

THE EFFECT OF DOMINANT FIRMS' SHOCKS ON EARNINGS MANAGEMENT

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Abstract

This study aims to investigate whether dominant firms' idiosyncratic shocks affect earnings management of non-dominant firms. Following relevant macroeconomic literature, shocks to dominant firms are measured by abnormal levels of sales growth, considering both country- and industry-level benchmarks – thus, the greater the shocks, the greater the abnormal sales growth. Based on a cross-country setting of firms from European Union countries, I predict and find that the level of dominant firms' shocks is negatively associated with earnings management practices of non-dominant firms. Aligned with granular hypothesis suggested by Gabaix (*Econometrica*, 79:733–772, 2011) seminal work, these findings suggest that positive shocks to dominant firms could positively beneficiate other firms, as well as to be related to expansion of the economy, less macroeconomic uncertainty and, hence, to discourage earnings management of non-dominant firms.

Keywords: dominant firms' shocks, earnings management, international accounting.

JEL Classification: E32, D20, M41, G15.

1 Introduction

This study aims to investigate whether dominant firms' idiosyncratic shocks affect earnings management of non-dominant firms. The role of extremely large companies (henceforward, dominant firms²) on the worldwide economy has been stunning. In the US, for instance, the share of sales of the top 100 firms account for around 30% of GDP since 2000 (Garbaix, 2011). By analyzing the European Union context, Ebeke and Eklou (2007) empirically demonstrate that the top 100 large firms' sales from account for a significant share of the euro area's GDP, around 29% on average. In fact, the annual revenues of companies such as Apple, Microsoft, and Walmart are so huge that they take on whole new dimensions. So much so that their profits dwarf the economy of many countries across the globe. For instance, Walmart earned more than the whole of Belgium in 2017 (Business Insider, 2018). Moreover, recently, investors are betting, in part, that the Covid-19 crisis accelerates the already growing power of corporate colossuses – April 2020 data shows for example that Microsoft, Apple, Amazon, Alphabet, and Facebook now make up more than 20 percent of the value of the entire S&P 500 index, a level that's higher than it was even during the dot-com boom (New York Times, 2020)³.

Given their representativeness, the interest on idiosyncratic firm-level shocks of large firms seems to be risen in the last few years in economics, especially after Garbaix's (2011) seminal work, who demonstrates the granular effects of micro-level shocks. Contrary to a more traditional economic view that, in the presence of a very large number of firms, idiosyncratic shocks at firms are expected to die out in the aggregate, Garbaix (2011) provides convincing results that top 100 dominant firms' idiosyncratic shocks in US can explain an important part of aggregate movements and provide a microfoundation for aggregate shocks. Since then, other researchers have been empirically demonstrating that dominant firms' shocks exercise similar influence in macroeconomic in other markets as well, such as Finland (Fornaro and

² OECD (2002). Dominant firms: glossary of statistical terms. Retrieved from <https://stats.oecd.org/glossary/detail.asp?ID=3199>.

³ New York Times (2020). Investors bet giant companies will dominate after crisis. Retrieved from <https://www.nytimes.com/2020/04/28/business/coronavirus-stocks.html>

Luomaranta, 2018), Spain (Blanco-Arroyo et al., 2018), Brazil (Silva and Silva, 2020), Japan (Hogen et al., 2013), Russia (Popova, 2019), French (Di Giovanni et al., 2014), and Europe Union market (Rosal; 2013; Ebeke and Eklou, 2017).

Previous economic literature also demonstrates the role of dominant firms' idiosyncratic shocks on firms' market value (Barrot and Sauvagnat, 2016), investment decisions (Amiti and Weinstein, 2018), market volatility (Gaspar and Massa, 2006), and so on. However, little is known on how firm-level shocks of dominant firms affect the opportunistic behavior of managers regarding the manipulation of accounting amounts of other firms. Following previous studies (e.g., Jannati, 2020; Silva and Silva, 2020; Popova, 2019; Fornaro and Luomaranta, 2018; Stella, 2015; Garbaix, 2011), I interpret idiosyncratic firm-level shocks of dominant firms as the difference between actual and expected sales growth. More specifically, high (low) levels of dominant firms' shocks mean that dominant firm grow more (less) than the country, or even the industry, average growth.

Previous accounting literature provides several results regarding the effect of economic shocks on earnings management (e.g., Lisboa and Kacharava, 2018; Filip and Raffournier, 2014; Trombetta and Imperatore, 2014). These studies, in general, are focused only on a macroeconomic view of shocks, specially dedicated to financial crisis periods such as the 1990 Persian Gulf crisis (Han and Wang, 1998), Mexican crisis of 1994 (Davis-Friday and Gordon, 2005), 1997 East Asian crisis (Ahmad-Zaluki et al., 2011; Choi et al., 2011), and more recently the 2007-2009 subprime period (Türegün, 2019; Filip and Raffournier, 2014). In fact, the macroeconomic environment seems to play an important role in managers decisions in a broad (Arnold, 2009). However, the way that macroeconomic shocks change firm-level strategies seems to vary according to what firm-level are facing (Owens et al., 2017). Surprisingly, little is known yet in accounting literature about how firm-level shocks could affect managers' opportunistic behavior regarding earnings management strategies. I explore this issue and empirically investigate the potential implications of dominant firms' shocks to opportunistic accounting choices of non-dominant firms.

The influence of dominant firms' shocks on earnings management strategies of non-dominant firms could be borne out through two main ways: in a more direct one, as well as indirectly. First, directly, non-dominant firms could obtain positive operational benefits over dominant firms' shocks. Given that dominant firms, when compared to small firms, have a more centralized management system, more non-personal mechanisms of control, as well as greater tendency to integrate operations ability to leverage across country markets and industries, and the ability to plan and act on a long-term basis (Pan and Li, 2000), they have an important impact on explaining firm strategies not only of themselves but also of the entire market and hence non-dominant firms. In fact, dominant firms may develop or possess knowledge of technology, business organization, or markets that can be transferred to small firms through the movement of employees or demonstration. Knowledge transfer, for instance, is likely to occur over relatively short distances, through face-to-face contact with clients or suppliers, for example, or even within the local labor market (Nicola et al., 2019).

As suggested by management theory, it could be assumed as well that small firms should learn from large firms, namely regarding benchmarking issues (Cassell et al., 2001). Thus, all of these benefits obtained through positive shocks from large companies could, therefore, discourage earnings management by non-dominant firms. In fact, previous literature states that "a strong performance reduces the need for and incentive of earnings manipulation" (Paiva et al., 2019, p. 123). From this perspective, empirically, previous studies demonstrate a negative association between earnings management and corporate performance (e.g., Paiva et al., 2019; Doukakis, 2014), as well as a positive association with economic losses (e.g., Ferri et al., 2018; Gray et al., 2015; Han et al., 2015). Thus, given an alleged operational benefit obtained by smaller companies when large companies get positive shocks, I hope that managers of smaller companies will feel less pressure to get involved in earnings manipulation.

Second, indirectly, given that positive shocks to dominant firms are related to more expansion of the economy (e.g., Popova, 2019; Fornaro and Luomaranta, 2018; Ebeke and Eklou, 2017; Di Giovanni et al., 2014; Garbaix, 2011), I expect a general decrease of market uncertainty, and hence lower earnings management of non-dominant firms. In other words,

considering that positive abnormal growth levels of dominant firms could positively impact the macroeconomic environment – e.g. by increasing GDP growth, decreasing inflation, among others (Garbaix, 2011) –, it's plausible to assume that an improvement in macroeconomic aggregates could alleviate managers pressure to better operational results, and hence to decrease earnings management practices by non-dominant firms. Concerning that, Trombetta and Imperatore (2014) comment that during a period of financial distress managers are more willing to undertake earnings manipulation activities – suggesting thus that in periods of macroeconomic expansion firms could engage in less earnings management. In fact, even though some inconclusive results, Dimitras et al. (2015) and Filip and Raffournier (2014) empirically demonstrate that GDP growth is negatively associated with earnings manipulation in some countries in European Union countries. Moreover, better performance of the countries' macroeconomics indicators may also attract foreign investment and therefore increase the number of analysts, investors, and therefore enforcement as a whole, which could reduce earnings management practices in these countries overall, including non-dominant firms.

In sum, based on those arguments, my main expectation is that dominant firms' shocks are negatively associated with earnings management levels of other firms. In other words, when the largest firms experiment abnormal growth levels, I hypothesize that in a broad firms' managers of other firms engage in less earnings management. I empirically test my prediction based on a cross-country setting of firms from 9 European Union countries. Given this context, I divide firms between dominant and non-dominant firms. Considering previous economic literature (e.g., Garbaix, 2011; Stella, 2015), I interpret dominant firms as the top 100 firms based on sales levels. Hence, other firms as treated as non-dominant firms. I proceed with this classification for each analyzed country-year. Following Ebeke and Eklou (2017), Di Giovanni et al. (2014), and Garbaix (2011), I measure dominant firms' shocks by abnormal levels of sales growth, considering both country- and industry-level benchmarks. I also take into account international accounting literature and measure earnings management by the most traditional measure proposed by previous literature, namely abnormal levels of discretionary accruals. In order to incorporate facets of different accruals models proposed by previous literature, as well

as attempt to mitigate measurement errors (Trimble, 2018), I consider a bunch of variables regarding earnings management. My empirical findings consistently suggest that the level of dominant firms' shocks of each country-year is negatively associated with earnings management practices of non-dominant firms, either considering annual growth expected levels of dominant firms at the country- or industry-level. Those main results are also robust when considering several accruals earnings management measures.

Although the massive literature regarding economic shocks to earnings management, especially concentrated in macroeconomic shocks in crisis periods (e.g., Lisboa and Kacharava, 2018; Filip and Raffournier, 2014; Trombetta and Imperatore, 2014), little is known yet about the role of firm-level shock to earnings management strategies. One exception is Owens et al. (2017), who empirically demonstrate how idiosyncratic shocks are widespread, propagate through multiple years of financial statements, and reduce accrual models' goodness of fit in the US market. I extend and overcome Owens et al. (2017) findings, and specifically investigate the impact of dominant firms' shocks to earnings management strategies of non-dominant firms in a cross-country context, by considering firms from European Union region.

The remainder of this paper is organized as follows. Section 2 provides background on dominant firms' shocks, earnings management practices, as well as my main prediction regarding these subjects. Section 3 presents the research design, including variables measurement and sample selection process. Section 4 reports the empirical results. Section 5 presents additional and robustness tests regarding my main empirical findings, and Section 6 concludes.

2 Background and Prediction

2.1 Dominant firms' shocks effect on non-dominant firms

One of the most consistent and noticeable empirical phenomena in economics is the persistence of asymmetric size distribution of firms that are comprised of a relatively small number of large enterprises and heavily skewed toward a large number of small firms

(Audretsch et al., 1999). There are many advantages of being a larger firm – that I call in this paper as “dominant firm” (OECD, 2002) – and these advantages clearly affect a firm's business strategies. In a broad, dominant firms have a greater tendency to integrate operations on a regional and global basis, been able to capitalize on the differences in resources across countries, and achieve economies of scale, scope, and learning. By contrast, non-dominant firms often suffer from limited financial resources, having a narrow market scope, inadequate management and technology capabilities, and lack the necessary international experience (Pan, and Li, 2000).

In fact, a very small number of dominant firms may potentially have a non-trivial effect on production dynamics. Nokia's spending, the international mobile-phone manufacturer, on research and development made up around 30% of the country's total, and it generated nearly a fifth of Finland's exports from the last few years, including paying as much as 23% of all Finnish corporation tax in 2007⁴. By analyzing the European Union context, Ebeke and Eklou (2007) empirically demonstrate that the top 100 large firms' sales from account for a significant share of the euro area's GDP, around 29% on average. In US, the share of sales of the top 100 firms account for around 30% of GDP since 2000 (Garbaix, 2011), and in Russia the average share of sales of the top-100 non-financial companies in Russia's GDP was about 20% over the period of 1999–2016 (Popova, 2019). Thus, given their tremendous representativeness, the dominant firms' shocks have been studied by economic literature.

Unlikely to a more conservative and traditional view that idiosyncratic shocks at firms are expected to die out in the aggregate – in a broad based on Robert Lucas's (1976) critique – Garbaix's (2011) seminal work provides convincing results that US dominant firms' idiosyncratic shocks can explain an important part of aggregate movements. More specifically, Garbaix (2011) develops the view that a large part of aggregate fluctuations arises from idiosyncratic shocks to individual firms, empirically demonstrating “that many economic fluctuations are attributable to the incompressible ‘grains’ of economic activity”, the dominant

⁴ The Economist (2012). The Nokia effect: Finland's fortunes are affected by one firm. What about other countries? Retrieved from <https://www.economist.com/finance-and-economics/2012/08/25/the-nokia-effect>.

firms. Based on top 100 US firms, the author shows convincing empirical results that shocks to dominant firms “have the potential to generate nontrivial aggregate shocks that affect GDP, and via general equilibrium, all firms” (Garbaix, 2011, p. 734-5). Since then, other researchers have been empirically demonstrating that dominant firms’ shocks exercises similar influence in macroeconomic in other markets as well, such as Finland (Fornaro and Luomaranta, 2018), Spain (Blanco-Arroyo et al., 2018), French (Di Giovanni et al., 2014), Japan (Hogen et al., 2013), and Europe Union market (Ebeke and Eklou, 2017; Rosal, 2013). The literature also demonstrates the effect of dominant firms’ shocks in emerging markets, such as Brazil (Silva and Silva, 2020), and Russia (Popova, 2019).

Besides the role of dominant firms’ shocks to aggregate economics, previous literature also demonstrates in a more direct way the role of dominant firms on non-dominant firms. Jannati (2020), for instance, empirically demonstrate that shocks to the dominant US firms spillover to non-dominant firms, as their productivity shocks are positively correlated with future shocks to other firms. Actually, the spillover effect is increased restricting the sample to dominant and non-dominant that operate in the same industry, despite the same effect can be demonstrate in firms from different industries. Nicola et al. (2019) find similar evidences, by demonstrating stronger productivity growth for companies operating in industries with a greater presence of high-growth firms. Edmiston (2007, p. 75) also theoretically argue that positive spillovers of dominant firms’ growth on non-dominant firms “include links with suppliers, increased consumer spending, the transfer of knowledge from one firm to another, and the sharing of pools of workers”.

Hence, given the potential spillovers effects of dominant to non-dominant firms, I suspect that the level of dominant firms’ shocks should also affect the opportunistic behavior of non-dominant firms, regarding specifically to earnings management, as I discuss in detail as follow.

2.2 Dominant firms' shocks effect on non-dominant firm's earnings management

Earnings management is by far one of the most intriguing points in the current accounting literature agenda. Overall, this practice occur “when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers” (Healy and Wahlen, 1999, p. 368). Several firm-level factors are pointed out by previous empirical studies as determinants of earnings management practices, such as cost of capital (Strobl, 2013), audit quality (Prawitt et al., 2009), tax expenses (Phillips et al., 2003), disclosure aspects (Jo, and Kim, 2007), and information asymmetry (Richardson, 2000), as well as country-level characteristics such as investor protection (Leuz et al., 2003), national culture (Nabar and Boonlert-U-Thai, 2007), law enforcement (Bocking et al., 2015), among others.

Previous accounting literature also provides results regarding the effect of economic shocks on earnings management (e.g. Lisboa and Kacharava, 2018; Owens et al., 2017; Filip and Raffournier, 2014; Trombetta and Imperatore, 2014). These studies in general are focused only on a macroeconomic view of shocks, especially dedicated to financial crisis periods such as the 1990 Persian Gulf crisis (Han and Wang, 1998), Mexican crisis of 1994 (Davis-Friday and Gordon, 2005), 1997 East Asian crisis (Ahmad-Zaluki et al., 2011; Choi et al., 2011), and more recently the 2007-2009 subprime period (Türegün, 2019; Filip and Raffournier, 2014; Flores et al., 2016). In fact, the macroeconomic environment seems to play an important role to managers decisions in a broad (Arnold, 2009). However, the way that macroeconomic shocks change firm-level strategies seems to vary according to what firm-level are facing (Owens et al., 2017). Surprisingly, little is known yet in accounting literature about how firm-level shocks could affect managers' opportunistic behavior regarding earnings management strategies. I explore this issue and empirically investigate the potential implications of dominant firms' shocks to opportunistic accounting choices of non-dominant firms.

Based on the potential influence of dominant to non-dominant firms, my main prediction is that the level of dominant firms' shocks is negatively associated with the earnings

management levels of non-dominant firms. In other words, my main suspicion is that when largest firms experience abnormal growth (falls) levels, in a broad sense, firms' managers of other firms engage in less (high) earnings management practice. The influence of dominant firms' shocks on earnings management strategies of non-dominant firms could be borne out through two main ways: in a more direct one, as well as indirectly.

In a more direct way, non-dominant firms' managers could be discouraged from manipulating accounting amounts given a positive operational benefit obtained suggested by literature when large firms achieve high levels of economic shocks. These positive spillovers effect seems to be well documented in both economic and management previous literature (e.g., Jannati, 2020; Noh, 2020; Edmiston, 2007; Nicola et al., 2019). Dominant firms can have a considerable impact on their local economies. This local impact can occur, for example, via their state income tax payments, new job opportunities, or through their impact on local entrepreneurial activities. Thus, a higher level of productivity shocks to dominant firms can lead to greater economic growth within their geographic areas, which in turn can induce a higher level of growth opportunities for other local firms, beyond direct connections among dominant firms and other neighboring firms (Jannati, 2020).

Thus, given an alleged operational benefit obtained by smaller companies when large companies get positive shocks, I hope that managers of smaller companies will feel less pressure to get involved in earnings manipulation. In fact, a strong performance seems to reduce the need for and incentive of earnings manipulation (Paiva et al., 2019, p. 123), and many previous studies empirically demonstrate a negative association between earnings management and corporate performance (e.g., Paiva et al., 2019; Doukakis, 2014), as well as a positive association with economic losses (e.g., Ferri et al., 2018; Gray et al., 2015; Han et al., 2015).

Indirectly, I also expect that the positive effect of dominant firms' shocks on macroeconomic aggregate can also reduce market uncertainty, reduce pressure from managers and, therefore, discourage earnings management practices. Previous literature consistently demonstrates in an empirical way that economic expansions periods are

negatively associated to market uncertainty (e.g., Arellano et al., 2019; Caldara et al., 2016; Bloom, 2014; Bloom, 2009; Wennekers et al., 2007). Taking into account a large panel data based on US data, for instance, Caldara et al. (2016) show convincing empirical findings suggesting that uncertainty shocks, especially those implied by uncertainty proxies based on real economic data, are strongly correlated to cyclical fluctuations. In the same line, Bloom (2014) demonstrates that both macro and micro uncertainty rise sharply in recessions and fall in booms, and that uncertainty also varies heavily across countries – developing countries appear to have about one-third more macro uncertainty than developed countries. Based on 21 OECD countries data, Wennekers et al. (2007) also demonstrate that an historical negative relationship between uncertainty avoidance and GDP per capita.

Moreover, previous studies also demonstrate that lower levels of market uncertainty are associated to lower levels of earnings management (e.g., Chen et al., 2019; Yung and Root, 2019). Using the volatility index from the Chicago Board Option Exchange to proxy for macroeconomic uncertainty and a sample of U.S. firms from 2002 to 2014, Chen et al. (2019) document that macroeconomic uncertainty is positively associated to total amount of accruals – this last one that could be considered a proxy for earnings management. Similarly, considering a sample of 81,395 firm-year observations from 18 countries, Yung and Root (2019) find consistent evidence that firms increase (decrease) earnings management when policy uncertainty is high (low). Overall, the general idea behind those studies is that firms can be expected to adjust their earnings by using earnings management techniques to counterbalance economic policy uncertainty. Thus, taking those arguments together, I consider reasonable to expect that the positive effects on the macroeconomic environment as a whole when large companies experience abnormal growths (high levels of economic shocks) – in order mainly to create economic expansions – could decrease market uncertainty, reducing pressure from managers for better results and, finally, decreasing handling.

3 Research design

3.1 The Model

In order to test my main prediction – that the level of dominant firms' shocks is negatively associated to the earnings management levels of non-dominant firms –, I estimate Equation (1):

$$EM_{ijt} = \alpha_0 + \beta_1 \text{Dominant Shocks}_{jt-1} + \gamma \text{Controls}_{ijt} \quad (\text{Eq. 1})$$
$$+ \sum \text{FE Countries} + \sum \text{FE Industries} + \sum \text{FE Years} + \varepsilon$$

where EM_{ijt} is the earnings management of non-dominant firms for each firm i in year t from country j . $\text{Dominant Shocks}_{jt-1}$ is the dominant firms' shocks for each country j and year $t-1$ ⁵.

Taking into account my main prediction, I expect the coefficient β_1 to be significantly negative, suggesting that level of dominant firms' shocks is negatively associated to the earnings management levels of non-dominant firms – what would suggest that when largest firms experiment abnormal grows (fails) levels, in a broad, firms' managers of other firms engage in less (high) earnings management practice. I also control changes in firms' incentives noises (Barth et al., 2008) considering a bunch of control variables at firm-level that have been used extensively by previous earnings management studies in international accounting literature (e.g., Osma et al., 2020; Srivastava, 2019; Larson et al., 2018; McNichols, 2018; Trimble, 2018; Doukakis, 2014; Barth et al., 2008; Jeanjean and Stolowy, 2008). All variables definitions are found in Appendix A.

All my econometric models are estimated using traditional Ordinary Least Squares (OLS) approach, controlled for industry-, year- and country-fixed effects. Given potential bias

⁵ Following previous literature (e.g., Jannati, 2020; Popova, 2019; Di Giovanni et al., 2014; Garbaix, 2011), I ensure to consider $\text{Dominant Shocks}_{it-1}$ at the beginning of the year t given that it's more likely that managers of non-dominant firms take into account overall financial and operational implications that coming out from dominant firms' shocks in year $t-1$ to then formulate strategic decisions to year t , included those regarding to manipulation of account amounts.

for censoring in the dependent variable – namely the absolute amount of discretionary accruals –, I also proceed in robustness test considering Tobin (1958) technique. To adjust for possible cross-sectional and serial correlations, standard errors are corrected for firm-clustering effects (see Petersen, 2009). All continuous firm variables are winsorized at 1% and 99% tail to avoid the effects of outliers.

3.2 Main Variables

3.2.1 Dominant Firms' Shocks

I follow previous economic literature (e.g., Jannati, 2020; Popova, 2019; Fornaro and Luomaranta, 2018; Stella, 2015; Di Giovanni et al., 2014; Garbaix, 2011) and measure dominant firms' shocks as the difference between actual and expected sales growth considering both country- (*Dominant Shocks1*) and industry-level (*Dominant Shocks2*) benchmarks. From this perspective, positives (negatives) idiosyncratic firm-level shocks of dominant firms mean that those firms grow more (less) than either the country- or the industry-level average growth in a given specific year. Moreover, thus, dominant firms' shocks are both variables at country-level, which vary for each country and year. In order to obtain those measures hence I proceed in the following steps.

First, I segregate dominant and non-dominant firms by ranking firms according to the lagged real sales (real operating revenue) in each year and for each country. Following Jannati (2020), Ebeke and Eklou (2017), Garbaix (2011), among others, I classify dominant firms as those in the top 100 sales ranking. All of the other firms, hence, are classified as non-dominant firms. Given my main interest to analyze the implication of dominant firms' shocks to non-dominant firms, I estimate economic shocks only to dominant firms (see Ebeke and Eklou, 2017; Garbaix, 2011).

Second, I follow Gabaix (2011) and suppose that the revenue generation process evolves as:

$$g_{isjt} = \beta' X_{isjt} + \varepsilon_{isjt} \tag{Eq. 2}$$

where, g_{istj} is the sales growth for each firm i , belonging to industry s , in country j , at year t , from the year $t-1$ to t . X_{itj} is a vector of factors that may depend on firm characteristics at time $t-1$ and on factors at time t . ε is the idiosyncratic component sale growth of the top 100 firms.

Thus, the idiosyncratic shock ε is the deviation of actual sales growth from the average across the country, the industry, or both. Formally, I estimate the regression model of sales growth rates on a number of year, industry and/or country dummy variables. From this model, I determine the idiosyncratic shocks (or granular residuals), taking only into account the top 100 sales ranking firms (dominants).

Third, following an approach similar to Ebeke and Eklou (2017) and Gabaix (2011), I calculate both *Dominant Shocks1* (country-specific) and *Dominant Shocks2* (industry-specific) for a given country j in a given year t as the sum of the idiosyncratic firm-level sales shocks of dominant firms, weighted by firm size, according to Equations 3 and 4, respectively:

$$Dominant\ Shocks1_{tj} = \sum_{i=1}^K \frac{S_{isj,t-1}}{GDP_{j,t-1}} \widehat{\varepsilon}_{ijt} \quad (Eq. 3)$$

$$Dominant\ Shocks2_{tj} = \sum_{i=1}^K \frac{S_{isj,t-1}}{GDP_{j,t-1}} \widehat{\varepsilon}_{isjt} \quad (Eq. 4)$$

where the weight is the lagged ratio of the dominant firms' sales divided by the country's GDP. $\widehat{\varepsilon}_{ijt}$ are residuals by Equation (2) considering year, and country dummy variables. $\widehat{\varepsilon}_{isjt}$ are residuals by Equation (2) considering year, industry, and country dummy variables. K is the number of firms for which I calculate granular shock (top 100 ranking firms' sales).

Therefore, *Dominant Shocks1* is centered in country-year sales growth. This adjustment allows the purging of the effects of common shocks to all firms and sectors in each country every year. These include among others, aggregate demand policy shocks (fiscal and/or monetary policies, or major structural reforms). Alternatively, *Dominant Shocks2* is centered in country-industry-year sales growth. The granular residual calculated this way removes significant variability and possible confounding factors. It implies the examination of idiosyncratic shocks to dominant firms that are not driven by shocks which are specific to country, industry and year – a tax reform or a product market reform in a given country that is targeting firms operating in a specific sector would be controlled for (Ebeke and Eklou, 2017).

3.2.2 Earnings Management

Following a large, consistent, and relevant body of previous international accounting research (e.g., Osma et al., 2020; Srivastava, 2019; Larson et al., 2018; McNichols, 2018; Trimble, 2018; Doukakis, 2014; Barth et al., 2008; Jeanjean and Stolowy, 2008), I consider the absolute amount of discretionary accruals as my main proxy to earnings management. Despite some noisy issues on the estimation of accruals process, “research on earnings management has largely continued using aggregate accrual models” (McNichols and Stubben, 2018, p. 227). In fact, according to Larson et al. (2018), there are well over 100 articles in the leading accounting journals with variants of the word “accrual” in their title. The popularity of accrual-based research as a proxy to earnings management is not surprising, given that accruals are the primary mechanism through which accountants seek to make the financial statements useful. Despite the relevance of accruals as proxy to earnings management, I consider robustness tests by using alternative measures (see Section 5).

In order to incorporate facets of different accruals models proposed by previous earnings management literature, as well as attempt to mitigate measurement errors (see Trimble, 2018), I consider a bunch of variables regarding to earnings management by accruals. My first earnings management measure (*Acc1*) is based on Jones (1991) model, following the modifications proposed by Dechow et al. (1995), according to Equations 5 and 6. I consider

the residuals from Equation (3) as the amount of discretionary accruals (*Acc1*), in an unsigned approach.

$$\frac{TA_{it}}{Ats_{it-1}} = \beta_0 \frac{1}{Ats_{it-1}} + \beta_1 \frac{(\Delta Sales_{it} - \Delta AR_{it})}{Ats_{it-1}} + \beta_2 \frac{GPPE_{it}}{Ats_{it-1}} + \varepsilon_{it} \quad (Eq. 5)$$

where

$$TA_{it} = \frac{(\Delta CA_{it} - \Delta CL_{it} - \Delta CASH_{it} + \Delta STDEBT_{it} - DEP_{it})}{Ats_{it-1}} \quad (Eq. 6)$$

where, for each firm *i* in year *t*, TA_{it} are the total accruals for each firm *i* and year *t*. ΔCA_{it} is the change in current assets for each firm *i* from year *t-1* to year *t*. ΔCL_{it} is the change in current liabilities. $\Delta CASH_{it}$ is the change in total cash reserve. $\Delta STDEBT_{it}$ is change in the short-term debt. ΔDEP_{it} as depreciation expense. Ats_{it} is the change in total assets. $\Delta Sales_{it}$ is the change in sales. ΔAR_{it} is the change in accounts receivable. $GPPE_{it}$ is the gross property, plant, and equipment.

My second earnings management measure (*Acc2*) is based on the amendments to Jones (1991) model proposed by Kothari et al. (2005), which basically controlling to firm performance, according to Equations 8. I consider the residuals from Equation (7) as the amount of discretionary accruals (*Acc2*), in unsigned approach.

$$\frac{TA_{it}}{Ats_{it-1}} = \beta_0 \frac{1}{Ats_{it-1}} + \beta_1 \frac{(\Delta Sales_{it} - \Delta AR_{it})}{Ats_{it-1}} + \beta_2 \frac{GPPE_{it}}{Ats_{it-1}} + \beta_3 ROA_{it} + \varepsilon_{it} \quad (Eq. 7)$$

where ROA_{it} is the net income before extraordinary items scaled to total assets. All other variables

My third earnings management measure (*Acc3*) is based on the amendments to Jones (1991) model proposed by Dechow et al. (2012), hence including lagged accruals in order to capture their natural reversal in subsequent periods, according to Equations (8). I consider the residuals from Equation (3) as the amount of discretionary accruals (*Acc3_{itj}*), in unsigned approach.

$$\frac{TA_{it}}{Ats_{it-1}} = \beta_0 \frac{1}{Ats_{it-1}} + \beta_1 \frac{(\Delta Sales_{it} - \Delta AR_{it})}{Ats_{it-1}} + \beta_2 \frac{GPPE_{it}}{Ats_{it-1}} + \beta_3 \frac{TA_{it-1}}{Ats_{it-2}} + \varepsilon_{it} \quad (Eq. 8)$$

Finally, based on Trimble (2018) and Biddle et al. (2009), my fourth earnings management measure (*Acc4*) is an aggregate accrual earnings management proxy, considering all the three previous variables. More specifically, I calculate *Acc4* as the firm-year mean of the standardized values of the prior three accruals measures (*Acc1*, *Acc2* and *Acc3*). All regressions are run over each country-industry-year group with at least 15 observations. Thus, I expect to partially controls for industry-wide changes in economic conditions, as well as countries economic and institutional environment, that affect the accruals estimations, and allows the coefficients to vary across time (Doukakis, 2014).

3.3 Sample

The sample selection process initiates with all publicly listed firms from Thomson Reuters Datastream universe headquartered in European Union countries. My analyzes cover the period between 2000-2018. I exclude financial institutions (SIC 6000-6999) and drop observations that have negative shareholder's equity. Based on macroeconomic literature (see Ebeke and Eklou, 2017; Garbaix, 2011) and thus considering my main design of considering dominant firms as those in top 100 sales raking for each country-year, and non-dominant firms as those over the top 100 sales raking, some firm-year observations are not considered given that in some country-years are not sufficient data regarding to non-dominant firms.

Furthermore, after to drop observations without enough information regarding to non-dominant firm's earnings management measures, as well as control variables (see Appendix A), I remain with 13,845 firm-year observations, from nine European Union countries. Table 1 shows the final sample, breakdown it by country and industry, respectively. United Kingdom, France and Germany are the most representative countries in the sample, around 33%, 26%, and 25%, overall. From the same perspective, firm-year observations from Manufacturing industry (SIC 2000-3999) represent 50% of the sample.

(Insert Table 1 here)

4 Results

Table 2, Panel A, shows the mean of dominant firms' shocks measures, as well as a comparison of sales growth means between dominant and non-dominant firms. In a broad, I observe high levels of firms' shocks to dominant firms from France and Poland, on average. This suggest that dominant firms from those countries have experienced positive abnormal growth regarding to sales levels, throughout my time frame of analysis (2000-2018). Furthermore, I highlight the huge discrepancy of sales means between dominant and non-dominant firms. For instance, the sales mean of top 100 firms from United Kingdom throughout 2000-2018 is around 18,5 US\$ billion, while of non-dominant firms throughout the same analyzed period is around 193 US\$ million – which represents a colossal difference around 9,5 thousands percentage points among the two group of firms. This enormous difference is similar in other countries, what suggest an enormous difference among dominant and non-dominant firms, as already point out by Ebeke and Eklou (2017) in European Union context.

In order to validate the dominant firms' shock measures, I correlate *Dominant Shocks1* and *Dominant Shocks2* with many variables regarding to macroeconomic environment as proposed by previous economic literature on idiosyncratic shocks. The results are shown in Table 2, Panel B. As expected, dominant firms' shocks are positively associated to GDP measures, *GDPgrowth* and *GDPlog*, which confirm the majority of previous economic literature

regarding to shocks of dominant firms (e.g., Jannati, 2020; Blanco-Arroyo et al., 2018; Fornaro and Luomaranta, 2018; Ebeke and Eklou, 2017; Garbaix, 2011). “This result follows the granular hypothesis intuition, which indicates that positive idiosyncratic shocks to large enterprise groups should benefit aggregate economic activity” (Fornaro and Luomaranta, 2018, p. 248). Moreover, Garbaix (2011) suggests a negative association between inflation rates and dominant firms’ shocks in US – what I also confirm in my empirical analysis in European Union context. Finally, I also find evidence of a negative and significant association between dominant firms’ shocks and a dummy regarding to 2007-2009 subprime years (*Crisis*), suggesting a decline of abnormal levels of dominant firms’ sales growth during financial crisis periods.

(Insert Table 2 here)

Table 3 reveals overall descriptive statistics of dependent and independent variables at firm-level for my sample of 13,845 observations of non-dominant firms from 9 European Union countries, covering the 2000-2018 year. The reported values reveal that the means of the four accruals measures (*Acc1*, *Acc2*, *Acc3* and *Acc4*) are quite similar, around 0.09 – close to previous studies on earnings management with cross-country design as well (e.g., Han et al., 2010; Lewellyn, 2017; Lyu et al., 2017). Furthermore, from the 13,845 firm observations, around 70% disclose their consolidated financial statements in IFRS standards, 57% are audited by big four auditors, and 34% present negative net income.

(Insert Table 3 here)

Table 4 shows the correlation among all continuous variables. I highlight that the four earnings management measures are negatively correlated to both *Dominant Shocks1* and *Dominant Shocks2*, although only *Acc2* is statistically significant at conventional levels. Overall, those findings confirm my main prediction that the level of dominant firms’ shocks is

negatively associated to the earnings management levels of non-dominant firms. Moreover, I also identify that dominant firms' shock measures are positively correlated to return on equity of non-dominant firms. These correlations are significant at conventional levels, suggesting that non-dominant firms operationally benefit from abnormal growth of dominant firms (see e.g., Nicola et al., 2019; Jannati, 2020). Finally, the highest correlation among continuous independent variables is around 40% (*Leverage* and *Dissue*), which mitigates potential multicollinearity issues in my estimations.

(Insert Table 4 here)

Table 5 provides results regarding to my main prediction, considering primarily dominant firms' shocks centered in country-year sales growth (*Dominant Shocks1*), purging hence of the effects of common shocks to all firms and sector in each country every year. Taking into account overall the different earnings management measures, except for *Acc1* (-0.001, *t*-stat = -1.50), I consistently find a negative and significant coefficient for all earnings management measure at conventional levels, namely *Acc2* (-0.002, *t*-stat = -1.89), *Acc3* (-0.003, *t*-stat = -2.46) and *Acc4* (-0.002, *t*-stat = -2.17). Those findings are robust controlling for country, industry and year-fixed effects, as well as in the presence of all the firm- and country-level control variables that may affect firms' earnings management level. The results confirm my main prediction, suggesting that dominant firms' shocks are negatively associated to earnings management levels of non-dominant firms. In other words, I find evidence that when dominant firms suffer positive (negative) shocks – namely, positive (negative) abnormal levels of sales growth –, non-dominant firms seem to engage in less (more) opportunistic accounting choices in order to manipulate accounting amounts. I attribute those findings to a potential positive spillover effect that dominant firms, directly and indirectly, cause in non-dominant firms. More specifically, when dominant firms suffer positive shocks, possibly non-dominant end up benefiting operationally from this growth, generally increasing their operational performance (e.g., Jannati, 2020; Nicola et al., 2019) – reducing the market pressure for better

economic results and, thus, discouraging the earnings management practices by managers of those firms. Furthermore, I also suspect that positive shocks to large enterprise groups should benefit aggregate economic activity (e.g., Jannati, 2020; Blanco-Arroyo et al., 2018; Fornaro and Luomaranta, 2018), what could result in lower levels of market uncertainty (Arellano et al., 2019; Caldara et al., 2016; Bloom, 2014), and finally discourage earnings management practices of non-dominant firms (Chen et al., 2019; Yung and Root, 2019).

As to the control variables, among others, the results in Table 5 show that the coefficients of *IFRS* and *Audit Quality* are consistently negative and significant for all earnings management variables estimations. Those findings are consistent with some previous international accounting literature that demonstrate decreases of earnings management practices in post-IFRS periods (Trimble, 2018; Chen et al., 2010; Barth et al., 2008), as well as some audit literature who demonstrate the role of big four auditors in restricting firms' earnings manipulation by accruals (Iatridis, 2012; Van Tendeloo and Vanstraelen, 2008). Moreover, those empirical findings also suggest that larger, less profitable, highly leveraged, high growth, less "tangibilized", and loss firms engage in higher earnings management practices (e.g., Doukakis, 2014; Gray et al., 2015).

(Insert Table 5 here)

Table 6 shows the estimations of the main model considering dominant firms' shocks centered in country-year-industry sales growth (*Dominant Shocks2*), based hence on the deviation of the firm-specific sale growth relative to the average sale growth of all firms in the same industry, in the same country, at a given year. Similar to Table 5, again I consistently find a negative and significant coefficient for *Acc2* (-0.002, *t*-stat = -1.87), *Acc3* (-0.003, *t*-stat = -2.36) and *Acc4* (-0.002, *t*-stat = -2.10) – which confirm my main prediction that, in fact, dominant firms' shocks are negatively associated to earnings management levels of non-dominant firms. Overall, the signal and significance of the control variable coefficients are

consistent with those presented in Table 5, confirming previous earnings management literature (e.g., Doukakis, 2014; Gray et al., 2015).

(Insert Table 6 here)

Taken together, my main empirical findings suggest that high levels of shocks of dominant firms seem to discourage earnings management practices by managers from non-dominant firms, either considering shocks as centered either in country-year or country-industry-year levels benchmarks. In other words, I confirm my main prediction that positive shocks to dominant firms could positively benefit other firms, as well as to be related to expansion of the economy, less macroeconomic uncertainty, and, hence, to discourage earnings management of non-dominant firms.

5 Additional and Robustness Tests

I conduct several additional and robustness tests, in order to expand and confirm the results that I present in my main analysis. First, additionally to my main analysis, I consider the possibility of the dominant firms' shocks effect on non-dominant firms to vary depending on two important factors of great relevance to the international accounting literature. More specifically, I additionally explore the role of IFRS mandatory adoption and big four auditors on the association between dominant firms' shocks and earnings management of non-dominant firms. Formally, I estimate my main model additionally considering an interaction term of dominant firms' shocks variables with *IFRS* and *Big Four*, where *IFRS* and *Big Four* are variables as previously defined. The results are presented in Panels A and B in Table 7.

(Insert Table 7 here)

As regards to the role of IFRS, I observe that overall neither *Dominant Shocks* or even the interaction term *Dominant Shocks x IFRS* are statistically significant at conventional levels

(see Panel A), at least in the majority of the proposed estimations by taking into account four earnings management and two dominant firms' shocks variables. Similar finding is observed when examining the role of big four auditors, as demonstrated in Panel B. In a broad, these findings suggest that either IFRS or big auditors seem do not play any role concerning the association between dominant firms' shocks and earnings management by non-dominant firms.

Second, in order to confirm my main empirical results regarding to Section 4, I segregate my main estimations splitting the sample by positive and negative accruals, following previous studies (e.g., Chen et al., 2018b; Chan et al., 2015; Epps and Guthrie, 2010). The results are presented in Table 8.

(Insert Table 8 here)

Third, I also considering another earnings management measure, given potential bias related to accruals estimations. Then, I consider an alternative, more relative accounting quality measure that works to capture multiple dimensions of manager manipulation, namely the discontinuities of earnings distributions at the zero earnings threshold (Trimble, 2018). The Burgstahler and Dichev (1997) seminal work provide large sample evidence of benchmark beating activities related to positive earnings. Since then, despite some criticism (Durtschi and Easton, 2005), a bunch of studies has focused on establishing manager manipulation as the cause of the discontinuity in earnings distributions (Cyril et al., 2020; Makarem et al., 2018; Enomoto and Yamaguchi, 2017; Burgstahler and Chuk, 2015; Li, 2014). Formally, I consider three different interval range for "small profit", specifically $[0, 0.1)$, $[0, 0.01)$, and $[0, 0.001)$, represented in my empirical model by *SPOS1*, *SPOS2*, and *SPOS3*, respectively. The results are presented in Table 8. Overall, I consistently find a negative and significant coefficient for small positive income variables – corroborating my main empirical analysis as demonstrated in Section 4.

(Insert Table 9 here)

Finally, I also take into account potential bias on two main aspects related to econometric estimations issues, namely “accruals two-steps” approach and truncation of the dependent variable. Thus, I follow the Chen et al. (2018a) recommendations regarding the high probably existence of biased coefficients and standard errors that can lead to incorrect inferences, with both Type I and Type II errors in the typical “two steps” procedure on accruals estimation. Thus, in robustness analyses I also include among the control variables the regressors of the first-step regressions in all estimations. Furthermore, considering possible inconsistencies of the estimated parameters due to the truncation of the dependent variable (absolute values), as robustness tests I also re-run my main model based on Tobit (1958) regression approach, following previous earnings management literature (e.g., Huang and Sun, 2017; Cassell et al., 2015; Kim et al., 2012; Chaney et al., 2011). In all alternative scenarios, I fundamentally find the same results regarding the coefficient of our main variables (not tabulated).

6 Summary and Concluding Remarks

This study investigates whether dominant firms’ idiosyncratic shocks affect earnings management of non-dominant firms. Based on a cross-country setting of firms from 9 European Union countries, my empirical findings consistently suggest that the level of dominant firms’ shocks of each country-year is negatively associated to earnings management practices of non-dominant firms, either considering annual growth expected levels of dominant firms at the country- or country-industry-level. Those main results are also robust when taking into account several accruals earnings management measures. Overall, these findings suggest that positive shocks to dominant firms could positively beneficiate other firms, as well as to be related to economic expansion, less macroeconomic uncertainty and, consequently, to discourage earnings management of non-dominant firms.

The empirical results presented demonstrate the relevance that large firms have not only on the general economy but also on the strategic decisions of small business – specifically in relation to the manipulation of the accounting information reported. Thus, it is expected that the empirical findings presented to reinforce the relevant role that dominant firms play in the formulation of accounting policies and regulations. In addition, investors should also have a more holistic view of business transactions, paying attention not only to the internal policies of small firms but to the general environment in which they operate – including their direct and indirect relations with large firms.

Appendix A – Variables Definitions

Main dependent variables

<i>Acc1_{ijt}</i>	is the absolute amount of discretionary accruals based on to Dechow et al. (1995).
<i>Acc2_{ijt}</i>	is the absolute amount of discretionary accruals based on to Kothari et al. (2005).
<i>Acc3_{ijt}</i>	is the absolute amount of discretionary accruals based on Dechow et al. (2012).
<i>Acc4_{ijt}</i>	is the firm-year mean of the standardized values of three absolute amounts of discretionary accruals based on Dechow et al. (1995), Kothari et al. (2005), and Dechow et al. (2012).

Main independent variables

<i>Dominant Shocks_{jt-1}</i>	is the dominant firms' shocks for each country <i>j</i> at the beginning of year <i>t</i> .
<i>Size_{ijt}</i>	is the natural logarithm of market capitalization in US dollar (07210).
<i>Return on Equity_{ijt}</i>	is the net income before extraordinary items (01551) scaled by total shareholders' equity at the beginning of year <i>t</i> (03995).
<i>Leverage_{ijt}</i>	is the total liabilities (03351) scaled by total assets at the beginning of year <i>t</i> (02999).
<i>Growth_{ijt}</i>	is the percentual growth of net sales (07240) from the year <i>t-1</i> to <i>t</i> .
<i>Tangibility_{ijt}</i>	is the property plant and equipment (02301) scaled by total assets at year <i>t</i> (02999).
<i>Dissue_{ijt}</i>	is the percentual growth total liabilities (03351) from the year <i>t-1</i> to <i>t</i> .
<i>IFRS_{ijt}</i>	is a dummy variable, which equals one for firm-year observations referring to financial statements prepared according to IFRS standards, and zero otherwise (07536).
<i>Audit Quality_{ijt}</i>	is a dummy variable, which equals one for firm-year observations if the firm's auditor is PwC, KPMG, E&Y, or D&T, and zero otherwise (07800).
<i>Loss_{ijt}</i>	is a dummy variable, which equals one for firm-year observations with negative net income before extraordinary items (01551), and zero otherwise.

Robustness test variables

<i>SPOS1_{ijt}</i> , <i>SPOS2_{ijt}</i> , and <i>SPOS3_{ijt}</i>	are dummy variables, which equals one for firm-year observations if net income before extraordinary items (01551) scaled by total assets (02999) is between 0 and 0.1, 0.01, and 0.001, respectively, and zero otherwise.
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Thomson Reuters Datastream codes displayed for each variable.

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Table 1 – Sample

Panel A: Country Breakdown

Countries	Region	N	Percent	Cumulative
Bulgaria	Eastern Europe	118	0.85	0.85
France	Western Europe	3,577	25.84	26.69
Germany	Western Europe	3,481	25.14	51.83
Greece	Southern Europe	143	1.03	52.86
Italy	Southern Europe	575	4.15	57.02
Netherlands	Western Europe	267	1.93	58.95
Poland	Eastern Europe	310	2.24	61.18
Sweden	Northern Europe	738	5.33	66.51
United Kingdom	Northern Europe	4,636	33.49	100.00
Total		13,845	100.00	-

Panel B: Industry Breakdown

SIC Code	Registration	N	Percent	Cumulative
1000-1499	Mining	585	4.23	4.23
1500-1799	Construction	35	0.25	4.48
2000-3999	Manufacturing	6,968	50.33	54.81
4000-4999	Transportation, Communications, etc.	1,037	7.49	62.30
5000-5199	Wholesale Trade	135	0.98	63.27
5200-5999	Retail Trade	249	1.80	65.07
7000-8999	Services	4,836	34.93	100.00
Total		13,845	100.00	-

Table 2 – Dominant Firms’ Shocks: Overall Descriptive Statistics and Validation

Panel A – Revenues’ comparison between Dominant and Non-Dominant Firms

Country	<i>Dominant Shocks</i> 1_{jt-1}	<i>Dominant Shocks</i> 2_{jt-1}	Dominant Firms (A)		Non-Dominant Firms (B)		<i>Diff. (A) - (B)</i>
	Mean	Mean	Mean US\$	N	Mean US\$	N	Mean US\$
Bulgaria	0.0335	0.0451	58,800,000	900	1,079,251	118	57,720,749
France	7.5838	7.4612	20,900,000,000	1800	329,000,000	3577	20,571,000,000
Germany	-0.2095	-0.5558	25,800,000,000	1800	340,000,000	3481	25,460,000,000
Greece	0.2676	0.0685	999,000,000	1300	56,800,000	143	942,200,000
Italy	-0.0007	-0.1284	6,520,000,000	1800	154,000,000	575	6,366,000,000
Netherlands	0.5464	0.5982	16,900,000,000	1200	120,000,000	267	16,780,000,000
Poland	3.3547	3.1906	1,240,000,000	1500	40,700,000	310	1,199,300,000
Sweden	-0.4624	-0.5583	4,400,000,000	1800	80,900,000	738	4,319,100,000
United Kingdom	-0.3171	-0.4251	18,500,000,000	1800	193,000,000	4636	18,307,000,000

Panel B – Validation of Dominant Firms’ Shocks Measures

	1.	2.	3.	4.	5.	6.	7.
1. <i>Dominant Shocks</i> 1_{jt-1}	-						
2. <i>Dominant Shocks</i> 2_{jt-1}	0.9995***						
3. <i>GDPgrowth</i> $_{jt}$	0.0178***	0.0180***					
4. <i>GDPlog</i> $_{jt}$	0.1252***	0.1165***	-0.0713***				
5. <i>Volatility</i> $_{jt}$	-0.0496***	-0.0546***	-0.1880***	-0.1178***			
6. <i>Inflation</i> $_{jt}$	-0.0789***	-0.0756***	0.3274***	-0.2840***	-0.0396***		
7. <i>GrowthCap</i> $_{jt}$	0.1010***	0.1027***	0.4566***	-0.0886***	-0.4386***	0.1326***	
8. <i>Crisis</i> $_{jt}$	-0.0679***	-0.0689***	0.0494***	0.0085***	0.2270***	0.1637***	-0.2737***

Dominant Shocks 1_{jt-1} (*Dominant Shocks* 2_{jt-1}) is the dominant firms’ shocks centered in country-year (country-industry-year) sales growth, for each country j at the beginning of year t . *GDPgrowth* $_{jt}$ is the percentual growth of countries’ GDP from the year $t-1$ to t , according to World Bank. *GDPlog* $_{jt}$ is the natural logarithm of countries’ GDP, according to World Bank. *Volatility* $_{jt}$ is the countries’ stock price volatility, measured by the average of the 360-day volatility of the national stock market index. *Inflation* $_{jt}$ is the countries’ inflation, measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly, according to IMF. *GrowthCap* $_{jt}$ is the percentual growth of countries’ gross capital formation based on constant local currency, according to World Bank. *Crisis* $_{jt}$ is a dummy variable, which equals one 2007-2009 years, and zero otherwise.

Table 3 – Overall Descriptive Statistics of Variables at Firm-Level

Variables	N	Mean	SD	p25	Median	p75
<i>Acc1_{ijt}</i>	13,845	0.0947	0.1136	0.0237	0.0553	0.1159
<i>Acc2_{ijt}</i>	13,845	0.0947	0.1136	0.0243	0.0556	0.1150
<i>Acc3_{ijt}</i>	13,845	0.0977	0.1146	0.0249	0.0578	0.1217
<i>Acc4_{ijt}</i>	13,845	0.0957	0.1100	0.0273	0.0570	0.1162
<i>Size_{ijt}</i>	13,845	1.1800	1.3776	0.3936	0.7447	1.3938
<i>Return on Equity_{ijt}</i>	13,845	-0.0194	0.5204	-0.0873	0.0643	0.1627
<i>Leverage_{ijt}</i>	13,845	0.5708	0.3476	0.3463	0.5300	0.7126
<i>Growth_{ijt}</i>	13,845	0.1288	0.5214	-0.0523	0.0499	0.1757
<i>Tangibility_{ijt}</i>	13,845	0.4977	0.4645	0.1312	0.3483	0.7502
<i>Issue_{ijt}</i>	13,845	0.1389	0.5529	-0.1009	0.0236	0.2009
<i>IFRS_{ijt}</i>	13,845	0.6909				
<i>Audit Quality_{ijt}</i>	13,845	0.5687				
<i>Loss_{ijt}</i>	13,845	0.3455				

Continuous variables. *Acc1_{ijt}*, *Acc2_{ijt}* and *Acc3_{ijt}* are the absolute amount of discretionary accruals based on to Dechow et al. (1995), Kothari et al. (2005) and Dechow et al. (2012). *Acc4_{ijt}* is the firm-year mean of the standardized values of three absolute amounts of discretionary accruals based on Dechow et al. (1995), Kothari et al. (2005), and Dechow et al. (2012). *Size_{ijt}* is the natural logarithm of market capitalization in US dollar. *Return on Equity_{ijt}* is the net income before extraordinary items scaled by total shareholders' equity at the beginning of year t. *Leverage_{ijt}* is the total liabilities scaled by total assets at the beginning of year t. *Growth_{ijt}* is the percentual growth of net sales from the year t-1 to t. *Tangibility_{ijt}* is the property plant and equipment scaled by total assets at year t. *Issue_{ijt}* is the percentual growth total liabilities from the year t-1 to t.

Dummy variables. *IFRS_{ijt}* is a dummy variable, which equals one for firm-year observations referring to financial statements prepared according to IFRS standards, and zero otherwise. *Audit Quality_{ijt}* is a dummy variable, which equals one for firm-year observations if the firm's auditor is PwC, KPMG, E&Y, or D&T, and zero otherwise. *Loss_{ijt}* is a dummy variable, which equals one for firm-year observations with negative net income before extraordinary items, and zero otherwise.

Table 4 – Correlation Matrix among Continuous Variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. $Acc1_{ijt}$	-										
2. $Acc2_{ijt}$	0.9292***										
3. $Acc3_{ijt}$	0.9105***	0.8563***									
4. $Acc4_{ijt}$	0.9802***	0.9614***	0.9553***								
5. $Dominant\ Shocks1_{jt-1}$	-0.0015	-0.0160*	-0.0032	-0.0071							
6. $Dominant\ Shocks2_{jt-1}$	-0.0004	-0.0148*	-0.0020	-0.0059	0.9997***						
7. $Size_{jt}$	0.2048***	0.2182***	0.2046***	0.2166***	-0.0487***	-0.0472***					
8. $Return\ on\ Equity_{ijt}$	-0.1125***	-0.1093***	-0.1129***	-0.1156***	0.0548***	0.0539***	0.0107				
9. $Leverage_{ijt}$	0.1918***	0.1837***	0.1846***	0.1934***	0.0846***	0.0839***	-0.0383***	0.0425***			
10. $Growth_{ijt}$	0.1480***	0.1520***	0.1507***	0.1556***	-0.0057	-0.0038	0.1437***	0.0072	0.1623***		
11. $Tangibility_{ijt}$	-0.0988***	-0.0930***	-0.0973***	-0.0998***	-0.0765***	-0.0792***	-0.1604***	-0.0173**	0.0530***	-0.0996***	
12. $Dissue_{ijt}$	0.2087***	0.2015***	0.2026***	0.2115***	-0.0166*	-0.0151*	0.0858***	-0.0243**	0.4033***	0.3397***	-0.1109***

This table presents Pearson correlation between all analyzed continuous variables related to the main empirical model estimations. $Acc1_{ijt}$, $Acc2_{ijt}$ and $Acc3_{ijt}$ are the absolute amount of discretionary accruals based on to Dechow et al. (1995), Kothari et al. (2005) and Dechow et al. (2012). $Acc4_{ijt}$ is the firm-year mean of the standardized values of three absolute amounts of discretionary accruals based on Dechow et al. (1995), Kothari et al. (2005), and Dechow et al. (2012). $Dominant\ Shocks1_{jt-1}$ is the dominant firms' shocks centered in country-year sales growth, for each country j at the beginning of year t. $Dominant\ Shocks2_{jt-1}$ is the dominant firms' shocks centered in country-industry-year sales growth, for each country j at the beginning of year t. $Size_{jt}$ is the natural logarithm of market capitalization in US dollar. $Return\ on\ Equity_{ijt}$ is the net income before extraordinary items scaled by total shareholders' equity at the beginning of year t. $Leverage_{ijt}$ is the total liabilities scaled by total assets at the beginning of year t. $Growth_{ijt}$ is the percentual growth of net sales from the year t-1 to t. $Tangibility_{ijt}$ is the property plant and equipment scaled by total assets at year t. $Dissue_{ijt}$ is the percentual growth total liabilities from the year t-1 to t.

Table 5 – Effect of Dominant Firms’ Shocks (*Dominant Shocks*_{1jt-1}) on Earnings Management

	<i>Acc1_{ijt}</i>		<i>Acc2_{ijt}</i>		<i>Acc3_{ijt}</i>		<i>Acc4_{ijt}</i>	
	Coeff.	<i>t</i> -Stat						
<i>const</i>	0.110***	7.32	0.109***	6.71	0.122***	-7.87	0.114***	7.52
<i>Dominant Shocks</i>_{1jt-1}	-0.001	-1.50	-0.002*	-1.89	-0.003**	-2.46	-0.002**	-2.17
<i>Size_{ijt}</i>	0.0155***	11.11	0.0166***	12.02	0.0156***	11.38	0.016***	11.93
<i>Return on Equity_{ijt}</i>	-0.012***	-3.58	-0.0107***	-3.39	-0.012***	-3.62	-0.015***	-3.69
<i>Leverage_{ijt}</i>	0.0481***	8.59	0.0464***	8.93	0.0465***	8.38	0.0470***	8.89
<i>Growth_{ijt}</i>	0.0117***	4.21	0.0128***	4.57	0.0133***	4.99	0.0126***	4.83
<i>Tangibility_{ijt}</i>	-0.019***	-5.12	-0.0180***	-4.84	-0.019***	-5.45	-0.019***	-5.25
<i>Dissue_{ijt}</i>	0.0206***	6.96	0.0188***	6.35	0.0196***	6.80	0.019***	6.93
<i>IFRS_{ijt}</i>	-0.015***	-3.15	-0.015***	-3.39	-0.017***	-3.62	-0.016***	-3.48
<i>Audit Quality_{ijt}</i>	-0.012***	-4.28	-0.0105***	-3.72	-0.012***	-4.24	-0.012***	-4.16
<i>Loss_{ijt}</i>	0.033***	11.55	0.034***	11.71	0.033***	11.23	0.033***	11.86
<i>Firm-clustering</i>	YES		YES		YES		YES	
<i>Industry FE</i>	YES		YES		YES		YES	
<i>Year FE</i>	YES		YES		YES		YES	
<i>Country FE</i>	YES		YES		YES		YES	
N° Obs.	13,845		13,845		13,845		13,845	
R ²	0.1540		0.1580		0.1570		0.1670	

This table presents the association between dominant firms’ shocks, centered in country-year sales growth, and earnings management of non-dominant firms. *Acc1_{ijt}*, *Acc2_{ijt}* and *Acc3_{ijt}* are the absolute amount of discretionary accruals based on to Dechow et al. (1995), Kothari et al. (2005) and Dechow et al. (2012). *Acc4_{ijt}* is the firm-year mean of the standardized values of three absolute amounts of discretionary accruals based on Dechow et al. (1995), Kothari et al. (2005), and Dechow et al. (2012). *Dominant Shocks*_{1jt-1} is the dominant firms’ shocks centered in country-year sales growth, for each country *j* at the beginning of year *t*. *Size_{ijt}* is the natural logarithm of market capitalization in US dollar. *Return on Equity_{ijt}* is the net income before extraordinary items scaled by total shareholders’ equity at the beginning of year *t*. *Leverage_{ijt}* is the total liabilities scaled by total assets at the beginning of year *t*. *Growth_{ijt}* is the percentual growth of net sales from the year *t*-1 to *t*. *Tangibility_{ijt}* is the property plant and equipment scaled by total assets at year *t*. *Dissue_{ijt}* is the percentual growth total liabilities from the year *t*-1 to *t*. *IFRS_{ijt}* is a dummy variable, which equals one for firm-year observations referring to financial statements prepared according to IFRS standards, and zero otherwise. *Audit Quality_{ijt}* is a dummy variable, which equals one for firm-year observations if the firm’s auditor is PwC, KPMG, E&Y, or D&T, and zero otherwise. *Loss_{ijt}* is a dummy variable, which equals one for firm-year observations with negative net income before extraordinary items, and zero otherwise. Continuous variables are winsorized at 1% to avoid outliers. Parameter estimates are reported, followed by robust *t*-statistics corrected for firm-level clustering (Petersen, 2009).

The symbols ***, **, and * denote significance at 1%, 5%, and 10% levels of statistical significance for two-tailed tests, respectively.

Table 6 – Effect of Dominant Firms’ Shocks (*Dominant Shocks*_{2jt-1}) on Earnings Management

	<i>Acc1_{ijt}</i>		<i>Acc2_{ijt}</i>		<i>Acc3_{ijt}</i>		<i>Acc4_{ijt}</i>	
	Coeff.	<i>t</i> -Stat						
<i>const</i>	0.110***	7.31	0.109***	6.70	0.122***	7.85	0.113***	7.51
<i>Dominant Shocks</i>_{1jt-1}	-0.001	-1.43	-0.002*	-1.87	-0.003**	-2.36	-0.002**	-2.10
<i>Size_{ijt}</i>	0.016***	11.11	0.0166***	12.02	0.016***	11.38	0.016***	11.93
<i>Return on Equity_{ijt}</i>	-0.011***	-3.58	-0.011***	-3.39	-0.012***	-3.61	-0.019***	-3.69
<i>Leverage_{ijt}</i>	0.048***	8.59	0.0464***	8.93	0.046***	8.38	0.047***	8.89
<i>Growth_{ijt}</i>	0.011***	4.21	0.013***	4.57	0.013***	4.99	0.013***	4.83
<i>Tangibility_{ijt}</i>	-0.019***	-5.12	-0.018***	-4.84	-0.016***	-5.45	-0.019***	-5.25
<i>Dissue_{ijt}</i>	0.0206***	6.96	0.0188***	6.35	0.0196***	6.80	0.019***	6.93
<i>IFRS_{ijt}</i>	-0.015***	-3.16	-0.0155***	-3.39	-0.017***	-3.63	-0.016***	-3.48
<i>Audit Quality_{ijt}</i>	-0.012***	-4.28	-0.0105***	-3.72	-0.012***	-4.24	-0.012***	-4.16
<i>Loss_{ijt}</i>	0.033***	11.55	0.034***	11.71	0.033***	11.24	0.0332***	11.86
<i>Firm-clustering</i>	YES		YES		YES		YES	
<i>Industry FE</i>	YES		YES		YES		YES	
<i>Year FE</i>	YES		YES		YES		YES	
<i>Country FE</i>	YES		YES		YES		YES	
N° Obs.	13,845		13,845		13,845		13,845	
R ²	0.1550		0.1580		0.1570		0.1670	

This table presents the association between dominant firms’ shocks, centered in country-industry-year sales growth, and earnings management of non-dominant firms. *Acc1_{ijt}*, *Acc2_{ijt}* and *Acc3_{ijt}* are the absolute amount of discretionary accruals based on to Dechow et al. (1995), Kothari et al. (2005) and Dechow et al. (2012). *Acc4_{ijt}* is the firm-year mean of the standardized values of three absolute amounts of discretionary accruals based on Dechow et al. (1995), Kothari et al. (2005), and Dechow et al. (2012). *Dominant Shocks*_{2jt-1} is the dominant firms’ shocks centered in country-industry-year sales growth, for each country *j* at the beginning of year *t*. *Size_{ijt}* is the natural logarithm of market capitalization in US dollar. *Return on Equity_{ijt}* is the net income before extraordinary items scaled by total shareholders’ equity at the beginning of year *t*. *Leverage_{ijt}* is the total liabilities scaled by total assets at the beginning of year *t*. *Growth_{ijt}* is the percentual growth of net sales from the year *t*-1 to *t*. *Tangibility_{ijt}* is the property plant and equipment scaled by total assets at year *t*. *Dissue_{ijt}* is the percentual growth total liabilities from the year *t*-1 to *t*. *IFRS_{ijt}* is a dummy variable, which equals one for firm-year observations referring to financial statements prepared according to IFRS standards, and zero otherwise. *Audit Quality_{ijt}* is a dummy variable, which equals one for firm-year observations if the firm’s auditor is PwC, KPMG, E&Y, or D&T, and zero otherwise. *Loss_{ijt}* is a dummy variable, which equals one for firm-year observations with negative net income before extraordinary items, and zero otherwise. Continuous variables are winsorized at 1% to avoid outliers. Parameter estimates are reported, followed by robust *t*-statistics corrected for firm-level clustering (Petersen, 2009).

The symbols ***, **, and * denote significance at 1%, 5%, and 10% levels of statistical significance for two-tailed tests, respectively.

Table 7 – The Effect of Dominant Firms’ Shocks on Earnings Management: The Role of IFRS and Big Four Auditors

Panel A – The Role of IFRS Adoption

	<i>Dominant Shocks</i> _{1jt-1}				<i>Dominant Shocks</i> _{2jt-1}			
	<i>Acc</i> _{1jt}	<i>Acc</i> _{2jt}	<i>Acc</i> _{3jt}	<i>Acc</i> _{4jt}	<i>Acc</i> _{1jt}	<i>Acc</i> _{2jt}	<i>Acc</i> _{3jt}	<i>Acc</i> _{4jt}
<i>const</i>	0.063*** (2.58)	0.0638*** (2.717)	0.0626*** (2.693)	0.0631*** (2.828)	0.0627*** (2.583)	0.0638*** (2.715)	0.0626*** (2.693)	0.063*** (2.825)
<i>Dominant Shocks</i>	-0.001 (-0.90)	-0.00179 (-1.456)	-0.003** (-2.519)	-0.002* (-1.839)	-0.00114 (-0.933)	-0.00184 (-1.503)	-0.003** (-2.567)	-0.002* (-1.884)
<i>Dominant Shocks x IFRS</i>_{ijt}	-0.001 (-0.69)	-0.000217 (-0.222)	-7.61e-05 (-0.0753)	- (-0.344)	-0.001 (-0.703)	-0.001 (-0.219)	-0.000 (-0.0655)	-0.000 (-0.34)
<i>Control variable inserted</i>	YES	YES	YES	YES	YES	YES	YES	YES
<i>Firm-clustering</i>	YES	YES	YES	YES	YES	YES	YES	YES
<i>Industry FE</i>	YES	YES	YES	YES	YES	YES	YES	YES
<i>Year FE</i>	YES	YES	YES	YES	YES	YES	YES	YES
<i>Country FE</i>	YES	YES	YES	YES	YES	YES	YES	YES
N° Obs.	3,225	3,225	3,225	3,225	3,225	3,225	3,225	3,225
R ²	0.1490	0.1530	0.1640	0.1640	0.1490	0.1530	0.1640	0.1640

Panel B – The Role of IFRS Big Four Auditors

	<i>Dominant Shocks</i> _{1jt-1}				<i>Dominant Shocks</i> _{2jt-1}			
	<i>Acc</i> _{1jt}	<i>Acc</i> _{2jt}	<i>Acc</i> _{3jt}	<i>Acc</i> _{4jt}	<i>Acc</i> _{1jt}	<i>Acc</i> _{2jt}	<i>Acc</i> _{3jt}	<i>Acc</i> _{4jt}
<i>const</i>	0.110*** (7.317)	0.109*** (6.718)	0.122*** (7.874)	0.114*** (7.524)	0.110*** (7.312)	0.109*** (6.710)	0.122*** (7.859)	0.114*** (7.514)
<i>Dominant Shocks</i>	-0.00118 (-1.263)	-0.00187* (-1.934)	-0.002** (-2.200)	-0.002** (-2.000)	-0.00114 (-1.231)	-0.00187* (-1.945)	-0.002** (-2.133)	-0.002** (-1.965)
<i>Dominant Shocks x Audit Quality</i>_{ijt}	-0.001 (-0.0791)	0.001 (0.561)	0.000 (0.138)	0.001 (0.209)	-0.000 (-0.01)	0.000 (0.64)	0.001 (0.20)	0.001 (0.28)
<i>Control variable inserted</i>	YES	YES	YES	YES	YES	YES	YES	YES
<i>Firm-clustering</i>	YES	YES	YES	YES	YES	YES	YES	YES
<i>Industry FE</i>	YES	YES	YES	YES	YES	YES	YES	YES
<i>Year FE</i>	YES	YES	YES	YES	YES	YES	YES	YES
<i>Country FE</i>	YES	YES	YES	YES	YES	YES	YES	YES
N° Obs.	13,845	13,845	13,845	13,845	13,845	13,845	13,845	13,845
R ²	0.1540	0.1580	0.1570	0.1670	0.1540	0.1580	0.1570	0.1670

This table presents the role of IFRS adoption and Audit Quality on the association between dominant firms’ shocks, centered both in country-year (*Dominant Shocks*_{1jt-1}) and country-industry-year (*Dominant Shocks*_{2jt-1}) sales growth, and earnings management of non-dominant firms. *Acc*_{1jt}, *Acc*_{2jt} and *Acc*_{3jt} are the absolute amount of discretionary accruals based on Dechow et al. (1995), Kothari et al. (2005) and Dechow et al. (2012). *Acc*_{4jt} is the firm-year mean of the standardized values of three absolute amounts of discretionary accruals based on Dechow et al. (1995), Kothari et al. (2005), and Dechow et al. (2012). Control variables inserted (see Appendix A). Continuous variables are winsorized at 1% to avoid outliers. Parameter estimates are reported, followed by robust *t*-statistics corrected for firm-level clustering (Petersen, 2009). The symbols ***, **, and * denote significance at 1%, 5%, and 10% levels of statistical significance for two-tailed tests, respectively.

Table 8 – Robustness Test: Effect of Dominant Firms’ Shocks on Earnings Management – Positive and Negative Accruals

Panel A – Positive Accruals

	<i>Dominant Shocks1_{jt-1}</i>				<i>Dominant Shocks2_{jt-1}</i>			
	<i>Acc1_{ijt}</i>	<i>Acc2_{ijt}</i>	<i>Acc3_{ijt}</i>	<i>Acc4_{ijt}</i>	<i>Acc1_{ijt}</i>	<i>Acc2_{ijt}</i>	<i>Acc3_{ijt}</i>	<i>Acc4_{ijt}</i>
<i>const</i>	0.116*** (5.890)	0.112*** (5.264)	0.135*** (6.290)	0.123*** (5.993)	0.116*** (5.878)	0.112*** (5.250)	0.135*** (6.276)	0.123*** (5.986)
<i>Dominant Shocks</i>	-0.00163	-0.00193	- 0.00268*	-0.00165	-0.00160	-0.00191	-0.00257*	-0.00159
	(-1.089)	(-1.122)	(-1.793)	(-1.176)	(-1.073)	(-1.110)	(-1.726)	(-1.143)
<i>Control variable inserted</i>	YES	YES	YES	YES	YES	YES	YES	YES
<i>Firm-clustering</i>	YES	YES	YES	YES	YES	YES	YES	YES
<i>Industry FE</i>	YES	YES	YES	YES	YES	YES	YES	YES
<i>Year FE</i>	YES	YES	YES	YES	YES	YES	YES	YES
<i>Country FE</i>	YES	YES	YES	YES	YES	YES	YES	YES
N° Obs.	6,836	6,529	6,844	6,844	6,836	6,529	6,844	6,844
R ²	0.1500	0.1670	0.1520	0.1740	0.1500	0.1670	0.1520	0.1740

Panel B – Negative Accruals

	<i>Dominant Shocks1_{jt-1}</i>				<i>Dominant Shocks2_{jt-1}</i>			
	<i>Acc1_{ijt}</i>	<i>Acc2_{ijt}</i>	<i>Acc3_{ijt}</i>	<i>Acc4_{ijt}</i>	<i>Acc1_{ijt}</i>	<i>Acc2_{ijt}</i>	<i>Acc3_{ijt}</i>	<i>Acc4_{ijt}</i>
<i>const</i>	0.103*** (4.553)	0.103*** (5.058)	0.107*** (5.324)	0.102*** (5.310)	0.103*** (4.550)	0.103*** (5.052)	0.107*** (5.315)	0.102*** (5.300)
<i>Dominant Shocks</i>	- 0.000634	-0.00124	-0.00153	-0.00154*	- 0.000550	-0.00121	-0.00145	-0.00147*
	(-0.551)	(-1.117)	(-1.602)	(-1.794)	(-0.481)	(-1.089)	(-1.512)	(-1.722)
<i>Control variable inserted</i>	YES	YES	YES	YES	YES	YES	YES	YES
<i>Firm-clustering</i>	YES	YES	YES	YES	YES	YES	YES	YES
<i>Industry FE</i>	YES	YES	YES	YES	YES	YES	YES	YES
<i>Year FE</i>	YES	YES	YES	YES	YES	YES	YES	YES
<i>Country FE</i>	YES	YES	YES	YES	YES	YES	YES	YES
N° Obs.	7,009	7,316	7,001	7,001	7,009	7,316	7,001	7,001
R ²	0.1760	0.1600	0.1790	0.1740	0.1760	0.1600	0.1790	0.1740

This table presents robustness tests concerning to the association between dominant firms’ shocks, centered both in country-year (*Dominant Shocks1_{jt-1}*) and country-industry-year (*Dominant Shocks2_{jt-1}*) sales growth, and earnings management of non-dominant firms, by splitting the sample in positive and negative accruals. *Acc1_{ijt}*, *Acc2_{ijt}* and *Acc3_{ijt}* are the absolute amount of discretionary accruals based on to Dechow et al. (1995), Kothari et al. (2005) and Dechow et al. (2012). *Acc4_{ijt}* is the firm-year mean of the standardized values of three absolute amounts of discretionary accruals based on Dechow et al. (1995), Kothari et al. (2005), and Dechow et al. (2012). Control variables inserted (see Appendix A). Continuous variables are winsorized at 1% to avoid outliers. Parameter estimates are reported, followed by robust *t*-statistics corrected for firm-level clustering (Petersen, 2009). The symbols ***, **, and * denote significance at 1%, 5%, and 10% levels of statistical significance for two-tailed tests, respectively.

Table 9 – Robustness Test: Effect of Dominant Firms’ Shocks on Earnings Management – Discontinuities of Earnings Distributions at the Zero Earnings Threshold

	<i>SPOS1_{ijt}</i>	<i>SPOS2_{ijt}</i>	<i>SPOS3_{ijt}</i>	<i>SPOS1_{ijt}</i>	<i>SPOS2_{ijt}</i>	<i>SPOS3_{ijt}</i>
<i>const</i>	0.822 (20.80)	0.199 (4.95)	0.034 (2.24)	0.822 (20.80)	0.199 (4.95)	0.034 (2.24)
<i>Dominant Shocks1_{jt-1}</i>	-0.003* (-1.59)	0.000 (0.09)	-0.001* (-1.75)	-	-	-
<i>Dominant Shocks2_{jt-1}</i>	-	-	-	-0.003* (-1.51)	-0.000 (-0.02)	-0.000** (-1.88)
<i>Control variables inserted</i>	YES	YES	YES	YES	YES	YES
<i>Firm-clustering</i>	YES	YES	YES	YES	YES	YES
<i>Industry FE</i>	YES	YES	YES	YES	YES	YES
<i>Year FE</i>	YES	YES	YES	YES	YES	YES
<i>Country FE</i>	YES	YES	YES	YES	YES	YES
N° Obs.	13,845	13,845	13,845	13,845	13,845	13,845
R ²	0.6411	0.0525	0.0088	0.6411	0.0525	0.0088

This table presents robustness tests concerning to the association between dominant firms’ shocks, centered both in country-year (*Dominant Shocks1_{jt-1}*) and country-industry-year (*Dominant Shocks2_{jt-1}*) sales growth, and earnings management of non-dominant firms. *SPOS1_{ijt}*, *SPOS2_{ijt}*, and *SPOS3_{ijt}* are dummy variables, which equals one for firm-year observations if net income before extraordinary items scaled by total assets is between 0 and 0.1, 0.01, and 0.001, respectively, and zero otherwise. Control variables inserted (see Appendix A). Continuous variables are winsorized at 1% to avoid outliers. Parameter estimates are reported, followed by robust t-statistics corrected for firm-level clustering (Petersen, 2009).

The symbols ***, **, and * denote significance at 1%, 5%, and 10% levels of statistical significance for two-tailed tests, respectively.