delta S_{t-1}}{A_{t-1}}) + \epsilon_t$
SIZE	Natural logarithm of market value of equity. Market value of equity (MKTVE) is defined as Price Close Annual – Fiscal (Data 199 (*PRCC_F)*) * Common Shares Outstanding (Data 25 *(CSHO)*).
MTB	Market to book ratio. MTB is defined as market value of equity (MKTVE) divided by Common/Ordinary Equity – Total (Data 60 *(CEQ)*).
ROA	Return on assets. ROA is defined as Income before extraordinary items (Data 18 *(IB)*) divided by Total assets (Data 6 *(AT)*).
SOX	An indicator variable that equals 1 for fiscal years 2003 upward and 0 otherwise.
AM	Nondiscretionary Accruals as a proxy for Accrual management. Nondiscretionary Accruals is estimated as follows: $\frac{TA_{i,t}}{ASSET_{i,t-1}} = \beta_0 \frac{1}{ASSET_{i,t-1}} + \beta_1 \frac{(\Delta REV_{i,t} - \Delta REC_{i,t})}{ASSET_{i,t-1}} + \beta_2 \frac{PPE_{i,t}}{ASSET_{i,t-1}}$ Where Total Accruals (TA) is difference between income before extraordinary items and operating cash flows. Change in net revenues (ΔREV) is the revenues in year t minus year t-1. PPE is the gross value of Property, Plant and Equipment Asset is Total Assets.
BIG8	A dummy variable that equals 1 for firms audited by a big 8 audit firm and 0 otherwise. (Data 149 *(AU)*).
LITIGATION	An indicator variable that equals 1 for firms in the following industries: pharmaceutical/biotechnology (SIC codes 2833–2836, 8731–8734),

	computer (3570–3577, 7370–7374), electronics (3600–3674), or retail (5200–5961), and 0 otherwise
LEVERAGE	Leverage is defined as long-term debt (Data 9 *(DLTT)*) divided by total assets (Data 6 *(AT)*).
INDMGN	Price-Cost Margin, second proxy for product market competition. The Price-Cost Margin is computed as the industry aggregate sales divided by industry aggregate operating costs. INDMGN = Industry Sale (Data 12 (*SALE)*) divided by Industry Operating Costs (Data 41 *(COGS)* + Data 132 *(XSGA)* + Data 14 *(DPACT)*).
AVGTENURE	CEO Average Tenure measure, labour market competition proxy. The *AVGTENURE* is computed as the average of the number of years (tenure) that CEOs stay in office in each industry (based on a four-digit SIC classification). AVGTENURE = $\frac{\text{Industry Yearleave – Industry Firstyear}}{\text{No. of CEOs in Industry}}$
COMPINT	Product and Labour market competition interaction variable