

Product Market Competition and Earnings Management: Some International Evidence

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September 2009

Abstract

We provide international evidence that industries with increased intensity of import penetration and lower price-cost margins induce insiders of firms in these industries to more aggressively manage earnings. We interpret this result to be consistent with the explanation that competition reduces the firm's profitability and the aggressive earnings management may stem from managerial desire to distort true economic performance. Doing so enables the manager to protect a portion of his or her private control benefits. To confirm the plausibility of this explanation, we correlate our earnings management proxies with a widely used measure of private benefits i.e. the voting premium between shares with differential voting rights. We find a strong positive correlation between the voting premium and our earnings management proxies. This helps us strengthen the likelihood of the private benefits hypothesis relative to other alternative explanations. We also confirm the findings of prior research that competition mitigates managerial private benefits of control. However, this effect is found to be less pronounced in firms that aggressively manage earnings. We interpret this result to be consistent with the possibility of competition to more likely reveal inefficiencies or funds diversion in low earnings management firms relative to high earnings management firms.

JEL Classification: F30; G30; G15; M41.

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We thank Craig Doidge for facilitating access to his database on international dual class share firms.

1. Introduction

This study explores the relationship between competition in product markets and managerial incentives to distort earnings. A large amount of voluminous literature in economics provides theoretical guidance on how market competition can mitigate agency problems (Hart, 1983; Meyer and Vickers, 1995; Schmidt, 1997) or sometimes exacerbate agency problems (Schfarstein, 1988; Martin, 1993; Horn, Lang and Lundgren, 1994).² Empirical researchers have relied on some of these theoretical predictions to motivate their analyses on the effects of competition on managerial effort and thereby a firm's productivity and operating efficiency (Nickell, 1996; Graham, Kaplan and Sibley, 1983). Given that the demand for financial reporting arises from agency conflicts between outside stakeholders and insiders (Healy and Palepu, 2001), the impact of competition on agency problems (even though an ambiguous one) leads us to motivate and predict some relationship between competition in product markets and financial reporting practices. Because agency problems can distort financial reporting, this study examines those aspects of financial reporting that may be induced by managerial incentives to distort true economic performance by managing reported income. We therefore rely on three earnings management measures as proposed in Leuz, Nanda and Wysocki (2003) which have been motivated in their study from managerial inclination to distort economic performance with a motive to concealing or extracting private benefits. These measures encompass both – earnings smoothing in excess of what may be considered “normal” and earnings discretion i.e. managerial tendency to overstate reported earnings or achieve certain earnings targets.

² In Hart (1983), competition increases managers' efforts but Schfarstein (1988) shows that the result depends on a strong assumption on the managers' preferences i.e. they are infinitely risk averse. If the manager's marginal utility from income is strictly positive, competition would *reduce* managerial effort.

We acknowledge at the offset that existing theories that directly correlate product market competition to our specific nature of financial reporting (e.g. excessive earnings smoothing) are scarce or at best, incomplete (Ronen and Yaari, 2008). We therefore explore various potential connections in exploring the role of product market competition in affecting earnings management practices that may be motivated by manager's incentives to conceal or extract private benefits where private benefits relate to the ability of insiders to redirect or steal corporate resources. Because the ability to steal corporate resources is also a function of the legal regime in which a firm operates, we conduct this study in an international context where sufficient variation in country-level investor protection laws and legal enforcement exists to strengthen our ability to empirically detect economic relationships.

The theoretical idea of product market competition is in essence, not a static one. For example Raith (2003) shows that market structure is endogenously determined by free entry and exit in the industry. This implies that changes in the nature of competition lead to changes in the equilibrium market structure. Competition is therefore a dynamic and complex concept and relying solely on say, market structure or industry concentration to proxy for competition (as has much of the prior research) can lead to misleading interpretations of the underlying economic relationships (Demsetz, 1973)³. Furthermore, capturing this dynamism through simple cross-sectional regressions is an additional challenge. An implicit assumption as encompassed in a cross-sectional regression is that most industries across countries have achieved their equilibrium

³ While the Herfindahl index (HHI) as a measure of concentration is fairly well grounded in industrial organization theory (Curry and George, 1983), Tirole, 1988 pp.221-223), doubts exist that the HHI could imply both high and low competition. Recent research suggests that when market structure is assumed to be endogenous, it is not clear whether low values of concentration capture low or high competition, especially in cross-industry analyses (e.g., Demsetz, 1973; Sutton, 1991; Aghion *et al.*, 2001; Symeonidis, 2002; Raith, 2003). We therefore exclude the HHI in the empirical analysis. However its inclusion does not qualitatively alter the results.

levels of competition and the empirical analysis serves to test this implication for earnings management practices. To mitigate some of these concerns, we employ changes regression specifications in addition to levels regressions. If increases in import penetration or decline in price–cost margins are interpreted as exogenous shocks to an industry, then we can obtain more unbiased effects of competition on firms’ financial reporting. We also employ two different measures of competition – competition from foreign suppliers and industry-level price-cost margins. To the extent that some industries may defy uni-dimensional labels of competition (Karuna, 2006), we attempt to arrive at a more collective view of the relationship between product markets competition and earnings management. The competition data is obtained from the Structural Analysis Database (STAN) compiled by the OECD and the United Nations Industrial Development Organization (UNIDO), both of which include annual industry-level measures of output, inputs, labor and international trade within each country. It includes data for both public and private firms and thus may be considered more accurate than those constructed from aggregates of publicly reported firms.

We observe several interesting findings in this study. Using a sample of 14,321 firms across 20 countries, we find that an increase in the intensity of product market competition is positively associated with more aggressive earnings management. Both excessive earnings smoothing and earnings discretion (i.e. the magnitude of operating accruals) tends to be higher in industries which exhibit higher levels of competitiveness. We interpret these results to be in line with the following explanation. Market competition reduces the firm’s profits. Because managers are more knowledgeable about the true profitability of the firm, they can take steps to distort the economic performance of the firm and mitigate loss of economic rents. Theory suggests that earnings management as a tool for distorting economic performance becomes more likely when

the income management device is less costly and it is less easy for external stakeholders to detect income management (Bagnoli and Watts [2000]). The use of earnings management is likely to be less costly than the use of real operating and investing decisions. Furthermore, identifying and discerning the true implications of the accruals are daunting tasks not only for stock investors but also for financial analysts and even auditors (Bradshaw, Richardson, and Sloan [2001]). This means that earnings management is likely to be a particularly attractive vehicle for insiders to manage reported income when competitive pressures that reduce profitability are strong. Doing so may enable insiders to protect several benefits such as the continuance of high compensation or extracting perquisites or more generally, to escape shareholder scrutiny.

Other alternative explanations could also explain the results observed in the study. For example earnings management also serves the purpose of limiting information flows to the public by making earnings less informative. By limiting information flows, insiders allow the firm to avoid competition (Fan and Wong, 2002). Thus, more aggressive earnings management may be a response to the increased competitive environment to reduce the informativeness of earnings and thereby limit information flows to potential competitors. Or earnings management is more likely to occur if insiders perceive the competition and the consequent decline in economic performance as transitory, because it allows them to communicate their private information about future performance to outsiders. To throw further light on these potential explanations and others, we correlate our earnings management measures with an estimate of managerial private benefits of control i.e. the voting premium between shares with differential voting rights.⁴ The logic for using the voting premium is that if control is valuable beyond cash

⁴ Lease, McConnell and Mikkelsen (1983), DeAngelo and DeAngelo (1985), Rydqvist (1987), Zingales (1994, 1995), Nenova (2003) and Doidge (2004).

flows that are shared with minority investors, and if control is a function of the stipulated voting rights, then the premium between differential voting shares could be used to estimate the private benefits of control (Zingales, 1995). A positive correlation between our earnings management measures and the voting premium should strengthen the likelihood that insiders may aggressively manage earnings in an attempt to protect private rents that would otherwise be diminished through the disciplinary effect of competition. This is not to say that other efficiency-based explanations can be eliminated as reasonable possibilities. None of the explanations are mutually exclusive and it is possible that multiple explanations coexist. The evidence on the association between our earnings management proxies and private control benefits only implies that a managerial opportunism explanation cannot be ruled out. Consistent with an opportunism-based explanation, we indeed find a strong positive univariate and multivariate positive association between our earnings management measures and the voting premium. Our sample of firms with differential voting rights includes those covered in Doidge (2004) across 20 countries plus those in the United States, in which both share classes are publicly traded and listed on domestic exchanges.

The general line of causality adopted in this study is that that lower profitability caused by competition induces managers to more aggressively manage earnings. These increased earnings management levels enable insiders to protect or maintain their existing private benefit opportunities. We therefore construct two samples – the first sample investigates the link from competition to earnings management. The second sample investigates the link from earnings management to the voting premium observed between shares with differential voting rights.

Our final set of analyses deals with revisiting some of the prior literature on the disciplinary effect of product market competition. Guadalupe and Gonzalez (2006) find that

increases in the intensity of competition reduce managerial private control benefits. We explore the role of earnings management or the lack of it, as a channel through which this may happen. We argue that industry shocks such as increases in import competition reduce current and expected future profits inducing firms to manage earnings in an attempt to distort performance. However firms vary in their inherent flexibility to manage earnings due to the specific circumstances the firm finds itself in when the industry experiences the shock. For example Barton and Simko (2001) find that bloated balance sheets constrain managers from optimistically biasing their earnings, even missing EPS forecasts by as little as one cent. We exploit this heterogeneity in firms' ability to manage reported income to argue that investors find it easier to benchmark firm performance against those of competitors when firms' ability to manage earnings is low. Consequently, an increase in competition would reveal more information about the true profitability of the low earnings management firm and thereby the extent of any inefficiencies or illegal diversion of resources, relative to the high earnings management firms. We therefore argue that the disciplinary effect of competition, as observed in GG(2006) should be stronger in firms where the visibility of wealth diversionary behavior is high as in low earnings management firms. Consistent with this explanation, we find that competition limits the private benefits of control, but the effect is muted in firms which aggressively manage their earnings. Infact in firms which aggressively manage their earnings where it is harder to benchmark outcomes against those of competitors, competition appears to have little or no effect on the voting premium.

Section 2 discusses the theoretical development while reviewing the literature. Section 3 discusses the sample construction and measures of competition and earnings management. Section 4 describes the characteristics of the sample. Section 5 shows the empirical models

employed in this study and the control variables in those models. Section 6 discusses the empirical results. Section 7 throws light on a few limitations of the study. Section 8 concludes.

2. Theoretical Development and Literature Review

2.1 The Role of Earnings Management in Protecting Private Benefits

We rely on the definition of earnings management as proposed in Healy and Wahlen (1999) to motivate the findings in our study. Healy and Wahlen (1999) define earnings management as the modification of firms' reported economic performance by insiders to either mislead some stakeholders or influence contractual outcomes. Agency conflicts between managers or controlling shareholders and outside stakeholders create incentives for managers to misrepresent economic performance. These agency conflicts may assume the form where a handful of insiders, owing to their control, benefit themselves at the expense of outsiders. The common theme is that there is some value that is disproportionately appropriated by insiders that is not shared by outsiders. Accordingly, we argue that managers have incentives to misrepresent economic performance and conceal their private benefits because if these are detected, outsiders will likely take disciplinary action against them (Shleifer and Vishny, 1997, Zingales, 1994). Earnings management serves as an effective tool for misrepresenting economic performance because it is less costly and it is less easy for external stakeholders to detect (Bagnoli and Watts [2000]). Furthermore, identifying and discerning the true implications of the accruals are daunting tasks not only for stock investors but also for financial analysts and even auditors (Bradshaw, Richardson, and Sloan [2001]). A multitude of opportunities exist for insiders to use

earnings management. For example, insiders can use their discretion to overstate earnings and conceal unfavorable earnings realizations which may invite outsider interference.

2.2 The Effect of Competition on Earnings Management

We consider several explanations where competition can induce earnings management. First, increased competition reduces current profits and subjects a firm to a higher risk of liquidation in the future (Hou and Robinson, 2006). This exposes insiders to loss of private rents either due to more stakeholder scrutiny or due to eventual loss of employment. If earnings management serves as an effective tool for misrepresenting economic performance as described in the previous section and is not detected easily by outsiders, then increases in the intensity of competition could induce earnings management in an attempt to mislead some of the stakeholders in the firm. For example, insiders may smooth earnings in order to mimic firms with genuinely smoother earnings series, because they perceive that a lower variance in the series of reported earnings is less likely to attract scrutiny. The fact that some firms cannot smooth due to lower discretion, gives sufficient credibility to the smoothed reports of firms that can make it worthwhile to smooth (Ronen and Yaari, 2008). Alternatively, insiders can use their discretion to overstate earnings and conceal unfavorable earnings realizations. For example Xerox, which resorted to earnings management when it realized that its profits were slipping because Asian companies were producing similar products at lower prices. Shell, which found itself facing stronger competition after the merger of Exxon and Mobil, resorted to overstatement of its oil reserves by nearly 20%.

Second, competition can influence earnings management activity that may be deemed as beneficial. For example if insiders interpret the existing competitive pressures in the industry

as transitory, they can take steps to smooth current earnings because doing so enables them to communicate their private information about future performance. As noted in Ronen and Sadan (1981) and Sankar and Subramanyam (2001), smoothing can be beneficial by reducing distortions in market prices which may often occur in temporary bouts of intense competition.

Third, earnings management can also occur if it serves the purpose of limiting information flows to the public by making earnings less informative. Theoretical work by Clarke (1983) and Gal-Or (1985) suggests that it is optimal for firms in concentrated industries to have less informative disclosure policies. Earnings management can distort the information in earnings because if unmanaged earnings signal higher future demand for the products made in its industry, this could cause its competitors to increase production to protect their market share. By limiting information flows, insiders allow the firm to avoid competition (Fan and Wong, 2002). Thus, more aggressive earnings management may be a response to the increased competitive environment to add noise or reduce the informativeness of earnings thereby limiting information flows to potential competitors.

Fourth, competition may induce firms to manage earnings through real decisions. Real earnings management involves production and investment decisions. For example, Worldcom pursued a strategy of acquisitions to drive away competition and thus acquired excessive capacity (Sidak, 2003).

While the prediction of a positive relationship between competition and earnings management is intuitively appealing, a negative relationship is also plausible. Nalebuff and Stiglitz (1983) and Holmstrom (1982) note that competition improves the flow of firm-specific information by enabling easier evaluation of firm performance relative to its peers. This improves the link between firm performance and managerial well-being and serves to align the

interests of managers and shareholders. It incentivizes managers to choose a set of actions that may be beneficial to the interests of the shareholders including supplying informative earnings. If informative earnings are desirable to shareholders to monitor managerial effort and if earnings management serves to distort that information in earnings, then one could make a case that competition would induce the manager to provide more informative earnings thereby reducing the component in earnings management that may be deemed as distortive or not in the interests of shareholders.

3. Sample and Variable Construction

We begin with a sample of 20 countries covered in Doidge (2004). In addition, we also include firms from the United States, which by construction were not included in Doidge (2004). Our attempt is to construct two samples.

A. Earnings Management Sample (EM Sample) :

The first sample which we refer to as the Earning Management Sample (EM Sample) enables us to determine the association between our earnings management proxies and measures of product market competition. Detailed sample construction guidelines are available in Table 1. For this sample, financial information for our earnings management proxies are obtained from *Worldscope*. We download financial information data for United States and all the countries covered in Doidge (2004) from 1990 through 2007. The period of 1990-2007 is chosen because the coverage for developing countries for *Worldscope* vastly improved after 1990 and 2007 is the most recent year data available in *Worldscope*. To be included in the sample, a firm-year must have data on total assets, sales, net income, and operating income. Because we need a reliably

long time series to construct some of our earnings management proxies, we require that each firm must have data on total assets, sales, net income, and operating income for at least eight years. Banks and Financial Institutions are excluded from the analysis. Finally, Brazil and Mexico experienced hyperinflation over the years 1990 through 1994. Therefore we exclude firm-level observations from 1990 through 1994 for Brazilian and Mexican firms because high inflation may unduly affect our earnings management measures. The financial data for each firm is converted into U.S. dollars using the average exchange rate prevailing during the year. Data on exchange rates was acquired from *Global Financial Data*.

Measures of Earnings Management

The three measures of earnings management in Leuz, Nanda and Wysocki (2003) capture outcomes of insiders' earnings management activities and avoid the problem that stated accounting rules can be (and often are) circumvented by insiders and hence do not reflect firms' actual reporting practices (see Ball, Kothari, and Robin, 2000).

Ranks of the earnings management measures are used as in Leuz *et al* (2003) in order to reduce measurement error. An aggregate earnings management rank is constructed as the average of the firm-level rankings of each of the three earnings management measures. This is the primary dependant variable in the regressions of earnings management on measures of competition. A brief discussion of the three earnings management proxies examined in Leuz, Nanda and Wysocki (2003) is provided below.

i. Smoothing reported operating earnings using accruals : $EMI = [\sigma(OpInc)/\sigma(CFO)]$

This measure captures the degree to which insiders "smooth" (i.e., reduce the variability of reported earnings by altering the accounting component of earnings, namely accruals). The measure is the firm-level standard deviation of operating earnings divided by the firm-level

standard deviation of cash flow from operations. Low values of this measure indicate that, ceteris paribus, insiders exercise accounting discretion to smooth reported earnings. Cash flow from operations is computed indirectly by subtracting the accrual component from earnings because direct information on firms' cash flows is not widely available in many countries. Following Dechow, Sloan, and Sweeney (1995), the accrual component of earnings as:

$$Accruals_{it} = (\Delta CA_{it} - \Delta Cash_{it}) - (\Delta CL_{it} - \Delta STD_{it} - \Delta TP_{it}) - Dep_{it}^5.$$

The measure is computed for each firm across all firm-years.

ii. *Smoothing and the correlation between accounting accruals and operating cash flows:*

$$EM2 = [\rho(\Delta Accruals, \Delta CFO)]$$

Insiders can use their accounting discretion to conceal economic shocks to the firm's operating cash flow. For example, they may accelerate the reporting of future revenues or delay the reporting of current costs to hide poor current performance. Conversely, insiders underreport strong current performance to create reserves for the future. A negative correlation is a natural result of accrual accounting (see, e.g., Dechow, 1994). However, larger magnitudes of this correlation indicate, ceteris paribus, smoothing of reported earnings that does not reflect a firm's underlying economic performance (see Skinner and Myers, 1999). Hence, the contemporaneous correlation between changes in accounting accruals and changes in operating cash flows is the second measure of earnings smoothing. The accrual

⁵ ΔCA_{it} = change in total current assets, $\Delta Cash_{it}$ = change in cash/cash equivalents, ΔCL_{it} = change in total current liabilities, ΔSTD_{it} = change in short-term debt included in current liabilities, ΔTP_{it} = change in income taxes payable, and Dep_{it} = depreciation and amortization expense for firm i in year t . Changes in short-term debt are excluded from accruals. If a firm does not report information on taxes payable or short-term debt, then the change in both variables is assumed to be zero.

and cash flow component of earnings are computed as discussed in (i) above and are computed for each firm across all firm-years.

iii. *Magnitude of Accruals: EM3* = $|Accruals| / |CFO|$

Insiders can use their reporting discretion to misstate their firm's economic performance. For instance, insiders can overstate reported earnings to achieve certain earnings targets or report extraordinary performance in specific instances, such as an equity issuance (see, e.g., Dechow and Skinner, 2000). Thus the third earnings management measure uses the magnitude of accruals as a proxy for the extent to which insiders exercise discretion in reporting earnings. To arrive at an estimate of EM3 for each firm, we use the median estimate of the absolute value of the firms' accruals scaled by the absolute value of firms' cash flow from operations across all years. The firm-year level estimate of EM3 is then averaged across all years to arrive at an average estimate of EM3 for each firm.

a. Measures of Product Market Competition

We identify two measures that can potentially capture the intensity of competition.

i. Import Competition Ratio

The import competition ratio reflects the extent to which demand in the industry is satisfied by imports. If imports entail increased competition pressures from foreign suppliers, they can alter managerial incentives to act in the interests of the firm, and thus their inclination to manage earnings. Import Competition Ratio is defined as:

$$IP_{jct} = \text{Imports}_{jct} / (\text{Imports}_{jct} + \text{Production}_{jct})$$

Here, IP is import competition, j indexes the industry (measured at the 3-digit SIC level) and c indexes the country. Both imports and production are measured in local currency at current

prices. Given that import competition is at least partially determined by industry characteristics, we compute an industry adjusted measure of import competition and use this as the primary independent variable. This is calculated as:

$$\text{Industry Adjusted Import Competition (IAIC)} = IP_{jct} - IP_j$$

ii. *Price-Cost Margins (PCM)*

Prior studies in the industrial organization literature have used the price-cost margin as a measure of product substitutability in an industry. Low (high) levels of the price-cost margin signify high (low) levels of substitutability. This mirrors economic intuition that the closer to (further away from) perfect competition an industry is, the more (less) price approximates marginal cost. Hence, the greater the intensity of price competition due to higher substitutability, the smaller the price-cost margin. As in Domowitz *et al* (1986) and Boulhol (2005) and in most studies surveyed by Tybout (2003), the PCM is calculated as:

$$\text{PCM} = (\text{Production}_{jct} - \text{Labor Compensation}_{jct} - \text{Cost of intermediate inputs}_{jct}) / \text{Production}_{jct}$$

Here, PCM is the price-cost margin, j indexes the industry (measured at the 3-digit SIC level) and c indexes the country. Production, labor compensation and intermediate input costs are measured in local currency at current prices for each 3-digit SIC industry. Like import penetration, we also use an industry adjusted version as:

$$\text{Industry Adjusted Price Cost Margin (IAPCM)}_{jct} = \text{PCM}_{jct} - \text{PCM}_j$$

We construct our import penetration and price cost margin measures using data from two sources: (1) the Structural Analysis Database (STAN) from OECD, which is available through

Source OECD online (2) the Industrial Demand-Supply Balance Database, from UNIDO, which is available on CD-ROM. The STAN database reports production and imports data by country and industry for OECD countries starting in 1970. For non OECD countries, we use information from UNIDO which reports production and imports information for selected industries and countries for the period 1990-2002. Price-Cost margins can be calculated only for the OECD countries because industry-level data on labor compensation and the cost of intermediate inputs is not available in UNIDO. To match the financial information of firms in *Worldscope*, we used *Worldscope* to obtain the relevant industry codes. *Worldscope* provides industrial classification under the SIC (Standard Industrial Classification), while both STAN and UNIDO report industry-level data using ISIC Rev. 3 codes. We convert import penetration ratios and the price-cost margins for all countries and industries across all the years to those at the level of 3-digit SIC codes, using concordance tables published by the U.S. Census Bureau.⁶

B. Dual Class Shares Sample (DCS Sample) :

To construct the DCS sample, we start with all firms reported by Doidge (2004) to have dual class shares in Datastream during 1994 and 2001. To be included in the sample, Doidge (2004) requires that: a) firms have at least two classes of shares with differential voting rights b) that both share classes are publicly traded and listed on the domestic exchange c) the low voting class is not convertible to the high voting class and that (4) neither share receives a fixed dividend independent of the other class. This gives a total of 798 dual class share firms across 23 countries. A detailed sample construction analysis is provided in Table 1. We supplement this

⁶ The 3-digit partition is a compromise between too coarse a partition, in which unrelated industries may be pooled together, and too narrow a partition, which may be subject to misclassification. Girod and Mueller (2007) present several examples of unrelated and misclassified industries when 2-digit SIC codes and 4-digit SIC codes are used.

data with 49 U.S. firms with multiple traded share classes. To do this we search the CRSP database for issues with identical six-digit CUSIPs but different two-digit extensions. To calculate the voting premium, we obtain weekly averages of the closing prices from Datastream. For U.S. firms, this data was acquired from CRSP. To be included in the sample, we require firms to have security price information for both shares for at least 20 weeks in a year as in Doidge (2004). In order to minimize the impact of outliers, we restrict our analysis to securities with trading prices of at least one unit of the local currency. We winsorized the voting premium variable at the 1st and 99th percentiles of the distribution. As in Doidge (2004) and Zingales (1995), the voting premium is calculated as:

$$VP = (P_H - P_L) / ((P_L - rv.P_H).$$

Where P_H is the price of the high voting share, P_L is the price of the low voting share and rv is the relative number of votes of the low voting rights share compared to the high voting share.

4. Summary Statistics

Panels A, B and C of Table 2 report the description of the sample. Panel A describes the EM sample. The estimated values for EM1, EM2 and EM3 are comparable to those observed in Leuz, Nanda Wysocki (2003). The country-level correlations of 0.76, 0.89 and 0.90 are reasonably high. The U.S.A. continues to retain the first rank for the lowest levels of earnings management. While a total sample of 14,321 firms are available to calculate the earnings management variables, only about a half of the sample is available for estimating the cross-sectional regression of earnings management on measures of competition, because imports and exports data is available for only some country-industry groups. The sample is slightly larger when just price-cost margins are considered. Some countries such as Brazil and Mexico are

excluded altogether in the Leuz *et al* study for reasons of hyperinflation. We include these countries because a substantially large number of dual class share firms (almost a quarter) hail from these countries. However, we are careful to exclude the period with the most severe hyperinflation in these countries i.e. from 1990-1994. Table 2 shows that the aggregate earnings management ranks are highly negatively correlated with the La-Porta anti-director rights index (1998) at -0.27, consistent with the findings in Leuz *et al* (2003). All three earnings management rank variables are positively correlated with each other and the correlations are significant at the 1% level. The earnings management variables are also correlated with measures of competition – positively with the import penetration ratios and negatively with the price-cost margins. Finally, the strongly positive correlations observed with the voting premiums and earnings management variables suggest that the variables could reflect managerial desire to protect private control benefits.

Panel B reports the measures of product market competition. The raw and the industry-adjusted import penetration ratios in the DCS sample are comparable to those observed in GG (2006) except in the case of Brazil. Both import penetration ratios and price-cost margins are negatively correlated with each other, validating the possibility that both are credible measures of competition. Classical trade theory teaches that international trade reduces markups through the so-called precompetitive effect. The price-elasticity of demand perceived by domestic firms increases with foreign competition, which gives them an incentive to cut their margin. Higher price-cost margins thus reflect decreased market power. Both the import penetration ratios and the price-cost margins are comparable and negatively correlated in both the EM and the DCS samples (-0.05 in both samples). While there is some heterogeneity in the estimated import penetration ratios across countries ranging from about 3% for Norway to about 34% for Mexico,

the price-cost margins move within a fairly narrow band of 12-18%. This could be one reason why we observe weaker results when the price-cost margin is used as the sole measure of competition.

Panel C reports the estimated country-level median voting premiums – our measure for managerial private control benefits. The average correlation between the estimated country-level median voting premiums and those in Doidge (2004) which covered the period from 1994-2001 is almost 0.81. We observe very small negative voting premiums for three countries – Colombia, Mexico and Brazil. It is possible that in illiquid markets, a liquidity discount for the high voting shares could swamp the private benefit estimate as reflected in the voting premium. Barring these three countries, the voting premiums are comparable to those observed in the Doidge (2004) study. Voting premiums are negatively correlated with the import penetration ratios, but not with the price-cost margins.

5. Empirical Models

To investigate the effect of market competition on earnings management proxies, we employ the following single OLS cross-sectional specification:

$$\text{Rank of Aggregate EM}_{ijc} = \alpha + \beta \text{Competition}_{jc} + \gamma \mathbf{X}'_{ijc} + \delta \mathbf{C}_i + \varepsilon_{ijc} \quad (1)$$

Where EM refers to the aggregate earnings management rank of each firm i in industry j (measured at the 3-digit SIC level) in country c . The aggregate earnings management rank is the average of ranks of all the three earnings management variables. Competition is the relevant measure of competition measured as industry-adjusted import penetration ratio, industry-adjusted

price-cost margins, their ranks and a simple average of their ranks (i.e. Aggregate Competition Rank). Higher ranks for aggregate earnings management and measures of competition imply more earnings management and higher competition respectively. It should be noted that the raw price-cost margin is a negative proxy for product market competition. Thus, if competition induces aggressive earnings management, then we should expect β to be negative and significant for this measure. The import competition ratio and the price-cost margin are estimated as the average import competition and the average price-cost margin for an industry in a country across the years 1990 through 2007. \mathbf{X}'_{ijc} is a vector of firm-specific controls and includes the average market-to book ratio, the average leverage, and the average log of total market value and the average return on assets. As in the case of our earnings management proxy, ranks of competition measures are constructed. An aggregate competition rank is constructed as the simple average of the rank of average import competition and the rank of the average price-cost margins.

$$\text{Aggregate Competition Rank} = [\text{Rank of (IAIC)}_{jc} + \text{Rank of (IAPCM)}_{jc}] / 2$$

The firm-specific variables are calculated for every firm-year and then averaged across all the years to arrive at an average estimate for each firm. \mathbf{C} is a set of time invariant country-level variables. Country-level variables are included because strong country-level governance can limit opportunistic earnings management. The country-level variables are taken from La Porta *et al* (1998). These include the Anti-director rights index which varies from a value of 0 to 5 for each country, Ownership (which is the median ownership stake of the three largest shareholders among its 10 largest publicly traded companies) and an estimate of the quality of the country's accounting standards. We also include a proxy for legal enforcement calculated as the average score of the following variables in La Porta *et. al* (1998) – Rule of Law, Judicial Efficiency and Corruption Index.

To investigate the association between our estimate of private control benefits – the voting premium and our earnings management proxies, we employ the following model estimated by pooled OLS, firm fixed effects and random effects⁷

$$VP_{ict} = \alpha + \beta \text{Aggregate Earnings Management Rank}_{ict} + \gamma' \mathbf{X}'_{ict} + \delta' \mathbf{C}_i + \varepsilon_{ict} \quad (2)$$

i indexes the firm, *c* indexes the country and *t* indexes the year. The dependant variable is the winsorized voting premium variable. Aggregate earnings management rank is the average rank of all the three earnings management proxies. \mathbf{X} is a vector of firm-specific controls. \mathbf{C} is a set of time invariant country-level variables. Previous evidence by Zingales (1994, 1995), Smith and Amoaku-Adu (1995), and Chung and Kim (1999) among others show that differences in voting power, liquidity, and firm size are potentially important determinants of the voting premium. Therefore, it is necessary to control for these variables to ensure that the estimates of the voting premium are comparable across firms. Like the voting premium, these variables are calculated weekly and averaged annually⁸. Definitions for each of these variables and the expected impact on the voting premium are given next.

“Voting power” is defined as the fraction of total votes attached to the high voting share class relative to the fraction of total cash flow rights attached to the high voting share class. Voting power is higher when a small number of high voting shares control a firm that has a large amount of its total equity capital represented by low voting shares. Therefore, the firm can be controlled

⁷ To estimate (2), it is natural to use panel data techniques such as fixed effects or random effects. A fixed effects approach allows α being a group specific constant term. However, in this case, the fixed effects approach does not work because the country level governance variables are time invariant. Furthermore, 2 of the 3 earnings management variables are also time invariant i.e. the earnings smoothing measures. The random effects approach allows the estimation of time-invariant covariates.

⁸ For the U.S. firms, these are calculated daily and averaged annually.

with a small ownership stake, which implies that there is a large separation between cash flow rights and voting rights. Across firms, the voting premium should be higher when voting power is more concentrated. Differences in the liquidity of the share classes can also have an effect on the voting premium. If the low voting class is more liquid than the high voting class, this difference in liquidity will have a negative impact on the voting premium. To control for liquidity differences, “Relative turnover” is defined as the log of the ratio of the total turnover of the low voting class relative to the total turnover of the high voting class, where turnover is the number of shares traded divided by the number of shares outstanding. Finally, firm size is controlled for, where size is measured as the sum of the market values (in dollars) of the low voting share class and the high voting share class. Firm size controls for costs associated with holding a large block of shares. Since blockholding costs increase with firm size, size should be negatively related to the voting premium.

6. Discussion of Empirical Results

The correlation matrix in Table 3 shows that our measures of earnings management tend to be positively correlated with both the competition measures - import penetration ratios and price-cost margins. However, institutional differences across countries or differences in industry characteristics may drive these univariate results. We therefore present multivariate results that attempt to control for other potential explanations.

Panel A of Table 4 uses cross-sectional regressions to show the effect of import penetration and price-cost margins on the aggregate earnings management rank, which is constructed as the average of the individual ranks of the earnings management variables. We use ranks of competition and earnings management to reduce measurement error and the distortive

effect of outliers. The rank of each variable is divided by the number of non-missing observations to arrive at fractional ranks. Thus, the ranks vary from 0 to 1 with 1 being the highest rank. Columns (1) through (4) employ raw industry-adjusted measures of competition as well as their ranks with a single competition measure in each model. Columns (5) and (6) employ both measures of competition in the model. Column (7) uses an aggregate competition rank constructed as the average of ranks of the two competition measures. In each model, we control for firm-level, industry-level and country-level characteristics. Consistent with the evidence in Leuz *et al* (2003), both anti-director rights and legal enforcement have an economically large and statistically significant effect on mitigating earnings management. After including industry and country effects, the estimated coefficients on import penetration and price-cost margins continue to remain significant. Columns (5) and (6) show that both competition measures may capture different dimensions of competition consistent with the multi-dimensional nature of competition. The coefficients on both the competition measures are incrementally and statistically significant. This is true for both the raw industry-adjusted measures as well as ranks.

In Panel B, we also estimate changes regressions which are less susceptible to correlated omitted variables problems. This strengthens our confidence in the results of Panel A. Because our earnings smoothing measures require a reasonably long time series, this raises the challenge of empirically estimating changes regressions. We split the sample period into three equal periods. We require each firm to have at least six firm-years and three firm-years in at least two of the three periods, to reliably calculate the standard deviations and correlations for computing EM1 and EM2. Changes in each of the three earnings management variables across the three periods are then calculated and ranked. Increases in values of EM1 and EM2 indicate

decreases in earnings management activity and are ranked lower while increases in values of EM3 indicate increase in earnings management and are ranked higher. Like in Panel A, we arrive at an aggregate earnings management rank as an average of the three estimated ranks. Similarly, increases in import penetration indicate increases in competition and are ranked higher and decreases in price-cost margins indicate increases in competition and are ranked higher. The results appear to be stronger when ranks of competition variables are used in the models. Both the coefficients on ranks of price-cost margins and import penetration are positive and significant when included by themselves (as in columns (2) and (4)) and when both measures are included in the model (as in column (5)).

A cross-country study always raises the possibility of an omitted variables bias due to institutional differences that may not be captured by the La-Porta (1998) variables. Panel B therefore estimates within-legal regime regressions to mitigate any such biases. We estimated regressions in Panel A within each country (without the country-level variables). However we report results only for the U.S. and U.K because no findings were observed for the other countries, possibly due to the smaller sample sizes. The coefficient on the Aggregate Competition rank is positive and significant consistent with the results in Panels A and B.

Figures 1 and 2 plot the regression line correlating the aggregate earnings management rank with the industry-adjusted import penetration and price-cost margins. The slope of the line when import penetration is used is steeper than that for price-cost margins indicating the stronger influence of import penetration.

The coefficients on the control variables generally indicate that smaller and more leveraged firms are more likely to indulge in earnings management. However we find no evidence for profitability as a determinant of earnings management. One possible reason could

be that the earnings management variables are already scaled by cash flow from operations. Thus, a certain degree of controlling for performance occurs in the variable construction itself.

Our next step is to document a link from our earnings management proxies to direct estimates of private control benefits. Confirmation of such a link would strengthen the protection of private rents as an explanation for the positive correlation observed between competition and earnings management. Table 6 estimates the regressions of voting premium on the aggregate earnings management rank which is constructed from the averages of the ranks of EM1, EM2 and EM3. The findings generally show a strong positive correlation between earnings management and the voting premium. We also estimate fixed effects regressions to capture within-firm variation in earnings management. Fixed effects methods completely ignore the between-firm variation and focus only on the within-firm variation. The between-firm variation is very likely to be contaminated by unmeasured firm-specific characteristics that are correlated with earnings management. By restricting ourselves to the within-firm variation, we eliminate that contamination and are much more likely to get unbiased estimates. However, two of the three earnings management variables, EM1 and EM2 are time-invariant, hence all the variation in earnings management within a firm is due to EM3. Because fixed effects methods cannot estimate coefficients for variables that have no within-firm variation such as the country-level variables, we also estimate random effects regressions which provides estimates that are a weighted average of the within-firm and between-firm estimates. The OLS, fixed and random effects regressions generally confirm a positive association between the earnings management variables and the voting premium. The coefficients on voting power are positive and significant, as expected. The coefficient on relative turnover is positive and significant. If the low voting class is more liquid, then the coefficient should be negative. However, there is no strong

theoretical prediction about the impact of relative turnover and the empirical evidence is mixed. [Nenova \(2003\)](#) finds that relative turnover is negative and significant, while other authors such as [Zingales \(1995\)](#) find that relative turnover is not important.

Our final set of results attempt to confirm the findings of prior literature while showing how earnings management has a role to play in these results. Table 6 shows these results. Consistent with the findings in Column (II) of Table IV of [GG \(2006\)](#), we indeed find that higher import penetration reduces private control benefits. The disciplinary effect of private control benefits is also observed when price-cost margins are considered. However we find that the effect seems to be more pronounced in the low earnings management sample. The interaction effect of import penetration and high earnings management is positive and significant. The interaction effect is insignificant in the case of price-cost margins. We also split the sample into high and low earnings management firms and find the effect to be present in the low earnings management but not in the high earnings management sample. We interpret these results as suggesting that while competition has a disciplinary role in mitigating managerial private control benefits, it is more likely to occur in low earnings management firms where transparency is higher.

7. Limitations

A limitation of the dual class shares approach in computing an estimate of private benefits of control is that dual class firms constitute extreme governance mechanisms that have self-selected themselves into adopting dual class equity ([Gompers, Ishii and Metrick, 2008](#), [Doidge, 2004](#)), a decision that is likely to be correlated with high private benefits in the first place. Furthermore, the set of firms from amongst the dual class share firms which choose to list

both their share classes constitutes an additional layer of self-selection. Using the voting premium as a measure of private benefits also requires us to assume that a control contest is likely to arise with some positive probability so that the price of a voting right reflects the value of control. Because the paths to adopting dual class equity can be quite disparate and can differ across countries, a parsimonious self-selection model may not yield much benefit. Furthermore, in the absence of data on firms' ownership structures, calculating the probability of a control contest for each of the firms is difficult.

8. Conclusions

We find evidence that increasing the intensity of product market competition induces insiders to aggressively manage earnings. This is consistent with the explanation that competition reduces the firm's profits and the aggressive earnings management may stem from managerial desire to distort the true economic performance. Doing so enables the manager to protect his or her private control benefits. To confirm the assertion that our results are indeed driven by a private benefits story, we correlate our earnings management proxies with a measure of private benefits i.e. the voting premium between shares with differential voting rights. We find a strong positive correlation between the voting premium and our earnings management proxies. This helps us isolate better the private benefits hypothesis from other alternative explanations. The evidence further shows that the negative relationship observed between product market competition and private control benefits in earlier studies is present only in low earnings management firms. We interpret this result to be consistent with the possibility that that disciplinary role of competition in mitigating the extraction of rents is more likely to occur in low earnings management firms where transparency of higher.

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Table 1: Sample Construction**Panel A: Sample Construction of EM Sample**

	No. of Firms	No. of Firm Yrs
1. Collecting Worldscope financial information for U.S. and all countries in Doidge (2004) from 1990-2007	38,560	701,874
2. Deleting firm-years with no data for Sales, Operating Income, Total Assets and Net Income.	(1,413)	(399,377)
3. Deleted Duplicate observations.	(1)	(16)
4. Deleted Brazilian and Mexican firm-years from 1990-1994	(17)	(742)
5. Deleted ADR's from non-Doidge (2004) countries	(34)	(274)
6. Deleted Banks and Financial Institutions	(6,537)	(55,377)
7. Deleted firms with less than 8 firm-years data for Sales, Operating Income, Total Assets and Net Income	(14,387)	(52,018)
8. Deleted firm-years with missing data for current assets, current liabilities, cash and depreciation	(493)	(9,681)
Available Sample for calculating Earnings Management Variables	14,321	169,673

Panel B: Sample Construction for Dual Class Sample

	No. of Firms	No. of Firm Yrs
1. Dual Class Sample acquired from Doidge (2004)	798	13,861
2. Deleting firms with no Worldscope Identifier	(16)	(264)
3. Deleting firm-weeks with no weekly trading for either of the classes	(7)	(3,555)
4. Deleting firm-weeks with average weekly Price less than one unit of local currency for either of the classes	(9)	(913)
5. Deleting Brazilian and Mexican firm-weeks from 1990-94	(0)	(204)
6. Deleting firm-weeks for which no voting premium can be calculated after Steps 1-5.	(32)	(1,741)
7. Deleting firm-years with less than 20 weekly observations in a year are available to calculate voting premium.	(113)	(1,575)
International Sample	621	5,609
8. Dual Class Firms from the U.S. with trading for both classes in a firm-year	50	724
9. Deleting firm-years with less than 40 days trading for either class in a year	(0)	(80)
10. Deleting firms which does not satisfy one of 4 conditions in Doidge (2004)	(1)	(12)
U.S. Firms	49	632
Total Sample	670	6,241

Table 2: Summary Statistics on Measures of Earnings Management, Competition and Private Benefits

This table describes the country-wise medians for the earnings management variables using the methods described in Leuz, Nanda and Wysocki (2003), measures of product market competition and the voting premium. In Panel A, EM1 is country-level median of the firm-level standard deviation of operating income scaled by the firm-level standard deviation of cash from operations. EM2 is country-level median of the correlation of firm-level changes in accruals and firm-level changes in cash flow from operations. EM3 is country-level median of absolute value of Accruals scaled by the absolute value of cash flow from operations. The Aggregate Earnings Management Rank is the rank of the average rank across all three measures. Lower values of EM1 and EM2 and higher values of EM3 indicate more earnings management. Higher ranks of earnings management variables indicate more earnings management. In Panel B, Import penetration and Price-Cost margins are estimated using data on Production, Imports, Labor compensation and cost of intermediate inputs measured at current prices. Industry-adjusted import penetration and price-cost margins are estimated by subtracting the average import penetration and price cost margins across all countries across all years from the raw values. In Panel C, country-level medians of the voting premium are estimated across all firm-year observations in a country.

Panel A: Earnings Management Measures (EM Sample)

Country	Estimated EM1	EM1 in Leuz <i>et al</i>	EM1 Rank	Estimated EM2	EM2 in Leuz <i>et al</i>	EM2 Rank	Estimated EM3	EM3 in Leuz <i>et al</i>	EM3 Rank	Aggregate Earnings Management Rank	La-Porta Anti-Director Rights Index
Australia	0.676	0.625	11	-0.760	-0.790	3	0.475	0.450	2	5	4
Austria	0.525	0.345	19	-0.961	-0.921	20	0.760	0.783	16	20	2
Brazil	0.669	Excluded	12	-0.892	Excluded	13	0.698	Excluded	14	14	3
Canada	0.700	0.649	9	-0.681	-0.759	1	0.572	0.478	7	6	5
Chile	0.645	Excluded	15	-0.935	Excluded	19	0.544	Excluded	4	13	5
Colombia	0.826	Excluded	1	-0.882	Excluded	10	0.523	Excluded	3	2	3
Denmark	0.592	0.559	17	-0.886	-0.875	12	0.626	0.526	11	15	2
Finland	0.758	0.555	5	-0.898	-0.818	14	0.643	0.517	12	10	3
France	0.694	0.561	10	-0.917	-0.845	16	0.733	0.579	15	16	3
Germany	0.619	0.510	16	-0.922	-0.867	17	0.816	0.848	19	17	1
Italy	0.590	0.488	18	-0.934	-0.912	18	0.812	0.630	18	19	1
Korea	0.499	0.399	20	-0.912	-0.922	15	0.775	0.685	17	18	2
Mexico	0.760	Excluded	4	-0.861	Excluded	7	0.611	Excluded	10	7	1
Norway	0.650	0.713	14	-0.765	-0.722	4	0.686	0.556	13	11	4
Portugal	0.429	0.402	21	-0.963	-0.911	21	0.833	0.745	20	21	3
South Africa	0.754	Excluded	6	-0.880	-0.840	9	0.451	0.297	1	4	5
Sweden	0.766	0.621	3	-0.774	-0.764	6	0.562	0.466	5	3	3
Switzerland	0.718	0.473	8	-0.885	-0.873	11	0.605	0.547	9	9	2
U.K.	0.660	0.574	13	-0.769	-0.807	5	0.565	0.397	6	8	5
U.S.A.	0.807	0.765	2	-0.719	-0.740	2	0.576	0.311	8	1	5
Venezuela	0.719	Excluded	7	-0.877	Excluded	8	0.857	Excluded	21	12	1

Country-level correlations between estimated EM1 values and EM1 values estimated in Leuz *et al* (2003): 0.76
Country-level correlations between estimated EM2 values and EM2 values estimated in Leuz *et al* (2003): 0.90
Country-level correlations between estimated EM3 values and EM3 values estimated in Leuz *et al* (2003): 0.89

Panel B: Measures of Product Market Competition

EM Sample					DCS Sample					
Country	Estimated Import Penetration	Industry-Adjusted Import Penetration	Estimated Price-Cost Margins	Industry-Adjusted Price Cost Margins	Estimated Import Penetration	Import Penetration in GG(2006)	Industry-Adjusted Import Penetration	Industry-Adjusted Import Penetration in GG (2006)	Estimated Price-Cost Margins	Industry-Adjusted Price Cost Margins
Australia	0.295	0.037	Unavailable	Unavailable	0.203	0.151	0.100	-0.021	Unavailable	Unavailable
Austria	0.270	0.058	0.171	0.021	0.335	0.270	0.084	0.060	0.142	0.030
Brazil	0.136	-0.101	Unavailable	Unavailable	0.156	0.683	-0.096	0.530	Unavailable	Unavailable
Canada	0.176	-0.004	0.172	0.016	0.176	0.217	0.006	-0.012	0.193	-0.001
Chile	0.291	0.092	Unavailable	Unavailable	0.130	Unavailable	-0.016	Unavailable	Unavailable	Unavailable
Colombia	0.170	0.002	Unavailable	Unavailable	0.170	Unavailable	0.002	Unavailable	Unavailable	Unavailable
Finland	0.216	-0.026	0.147	0.000	0.126	0.153	-0.032	-0.079	0.137	0.005
Denmark	0.364	0.067	0.139	-0.013	0.204	0.228	0.055	0.031	0.162	-0.014
France	0.219	-0.034	0.165	-0.010	0.277	0.278	-0.049	-0.056	0.109	-0.022
Germany	0.191	-0.041	0.156	-0.014	0.231	0.190	-0.060	-0.067	0.118	-0.019
Italy	0.144	-0.098	0.168	0.023	0.158	0.156	-0.098	-0.136	0.164	0.009
Korea	0.164	-0.134	0.124	0.000	0.179	0.166	-0.131	-0.128	0.124	-0.001
Mexico	0.332	0.090	Unavailable	Unavailable	0.338	0.313	0.060	0.010	Unavailable	Unavailable
Norway	0.123	0.020	0.147	-0.024	0.032	0.124	0.021	-0.033	0.148	0.010
Portugal	0.202	0.012	0.178	-0.010	0.116	0.126	0.012	-0.037	0.155	0.017
South Africa	0.217	-0.067	Unavailable	Unavailable	0.320	0.340	0.080	0.012	Unavailable	Unavailable
Sweden	0.172	-0.006	0.151	-0.036	0.303	0.221	-0.000	-0.039	0.116	-0.008
Switzerland	0.310	0.006	Unavailable	Unavailable	0.226	Unavailable	0.122	Unavailable	Unavailable	Unavailable
U.K.	0.281	-0.026	0.162	0.001	0.281	0.234	-0.035	-0.011	0.132	0.001
U.S.A.	0.131	-0.112	0.184	0.013	0.178	0.159	-0.100	-0.138	0.142	0.016
Venezuela	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable

Correlation between estimated country-level import penetration values and those estimated in GG (2006) in the DCS sample: 0.27 (excluding Brazil: 0.87)

Correlation between estimated country-level industry-adjusted import penetration values and those estimated in GG (2006) in the DCS sample: 0.034 (excluding Brazil: 0.87)

Panel C: Measures of Private Control Benefits (DCS Sample)

Country	Number of dual class firms in sample	Estimated Median Voting Premium	Median Voting Premium in Doidge (2004)
Australia	3	0.091	0.146
Austria	8	0.186	0.285
Brazil	114	-0.042	0.074
Canada	45	0.019	0.059
Chile	6	0.042	0.063
Colombia	5	-0.000	0.343
Denmark	26	0.006	0.043
Finland	19	0.014	0.032
France	6	0.388	0.455
Germany	46	0.104	0.120
Italy	69	0.411	0.382
Korea	142	0.418	0.717
Mexico	15	-0.005	0.011
Norway	14	0.047	0.039
Portugal	4	0.078	0.043
South Africa	14	0.055	0.067
Sweden	62	0.012	0.019
Switzerland	11	0.218	0.123
U.K.	10	0.209	0.139
U.S.A.	49	0.003	NA
Venezuela	2	0.008	0.122
Correlation between estimated voting premium and that calculated in Doidge (2004) : 0.81			

Table 3: Correlation Matrix of Selected Variables

This table displays Spearman's correlations of selected variables. All voting premium correlations are as observed in the DCS sample. Other correlations are as observed in the EM sample. Significance levels at 1%, 5% and 10% are highlighted in bold and asterisked by ***, ** and * respectively.

	Industry-Adjusted Import Competition (IAIC)	Industry-Adjusted Price-Cost Margins (IAPCM)	Aggregate Competition Rank	EM1 Rank	EM2 Rank	EM3 Rank	Aggregate EM Rank	Anti-Director Rights Index	Legal Enforcement	Log of Market Cap.	Voting Premium
Industry-Adjusted Import Competition (IAIC)	-										
Industry-Adjusted Price-Cost Margins (IAPCM)	-0.05***	-									
Aggregate Competition Rank	-	-	-								
EM1 Rank	0.006	-0.02**	0.07***	-							
EM2 Rank	0.12***	-0.06***	0.11***	0.25***	-						
EM3 Rank	0.10***	-0.04***	0.10***	0.15***	0.16***	-					
Aggregate EM Rank	0.11***	-0.06***	0.14***	0.69***	0.69***	0.64***	-				
Anti-Director Rights Index	-0.16***	-0.006	-0.18***	-0.13***	-0.23***	-0.19***	-0.27***	-			
Legal Enforcement	-0.00	-0.032***	0.06***	-0.11***	-0.16***	-0.11***	-0.19***	0.47***	-		
Log of Market Cap.	-0.01	-0.02**	-0.07***	-0.05***	0.09***	-0.17***	-0.07***	0.12***	0.10***	-	
Voting Premium	-0.123***	-0.01	-0.15***	0.08***	0.09***	0.11***	0.160***	-0.21***	-0.19***	-0.10***	-

Table 4: Determinants of Earnings Management

Panel A of Table 4 reports full sample OLS regressions of the rank of aggregate earnings management on measures of product market competition – industry-adjusted import penetration, industry-adjusted price-cost margins, their ranks and an aggregate competition rank constructed as a simple average of the ranks of industry-adjusted import penetration and ranks of industry-adjusted price cost margins. Industry-adjusted import penetration and price-cost margins are estimated by subtracting the average import penetration and price cost margins across all countries across all years for the relevant 3-digit industry from the raw values. Higher ranks of earnings management indicate more earnings management. Aggregate earnings management is the average rank of the three earnings management measures. Similarly, higher ranks of import penetration and price-cost margins indicate more competition. Anti-director, accounting standards and ownership are from La Porta et al. (1998). An average score of legal enforcement is constructed based on scores of Rule of Law, Judicial Efficiency and Corruption Index. Panel B reports within-legal-regime regressions for the U.S. and U.K. Standard errors are robust and t-stats are reported in parentheses. Significance levels at 1%, 5% and 10% are highlighted in bold and asterisked by ***, ** and * respectively.

Panel A: Full sample Analysis : Levels Regressions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Industry-Adjusted Import Competition (IAIC)	0.08***				0.17***		
	(3.67)				(5.2)		
Rank of IAIC		0.04***				0.05***	
		(4.3)				(4.30)	
Industry-Adjusted Price-Cost Margins (IAPCM)			-0.10**		-0.12**		
			(-2.27)		(-2.32)		
Rank of IAPCM				0.02***		0.03***	
				(2.83)		(3.60)	
Aggregate Competition Rank							0.08***
							(5.74)
Log of Total Market Value	-0.005***	-0.005***	-0.003***	-0.003***	-0.004***	-0.004***	-0.004***
	(-5.71)	(-5.67)	(-3.78)	(-3.77)	(-3.73)	(-3.71)	(-3.71)
Market to Book Ratio	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.64)	(0.64)	(0.77)	(0.76)	(0.72)	(0.71)	(0.71)
Leverage	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
	(10.9)	(11.1)	(10.5)	(10.5)	(11.1)	(11.2)	(11.2)

Return on Assets	-0.000	-0.000	0.000	0.000	-0.000	-0.000	-0.000
	(-0.05)	(-0.06)	(0.24)	(0.23)	(-0.23)	(-0.24)	(-0.23)
La-Porta et al (1998) Anti-Director Rights Index	-0.03***	-0.03***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***
	(-14)	(-13.9)	(-5.83)	(-5.45)	(-6.42)	(-5.58)	(-5.45)
Legal Enforcement	-0.008***	-0.008***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***
	(-3.63)	(-3.73)	(-7.77)	(-7.85)	(-6.24)	(-6.39)	(-6.55)
Ownership	-0.028	-0.044*	0.17***	0.18***	0.09**	0.11**	0.13***
	(-1.11)	(-1.68)	(5.27)	(5.39)	(2.21)	(2.63)	(3.34)
Accounting Standards	-0.001***	-0.002***	-0.000	-0.000	-0.001**	-0.001***	-0.001**
	(-3.07)	(-3.54)	(-1.41)	(-1.55)	(-2.55)	(-2.76)	(-2.53)
No. of Obs.	8913	8913	10481	10481	7918	7918	7918
Adj. R-square	0.23	0.23	0.26	0.26	0.25	0.25	0.25

Panel B: Changes Regressions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intercept	0.49*** (154.27)	0.49*** (100.96)	0.50*** (229.54)	0.49*** (122.20)	0.49*** (146.97)	0.48*** (72.17)	0.48*** (72.29)
Change in Industry-Adjusted Import Competition (IAIC)	0.11* (1.70)				0.13** (1.98)		
Rank of Change in IAIC		0.02*** (2.39)				0.02** (2.46)	
Change in Industry-Adjusted Price-Cost Margins (IAPCM)			-0.06 (-0.85)		-0.01 (-0.15)		
Rank of Change in IAPCM				0.02*** (3.07)		0.02** (2.74)	
Rank of Change in Aggregate Competition							0.04*** (3.52)
Change in Log of Total Market Value	-0.01*** (-7.65)	-0.02*** (-7.60)	-0.02*** (-7.80)	-0.02*** (-8.63)		-0.01*** (-7.27)	-0.01*** (-7.30)
Change in Market to Book Ratio	-0.00 (-1.19)	0.00 (-1.22)	-0.00 (-1.18)	-0.00 (-1.21)	-0.00 (-1.18)	-0.00 (-1.24)	-0.00 (-1.24)
Change in Leverage	0.004** (2.45)	0.004** (2.44)	0.003*** (3.84)	0.003*** (3.87)	0.005** (2.37)	0.004** (2.38)	0.004** (2.38)
Change in Return on Assets	0.00 (0.82)	-0.00 (-0.76)	-0.01 (-0.12)	-0.00 (-0.16)	0.01 (0.18)	0.00 (0.06)	0.00 (0.06)
No. of Obs.	6061	6061	7525	7525	5762	5762	5762
Adj. R-square	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Panel C: Within Legal Regime

	Within US	Within UK
Intercept	0.32***	0.36***
	(24.9)	(5.99)
Aggregated Competition Rank	0.27***	0.22**
	(6.97)	(2.68)
Log of Total Market Value	-0.002	-0.01***
	(-1.27)	(-3.14)
Market to Book Ratio	0.000	-0.001***
	(1.06)	(-3.22)
Leverage	0.000**	0.05
	(2.18)	(1.05)
Return on Assets	0.00	0.10***
	(-0.63)	(4.45)
No. of Obs.	4344	877
Adj. R-square	0.16	0.28

Table 5: Determinants of Private Benefits of Control

This table estimates OLS, fixed effects and random effects regressions of voting premium on a measure of aggregate earnings management. Aggregate earnings management is the average rank of the three earnings management measures. Voting power is the fraction of total votes attached to the high-voting share class relative to the fraction of total cash flow rights attached to the high-voting share class. Relative turnover is the log of the ratio of the total turnover of the low-voting shares relative to the total turnover of the high voting shares. All firm-level variables are annual averages computed from weekly data—firms with less than 20 weekly observations in a given year are excluded. Anti-director, accounting standards and ownership are from La Porta et al. (1998). An average score of legal enforcement is constructed based on scores of Rule of Law, Judicial Efficiency and Corruption Index. The voting premium variable is winsorized at the 1st and 99th percentile. Standard errors are robust and t-stats are reported in parentheses. Significance levels at 1%, 5% and 10% are highlighted in bold and asterisked by ***, ** and * respectively.

Panel A: Full Sample (Dependant variable = Voting Premium)

Dependant Variable = Voting Premium	OLS Estimates	Firm Fixed Effects Estimates	Random Effects Estimates
Intercept	0.96***	0.18**	0.87***
	(4.92)	(2.72)	(2.44)
Aggregate EM rank	0.23***	0.20***	0.19***
	(4.01)	(3.07)	(3.08)
Log of Total Market Value	0.002	-0.02***	-0.02***
	(0.41)	(-5.69)	(-4.60)
Voting Power	0.005**	0.006**	0.006**
	(2.23)	(2.01)	(2.00)
Relative Turnover	0.03***	0.01**	0.02**
	(4.29)	(2.32)	(2.09)
Anti-Director Rights Index	-0.11***		-0.11***
	(-10.14)		(-4.99)
Legal Enforcement	-0.05**		-0.03**
	(-2.72)		(-1.99)
Ownership	-0.76***		-0.84***
	(-7.71)		(-3.44)

Accounting Standards	0.00		0.002
	(1.06)		(0.53)
Industry Effects	Yes	No	Yes
Year Effects	Yes	Yes	Yes
No. of Obs.	4,004	4,004	4,004
Adj. R-square	0.42	0.10	0.43

Panel B: Within Legal Regime (Pooled OLS).

Dependant Variable = Voting Premium	Within Denmark	Within Finland	Within Sweden
Intercept			
Aggregate EM rank	0.77***	0.13**	0.12***
	(2.85)	(1.97)	(3.12)
Log of Total Market Value	-0.08***	-0.03***	0.01*
	(-3.02)	(-3.74)	(1.81)
Voting Power	-0.08***	0.01	-0.01**
	(-2.11)	(1.53)	(-2.27)
Relative Turnover	0.09***	-0.003	0.01**
	(3.08)	(-0.71)	(2.36)
Industry Effects	Limited	Limited	Limited
Year Effects	Yes	Yes	Yes
No. of Obs.	115	110	377
Adj. R-square	0.44	0.69	0.33

Table 6: Effect of Competition on Private Control Benefits and the Role of Aggressive Earnings Management

This table estimates a specification similar to column (II) of Table IV in GG (2006), which is the effect of industry-adjusted import penetration on the voting premium. Industry-adjusted import penetration and price-cost margins are estimated by subtracting the average import penetration and price cost margins across all countries across all years for the relevant 3-digit industry from the raw values. Only ranks of industry-adjusted import penetration and ranks of industry-adjusted price cost margins are used in the analysis. Anti-director, accounting standards and rule of law are from La Porta *et al.* (1998). The voting premium variable is winsorized at the 1st and 99th percentile in both Panel A and Panel B.

Panel A: Full DCS Sample

Dependant Variable = Voting Premium	(1)	(2)	(3)	(4)
Intercept	0.52***	2.89***	-0.16*	1.26***
	(4.77)	(37.54)	(-1.86)	(10.74)
Rank of Industry-adjusted import penetration (IAIC)	-0.26***	-0.28***		
	(-4.81)	(-4.73)		
Rank of IAIC*High Earnings Management		0.09***		
		(2.86)		
Rank of Industry-Adjusted Price-Cost Margins (IAPCM)			-0.08**	-0.04
			(-2.23)	(-0.89)
Rank of IAIC*High Earnings Management				0.02
				(0.67)
Anti-Director Rights Index	-0.08***	-0.10***	-0.009	-0.04***
	(-7.10)	(-11.06)	(-0.85)	(-4.67)
Rule of Law	-0.04***	-0.06***	-0.10***	-0.12***
	(-4.59)	(-6.41)	(-12.62)	(-13.27)
Accounting Standards	0.005***	0.009***	-0.003**	0.002*
	(3.45)	(5.73)	(-2.28)	(1.64)

Industry Effects	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes
No. of Obs.	3,487	2,665	4,364	2,983
Adj. R-square	0.33	0.46	0.38	0.43

Panel B: Full DCS Sample partitioned by Aggregate Earnings Management

Dependant Variable = Voting Premium	High Earnings Management Sample		Low Earnings Management Sample	
Intercept	0.66***	1.38***		0.97***
	(3.12)	(7.43)		(4.23)
Rank of Industry-adjusted import penetration (Iaic)	-0.05		-0.34***	
	(-0.45)		(-4.66)	
Rank of Industry-Adjusted Price-Cost Margins (IAPCM)		0.06		-0.02
		(1.09)		(-0.31)
Anti-Director Rights Index	-0.09***	-0.04**	-0.15***	-0.06***
	(-4.97)	(-2.22)	(-8.27)	(-3.49)
Rule of Law	-0.10***	-0.13***	0.02	-0.12***
	(-6.51)	(-9.33)	(0.98)	(-6.92)
Accounting Standards	0.01***	0.004	0.007***	0.004*
	(3.60)	(1.44)	(2.64)	(1.80)
Industry Effects	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes
No. of Obs.	1,300	1,566	1,365	1,417
Adj. R-square	0.48	0.49	0.48	0.59

Figure 1

This figure displays the regression line with the dependant variable as the aggregate earnings management rank and the independent variable as the industry-adjusted import penetration ratio. The values are computed across all countries for every 3-digit SIC industry code.

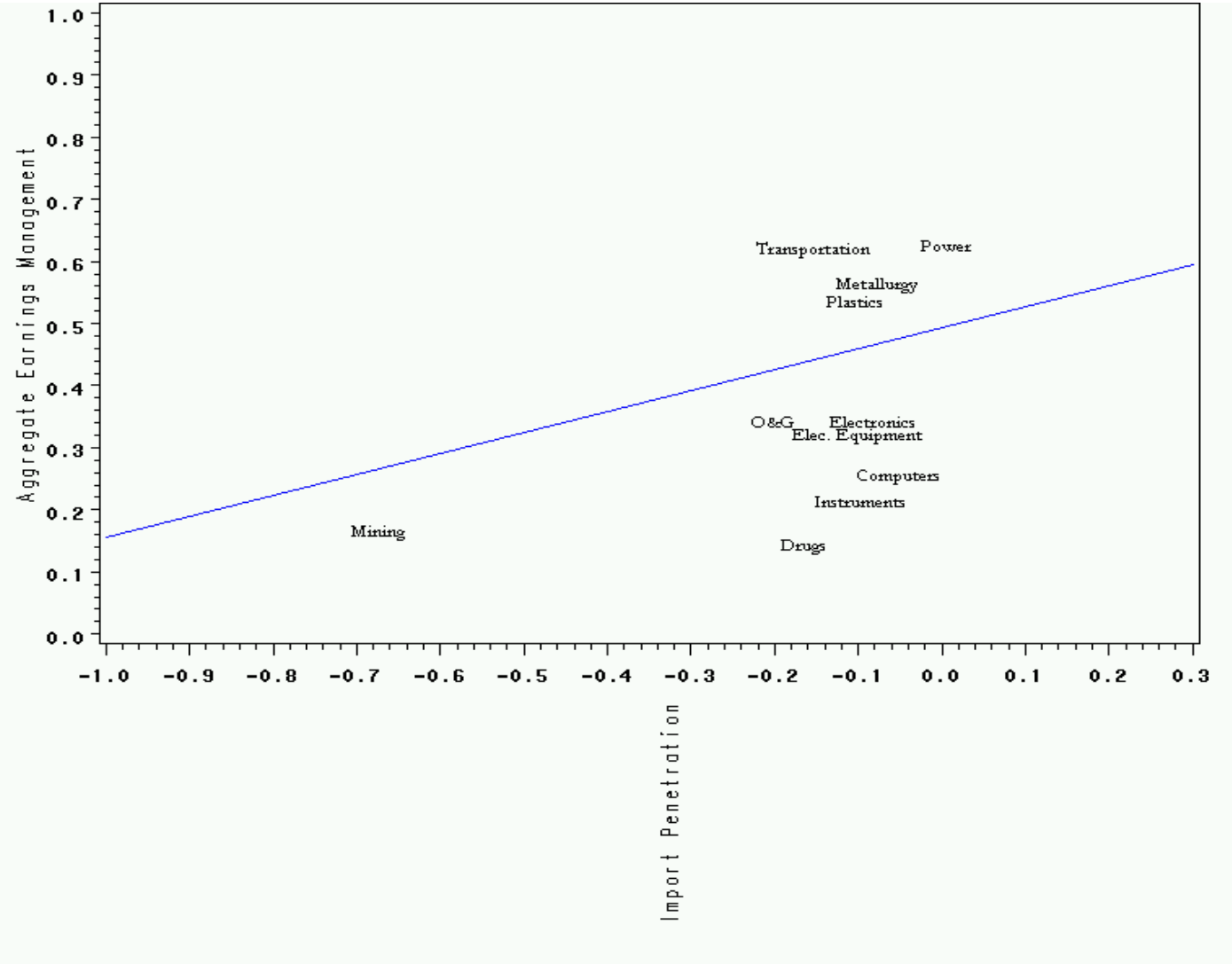


Figure 2

This figure displays the regression line with the dependant variable as the aggregate earnings management rank and the independent variable as the industry-adjusted price-cost margins. The values are computed across all countries for every 3-digit SIC industry code.

