Industry Competition and non-GAAP disclosures

Helena Isidro[1]

Instituto Universitário de Lisboa (ISCTE-IUL), Business Research Unit (BRU-IUL), Lisboa, Portugal

Avenida das Forças Armadas
1649-026 Lisboa, Portugal
Tel: +351 217 90 34 80
Email: helena.isidro@iscte-iul.pt

Ana Marques

Norwich Business School – University of East Anglia

Norwich Research Park
Norwich NR4 7TJ, UK
Tel: +44 7444223267
Email: ana.marques@uea.ac.uk

June, 2020

Forthcoming at *Accounting and Business Research*

[1] Corresponding author

Acknowledgements

The authors greatly acknowledge the helpful comments of Giovanna Michelon and seminar participants at the Auckland University of Technology, Cass Business School, University of St. Gallen, and Munich School of Management. We also recognize the helpful comments received at the Lisbon Accounting conference, the Accounting and Finance Research Forum of University of Western Australia, the European Accounting Association Annual Congress, and the mid-year meeting of the International Accounting Section of the American Accounting Association. This work was supported by the Foundation for Science and Technology (grant PTDC/IIM-GES/2686/2014 and UID/GES/00315/2019). We are grateful for the excellent research assistance of Filipa Nunes.

Industry Competition and non-GAAP disclosures

Abstract

We examine the role of industry-level product market competition on non-GAAP disclosure decisions. We consider traditional measures of industry competition (concentration, price-cost margin, and set up costs), and large reductions in import tariff rates that identify an exogenous increase in competition. We find that competition intensity influences the likelihood of non-GAAP disclosure and the magnitude of non-GAAP exclusions. Our evidence suggests that strong competition encourages managers to disclose higher non-GAAP earnings. However, when competition is strong, firms with low performance relatively to the industry exclude smaller amounts. We also find that in competitive environments, managers are more likely to provide reconciliations and are less likely to exclude recurring items that are commonly excluded by other firms in the industry. These findings indicate that industry competition has a positive influence on the transparency of non-GAAP disclosures.

Keywords: proforma earnings, alternative performance measures, non-IFRS earnings, proprietary costs, financial performance, industry concentration.

JEL Classification: M21**,** M41

1. Introduction

We study the role of product market competition on managers' non-GAAP disclosure decisions. Specifically, we investigate whether pressure from industry competition influences the decision to disclose non-GAAP earnings in earnings announcements, and the magnitude of non-GAAP exclusions. The non-GAAP reporting literature finds evidence that investors perceive voluntary non-GAAP earnings to be informative about the firm's current and future performance (Bhattacharya et al., 2003; Bradshaw et al. 2016). Moreover, firms have incentives to calculate and disclose non-GAAP measures to appear to meet (or beat) performance benchmarks valued by capital markets participants, such as analysts' earnings forecasts, positive earnings, or prior period's earnings (Isidro and Marques 2015; Black and Christensen, 2009; Lougee and Marquardt, 2004; Walker and Louvari, 2003).

However, investors and analysts are not the only users interested in information about the firm's performance. Industry competitors use that information to make inferences about the profitability of rivals, which can trigger actions to weaken the firm's competitive position. Competitors' ability to use publicly available non-GAAP performance metrics can lead to proprietary disclosure costs for the firm, and these costs increase with competition intensity (Verrecchia, 1983). We propose that proprietary disclosure costs, associated with intense industry competition, play an important role on managers' non-GAAP disclosure decisions.

In full disclosure models, firms have incentives to reveal all information as long as disclosure costs are negligible and information is verifiable (Grossman, 1981; Milgrom, 1981). But communicating private information about the firm's profitability can reveal proprietary information to competitors (Ali et al., 2014). Non-GAAP numbers convey information about how managers evaluate the firm's performance internally, and provide

insights into the transactions that managers view to be tangential to the firm's core operating performance. Disclosing this type of information can harm the firm's competitive position because rivals can take aggressive actions in response to these disclosures. Thus, strong competition can decrease the likelihood of non-GAAP disclosures. Managers are generally optimistic in calculating non-GAAP earnings, but faced with higher disclosure costs they could decrease the magnitude of their non-GAAP exclusions, to downplay performance signals available to industry rivals.

However, fierce competition can also induce managers to disclose non-GAAP earnings and to increase the magnitude of exclusions. We base this argument on the notion that under capital market pressure, proprietary costs may not be sufficient to deter voluntary earnings disclosure. Since investors expect managers to disclose private information about performance, non-disclosure can be interpreted as managers withholding bad news. Moreover, capital markets provide incentives for disclosing higher non-GAAP performance, since high-performance can result in better valuations, improved stock liquidity, and a lower cost of capital (Verrecchia 1983, Healy and Palepu 2001). Finally, fierce competition can create additional pressure on managers to report superior performance, due to threats of takeovers and liquidation (Kole and Lehn 1997, 1999; Schmidt, 1997), and compensation cuts (Aggarwal and Samwick, 1999).

Our aim is to assess how competition pressure and capital markets' incentives influence management non-GAAP disclosure decisions. Using a sample of large European firms, during the period 2003 to 2011, allows us to observe a set of firms that enjoy substantial discretion over non-GAAP reporting, operate in different competitive environments, and face different capital markets' incentives. While the US market is characterized by strict SEC regulation and other sources of monitoring that can constrain non-GAAP disclosures choices (e.g. Marques, 2006, Gomez et al., 2018), firms in Europe

enjoy considerable freedom over non-GAAP disclosure, particularly during our sample period.[1] Therefore, the European setting allows us to observe managers' non-GAAP choices in response to capital markets and product market incentives without the constraint of regulation.

We hand-collect non-GAAP earnings disclosures from earnings press releases and examine first the influence of capital markets incentives. Specifically, we estimate the relation between the likelihood of non-GAAP disclosure and the magnitude on non-GAAP exclusions and the following capital market incentives (e.g., Isidro and Marques, 2015; Walker and Louvari, 2003): (i) GAAP earnings miss analysts' earnings forecasts, (ii) GAAP earnings miss prior year earnings, and (iii) GAAP earnings are negative (i.e. GAAP is a loss). Our results indicate that firms are more likely to disclose non-GAAP earnings and to make higher non-GAAP exclusions when GAAP earnings fall short of earnings targets.

We then expand our model by including measures of product market competition. We consider the multidimensionality of industry competition (Raith, 2003; Karuna, 2007; Li, 2010; Dedman and Lennox, 2009), and test three measures of competition: (i) industry concentration, which captures competition from existing rivals; (ii) price-cost margin, which reflects product substitutability or the firm's ability to earn rents above competitors due to lack of substitute products or successful marketing strategies; and (iii) set-up costs, representing the threat of potential entrants. We find a positive relation between the three dimensions of competition and both the likelihood of disclosure and the magnitude of non-

[1] In response to specific congressional directions contained in the Sarbanes-Oxley Act, the SEC issued Regulation G in 2003, establishing strict rules on non-GAAP disclosure. The SEC has also designated a taskforce to scrutinize potentially misleading non-GAAP disclosures, and in 2016 issued Compliance and Disclosure Interpretations on non-GAAP reporting. In addition, the SEC has increased monitoring of non-GAAP metrics resulting in more comments letters sent to companies regarding their non-GAAP reporting practices. In contrast, European regulators have only issued recommendations during our sample period. The Committee of European Securities Regulators issued non-GAAP guidelines in 2005 (CESR, 2005), but a follow-up study by the European Financial Reporting Advisory Group, the entity providing advice to the European Commission on reporting matters, concluded that most companies do not followed the guidelines (EFRAG, 2009). More recently, the European Securities and Markets Authority (ESMA), CESR's successor, issued guidelines for the transparent disclosure of non-GAAP measures (ESMA, 2015).

GAAP exclusions, after controlling for capital markets benchmarks, firm conditions, country, industry and time fixed effects. These results suggest that strong competition increases the likelihood of non-GAAP disclosure and the magnitude of exclusions.

To investigate the causal effect of product market competition on voluntary non-GAAP disclosure, we implement a difference-in-differences model, using large reductions in import tariff rates as an exogenous event (e.g. Huang et al., 2017; Guo et al., 2019; Frésard 2010; Valta 2012). Large reductions in tariff rates on imported products into the European Union (EU) substantially increase product market competition that European firms face from foreign firms. We find that managers increase non-GAAP exclusions substantially when they face unexpected foreign competition, consistent with competition leading managers to increase their non-GAAP performance.

Next, we study the implications of industry competition on the *quality* of non-GAAP exclusions. We test whether the persistence of non-GAAP exclusions varies with the intensity of industry competition (e.g.: Frankel et al., 2011; Jennings and Marques, 2011). If industry competition has a positive influence on the quality of firms' non-GAAP exclusions, then we expect a weaker association between non-GAAP exclusions and future earnings or future cash flows when firms face intense industry competition. We find that the persistence of non-GAAP exclusions is significantly lower when firms operate in more competitive industries, suggesting that competition plays a disciplinary role. We also find some evidence that managers of firms operating in highly competitive environments are more likely to exclude only transitory items, use less industry-common exclusions, and provide a reconciliation between GAAP and non-GAAP earnings.

We also observe the existence of cross-sectional variation in the role of industry competition in non-GAAP disclosure. We find that high performing firms facing intensive competition in product markets have incentives to increase their non-GAAP exclusions to

signal their superior performance to competitors, and obtain capital markets rewards for high performance achievement. Conversely, in competitive industries, poor performing firms report relatively lower non-GAAP earnings. Our results are consistent with the idea that disclosing high non-GAAP performance when GAAP performance is low may induce the entrance of new competitors, or overproduction by existing rivals, thus reducing the firm's income even further. A poor performing firm facing strong competition, may also avoid increasing non-GAAP earnings to strategically mask poor performance, because it may incur capital markets penalties, bad publicity, regulatory scrutiny, and reputation damage.

Overall, we provide new evidence that product market competition influences management non-GAAP disclosure. We extend prior evidence on industry trends in non-GAAP reporting (e.g. Brown et al., 2018; Black et al., 2020), by formally testing the effect of industry competition on non-GAAP disclosure decisions. Our results directly inform policy makers interested in fostering transparent non-GAAP reporting about the role of capital markets and product markets in non-GAAP disclosure. Regulators and standard-setters have recently expressed renewed interest in non-GAAP reporting. Both the IASB (International Accounting Standards Board) and the FASB (Financial Accounting Standards Board) are now considering how to include non-GAAP measures in the statement of financial performance (Golden 2017; Hoogervorst 2016; IASB Disclosure Initiative project 2017, section 5). The European Securities and Markets Authority (ESMA) published a set of guidelines, applicable from 2016 onward, with requirements for greater transparency in non-GAAP reporting (ESMA, 2015). However, the ESMA does not have enforcement power and national European regulators have to implement the guidelines in their jurisdictions. The lack of strict regulation and monitoring in Europe emphasizes the importance of understanding which market forces affect non-GAAP disclosure practices.

Our evidence that product market incentives influence non-GAAP disclosures is novel to the literature.

2. Hypotheses development

Information asymmetry creates costs associated with adverse selection and moral hazard. Managers have incentives to reduce information asymmetry because they bear part of the costs. One way for managers to reduce these costs is to voluntarily communicate information that is correlated with the firm's future cash flows (Verrecchia, 1983). Capital market participants have asymmetric information about the underlying value of the firm and thus welcome management information about recurring earnings, which they can use to estimate future cash flows (Healy and Palepu, 2001). Managers can use an array of instruments to convey private information about the firm's recurring performance. We focus on the disclosure of non-GAAP earnings for several reasons. First, voluntary non-GAAP disclosure is a widespread practice and hence financial statement users have become familiar with non-GAAP information (Black et al., 2018a). Second, non-GAAP disclosure is relatively costless to prepare and report and it is timely information. Typically, managers disclose non-GAAP earnings concurrently with GAAP numbers in the earnings announcement press release, which enhances the visibility and potential usefulness of non-GAAP information for performance evaluation. Non-GAAP disclosure can also be used to influence users' impression about firm performance (Guillamon-Saorin et al., 2017). Third, stakeholders commonly view non-GAAP performance metrics as indicators of recurring firm performance (Frederickson and Miller 2004; Bhattacharya et al., 2007; Choi et al., 2007; CFA Institute, 2016; Center for Audit Quality, 2018). Non-GAAP numbers are useful for communicating how managers measure and monitor performance internally, and for

providing insights into the activities that managers view to be tangential to the firm's core performance.

Stakeholders view high financial performance as an indication of (1) future profitability (Watts and Zimmerman, 1986; Wiggins and Ruefli, 2002), (2) productive resources (Newbert, 2007), (3) a low probability of bankruptcy (Altman, 1968), and (4) a good reputation (Deephouse and Carter, 2005). Accordingly, capital market participants reward firms and managers for strong performance, especially when it exceeds important earnings thresholds, such as analysts' earnings forecasts and prior year earnings (Bartov et al., 2002). Conversely, capital markets react negatively when a firm misses its earnings targets, even if by a small amount (e.g., Barton and Simko, 2002; Skinner and Sloan, 2002).[2] Black et al. (2017) report that firms just missing earnings expectations after having managed GAAP earnings report more non-GAAP earnings, and more aggressively, than firms that miss expectations by a large margin. Given these capital market incentives, managers often use non-GAAP exclusions to appear to meet earnings targets on a non-GAAP basis when the GAAP numbers fall below these targets (e.g. Black and Christensen, 2009; Lougee and Marquardt, 2004; Walker and Louvari, 2003).

In line with prior evidence, we expect managers to be more likely to disclose non-GAAP earnings when GAAP earnings fall below earnings targets that are valued by capital markets. The second decision that managers face is the magnitude of non-GAAP exclusions (i.e. the difference between non-GAAP and GAAP earnings). We posit that when GAAP earnings miss important earnings targets, managers have incentives to increase the magnitude of non-GAAP exclusions. We state our first hypothesis as follows:

H1a: The probability of non-GAAP disclosure is higher when GAAP earnings miss earnings targets valued by capital markets;

[2] A striking example is: in early 2005 eBay reported that it had missed fourth-quarter 2004 consensus estimate by just one penny and saw its share price plunge 22 percent (McKinsey & Company, 2013).

H1b: The magnitude of non-GAAP exclusions is higher when GAAP earnings miss earnings targets valued by capital markets.

Grossman's (1981) and Milgrom's (1981) seminal research proposes that the agent's disclosure preferences are a monotonic function of the receiver's actions, and thus (in equilibrium) the agent always reveals his/her type. Firms with strong financial performance would disclose information to signal their superior quality and distinguish themselves from their peers, while firms with weak performance would also disclose because the absence of news would generate pessimistic interpretations.[3] However, communicating information about the firm's performance can reveal proprietary information to competitors, who can use this information to take actions that erode the firm's competitive advantage. Moreover, the disclosure of private information about a firm's performance affects the entry decision of potential competitors (Darrough and Stoughton, 1990).

The firm faces a 'two-receiver' problem. It wants to report strong performance to reduce information asymmetry and obtain the associated capital market rewards, but it also wants to shield performance from competitors to avoid damaging its product market position. The two-receiver problem leads to partial disclosure, where the firm discloses only when benefits exceed proprietary disclosure costs (e.g. Verrecchia, 1983; Bhattacharya and Ritter, 1983; Darrough and Stoughton, 1990; Wagenhofer, 1990). Since non-GAAP earnings contain private information about the persistence of earnings components, and hence are informative about future firm performance, non-GAAP disclosure will be relevant for industry peers in assessing their competitors' current and future performance. Therefore, we expect industry competition to influence firm's non-GAAP reporting. Prior non-GAAP disclosure studies suggest the possibility of non-GAAP disclosure being influenced by industry practices. For example, Brown et al. (2018) find that non-GAAP disclosure in the

[3] See also Boot and Thakor (2001) and Verrecchia (2001) on voluntary full disclosure incentives.

S-1 filings of US initial public offering firms increases with peer-firm disclosure rates, and Black et al. (2020) report that firms adjust their non-GAAP calculations to the industry practice. We extend that line of research by modelling a direct link between non-GAAP disclosure decisions and the intensity of industry competition.

Voluntary disclosure models predict less disclosure when proprietary costs are high (Verrecchia, 1983). Nevertheless, empirical studies examining the relation between competition and disclosure provide mixed evidence. For example, increase in competition leads firms to withhold more information in SEC filings (Verrecchia and Weber, 2006) and provide less management forecasts (Li, 2010; Huang et al., 2017). Conversely, Harris (1998) and Botosan and Stanford (2005) indicate that disclosure of profitable business segments increases with industry competition, and Ali et al. (2014) find that firms disclose less in less concentrated industries. Given these results, it is unclear how product market competition in the industry affect non-GAAP disclosure decisions.

One possibility is that proprietary costs are the first-order concern for management non-GAAP disclosure decisions. If so, industry competition will lead to less non-GAAP disclosure. It will also lead to relatively lower non-GAAP exclusions since managers will want to lower competitors' expectations about firm performance to reduce possible damaging actions by rivals. Managers are generally optimistic about non-GAAP earnings, but faced with high proprietary disclosure costs they might prefer to adjust their non-GAAP numbers relatively less to downplay performance expectations of industry rivals. Another related argument is that high proprietary costs can exert disciplinary pressure over opportunistic non-GAAP disclosure, motivating managers with misleading intentions to reduce non-disclosure and the magnitude of exclusions. However, misleading and informative non-GAAP disclosure co-exist, and hence the disciplinary argument would be difficult to verify.

The proprietary cost explanation ignores the fact that managers' disclosure decisions are also determined by informational and signalling incentives. When managers disclose earnings measure voluntarily, these measures can reduce information asymmetry and moral hazard problems, resulting in a higher valuation, improved stock liquidity, and a lower cost of capital (Verrecchia, 1983; Healy and Palepu, 2001). Capital markets expect the disclosure of private information about firm performance, and exert pressure on managers to achieve performance targets. A consequence of managers' not disclosing non-GAAP earnings is that investors and competitors rationally assume managers will withhold bad news about performance. Investors would then revise their valuations downwards, and competitors would engage in marketing and production strategies to take over the firm's position. Voluntary earnings measures are informative about future recurring performance since they reflect unobservable information about activities that managers perceive as non-persistent (Gonedes, 1978). Thus, firms can use non-GAAP earnings to signal earnings persistence to investors, analysts, creditors and other capital market participants.

When capital markets pressure firms to disclose private information and to report persistent good performance, proprietary costs may not be sufficient to deter voluntary earnings disclosure. Furthermore, fierce competition can create additional pressure over management to report superior performance. Large profitability and the ability to achieve superior performance decline with product market competition. Therefore, managers' incentives to use non-GAAP disclosure can be strengthened in a more competitive environment where the firm faces stronger threats of takeovers and liquidation (Kole and Lehn 1997, 1999; Schmidt, 1997), and when managers are likely to face compensation cuts or lose their jobs (Aggarwal and Samwick, 1999). Disclosing high performance through higher non-GAAP exclusions can be an effective way of dissuading rivals from over investing and over producing (Pacheco-de-Almeida and Zemsky, 2011). Since the balance

between proprietary costs and capital and product markets pressure is unclear, we state our second hypothesis in a non-directional form as follows:

H2a: The probability of non-GAAP disclosure is related with industry competition;

H2b: The magnitude of non-GAAP exclusions is related with industry competition.

We next hypothesize that the relation between competition and non-GAAP disclosure varies with the firm's performance relative to industry peers. Voluntary disclosure models indicate that some firms have more incentives to disclose private information voluntarily than others, and that incentives arise from the quality of information: good versus bad news (e.g., Verrecchia, 1990; Dye 1985). We assume that firms have *bad news* if their financial performance is substantially below their industry peers. A firm with poor performance, relative to the industry, may engage in more non-GAAP exclusions because it has significant transitory expenses to exclude (for example, as a result of restructuring operations conducted to try reverse the weak performance). Black et al. (2017) find that firms are more likely to disclose non-GAAP earnings and they do so more aggressively when performance is poor.[4] However, disclosing higher non-GAAP earnings when GAAP performance is relatively poor can lead stakeholders to perceive the disclosure to be intentionally misleading, leading to capital market penalties. Prior research finds that investors perceive the credibility of managers' non-GAAP exclusions and price different types of exclusions accordingly (e.g., Marques, 2006). Furthermore, using non-GAAP earnings to mask poor GAAP performance can attract bad publicity, increase investor and regulatory scrutiny, and damage manager credibility (e.g., Brown et al. 2012).[5]

[4] Differently from Brown et al. (2017), we consider performance relative to the industry to be poor if ROA is in the lowest industry decile.

[5] These negative effects critically depend on whether investors and others stakeholders can verify non-GAAP exclusions. Verifiability is possible if the firm provides a complete reconciliation, and the exclusions correspond to the total value of the line items mentioned. When firms do not provide a reconciliation (as it is common in the European setting), investors and competitors can partially verify the recurring nature of non-GAAP exclusions ex-post, against GAAP and non-GAAP measures reported in future periods. As non-GAAP

It can also lead to short selling (Christensen et al., 2014). These negative effects can harm the firm's future profitability and managers' career prospects (Rindova et al., 2005; Roberts and Dowling, 2002).

Moreover, non-GAAP metrics calculated based on higher levels of exclusions can be interpreted by external stakeholders as positive news (i.e., since managers claim that true earnings performance exceeds GAAP earnings), which will motivate them to over-invest and over-produce, reducing the firm's future profitability even further. In line with this argument, Rosenbaum (2019) finds that managers' focus on EBITDA creates incentives to overinvest and over-lever the firm; and Laurion (2020) provides evidence that managers with a history of reporting non-GAAP earnings that exclude acquisition and restructuring expenses, the amortization of intangibles, and impairments act as if they place lower weight on these excluded expenses when making real activities and accounting choices. Contrarily, firms with relatively poor performance have less incentives to increase non-GAAP exclusions. From the proprietary costs' perspective, good performing firms can bear the disclosure costs, because they reap significant benefits from disclosing private information of transitory earnings components, but for bad performing firms, the proprietary disclosure costs are too high (Gigler, 1994). Thus, we predict that performance relative to industry peers is likely to influence firm's use of exclusions to calculate non-GAAP earnings metrics. We state our third hypothesis as follows:

> *H3: In competitive environments, firms with low financial performance have lower non-GAAP exclusions than the remaining firms.*

3. Research design

disclosure is relatively sticky, investors will also have prior beliefs about the firm's non-GAAP disclosure behavior.

We propose that product market and capital market incentives affect both the likelihood of disclosure and the magnitude of non-GAAP exclusions. Because we only observe non-GAAP performance metrics when managers choose to disclose, and that choice is likely the result of a set of firm specific conditions, there is potential for self-selection to affect our inferences about non-GAAP exclusions. To address that concern we implement a two-stage selection model proposed by Heckman (1979), following the method of Christensen et al. (2014) and Guillamon-Saorin et al. (2017).

First, we estimate a probit regression of the determinants of non-GAAP disclosure including firm-level conditions and industry measures of competition. Second, to estimate the effect of competition on non-GAAP exclusions, we use the estimates from the probit model to calculate the inverse Mills ratio for the disclosing and non-disclosing firms. We include the inverse Mills ratios in the second stage regression to control for the selection decision. The two equations are as follows:

$$NGdisclosure_{i,t} = \gamma_0 + \gamma_1 CapMkIncentives_{i,t} + \gamma_2 IndCompetition_{j,t} + \gamma_3 FirmControls_{i,t} + \mu_{i,t} \quad (1)$$

$$NGexclusions_{i,t} = \alpha_0 + \alpha_1 CapMkIncentives_{i,t} + \alpha_2 IndCompetition_{j,t} + \alpha_3 FirmControls_{i,t} + \varepsilon_{i,t} \quad (2)$$

NG disclosure is an indicator variable taking the value of one if the firm discloses non-GAAP earnings in year *t*, and zero otherwise. *NG exclusions* represents managers' view of the items (expenses or revenues) that they deem to be unrelated to recurring performance.[6] We calculate this variable as the difference between non-GAAP earnings

[6] We select only non-GAAP measures that portray earnings, to ensure comparability with the GAAP earnings numbers.

disclosed in the earnings press release and GAAP earnings, for firm *i* in year *t*, scaled by stock price at the beginning of the year.[7]

We include several independent variables, defined as follows:

Capital market incentives

We consider three capital market incentives: (i) *Analysts' expectations*, an indicator variable coded one when GAAP earnings miss analyst GAAP earnings consensus forecasts, and zero otherwise, (ii) *Prior year earnings,* an indicator variable coded one when GAAP earnings miss the prior's year GAAP earnings, and zero otherwise, and (iii) *Profit,* an indicator variable coded one when GAAP earnings are negative, and zero otherwise. Prior research finds that the probability of non-GAAP disclosure is positively associated with missing any of these three benchmarks (e.g., Isidro and Marques, 2015; Black and Christensen, 2009). We extend the evidence from these studies by analysing the *magnitude o*f non-GAAP exclusions, instead of just the disclosure decision.

Industry competition

Prior research suggests that competition is multidimensional and that its effect on voluntary disclosure is dependent on the type of competition (Raith, 2003; Karuna, 2007; Li, 2010; Dedman and Lennox, 2009). Hence, we consider three measures of competition: industry concentration, price-cost margin (product substitutability), and competition from potential entrants. We compute these measures for year *t* and industry *j* (two-digit SIC industry classification), and define them so that higher values indicate higher industry competition.

The first dimension of competition, *industry concentration*, represents competition from existing rivals (Harris, 1998; Karuna 2007; Hou and Robinson, 2006). We capture the

[7] When firms report non-GAAP earnings in levels rather than on a per share basis we divide non-GAAP earnings by the number of shares outstanding. To obtain a relative measure of non-GAAP exclusions and to account for scale effects, we express the variable as a proportion of stock price at the beginning of the period.

different perspectives of industry concentration based on the first principal component of the following variables: (i) the Herfindhal-Hirschman index of industry concentration, calculated as the sum of the squared market shares (in sales) of all firms in the industry; (ii) the four-firm concentration ratio, calculated as the proportion of the market share of sales of the four largest firms in an industry; and (iii) market size, calculated as the number of firms in the industry.[8] Thus, we calculate our variable *industry concentration* via principal components analysis of these three variables. The resulting variable explains about 76% of the variation in the three measures.

The second dimension of competition is the *price-cost margin* earned by the firm relatively to the industry. The margin evaluates the price output versus factor input, and reflects product substitutability, or the ability of the firm to earn rents above the industry competitors due to a lack of substitute products or successful marketing strategies. Following Muiño and Núñez-Nickel (2016) we compute the firm's price-cost margin as the ratio sales/(sales – operating income). We then standardize the firm's margin by subtracting the industry mean and dividing the difference by the industry standard deviation.

The third dimension of competition represents the threat of potential entrants. We measure this dimension by the set-up costs a new firm incurs to operate at the same level as the firms in the industry. *Set-up costs* is the natural logarithm of weighted average long-term assets of firms in the industry. We use the firm's market share (the ratio of the firm's sales to industry sales) as the weight.

Firm level controls

We incorporate in the models several firm-level characteristics related with voluntary disclosure of non-GAAP measures. *Prior year NG disclosure* and *prior year NG exclusions*,

[8] A large number of firms indicates more competition, whereas a higher concentration of sales indicates less competition. To facilitate interpretation of the results, we multiply the HH and four-firm sales by minus one so that all variables represent a high level of competition (i.e. low concentration). We then extract one principal component, as only one component has an eigenvalue higher than one.

account for the persistence of non-GAAP practices. Since non-GAAP disclosure has become a prevalent practice, we expect a certain stickiness in this disclosure, and therefore predict a positive coefficient.[9]

We calculate *Institutional ownership* as the percentage of shares held by institutional holders, as defined by FactSet. We anticipate a negative association between institutional ownership and non-GAAP exclusions, since institutional investors are sophisticated monitoring agents that can reduce managers' overoptimistic non-GAAP numbers (Jennings and Marques, 2011). *Special items, restructuring and merger expenses* is an indicator variable coded one when the firm reports any of these items, and zero otherwise. *Impairment and goodwill expenses* is an indicator variable coded one when the firm reports asset impairments and goodwill amortizations and impairment expenses, and zero otherwise. *Profit volatility,* calculated as the three-year standard deviation of return on assets, represents volatility in earnings. *Leverage*, calculated as debt to total assets, represents the importance of debt contracting in management disclosure decisions. *Size* is calculated as the natural logarithm of total assets. We also include country and time fixed effects in the model to absorb unrelated time trends and country-specific conditions. Appendix 1 provides the definition of variables.

4. Sample, data and descriptive evidence

Our initial sample comprises all industrial firms included in the Financial Times (FT) 2006 classification of the 500 largest European companies. Using FT firms allows us to study a group of firms with substantial variation in terms of industry competition and representing a considerable proportion of European capital markets. Our main data source is the earnings announcement press releases for years 2003 to 2011. Managers use press releases to

[9] In cases of no disclosure in the prior year, we code this variable as zero.

communicate voluntary information because they (i) have high visibility and attract media coverage, (ii) are widely used by the business community, and (iii) offer great flexibility in terms of content and communication style (e.g.: Huang et al., 2014; Carter, 2006). We hand-collect non-GAAP measures that portray earnings, to ensure comparability with the GAAP earnings numbers.[10] This unique dataset allows us to determine the precise value of non-GAAP earnings measures disclosed by managers, instead of relying on proxies, usually based on analysts' non-GAAP measures (e.g. Bradshaw and Sloan, 2002). The high quality of the data enhances the validity of our inferences.

Until recently, European entities had issued only non-binding guidelines on non-GAAP reporting. In October 2005, the Committee of European Securities Regulators (CESR) issued a set of recommendations, but most European firms did not implement them. In fact, the European Financial Reporting Advisory Group (EFRAG) surveyed several large European firms and concluded that the disclosure of non-GAAP numbers by European firms was inconsistent and obscure (EFRAG, 2009). Recently, the European Securities and Markets Authority (ESMA), the successor of CESR, published new guidelines for transparent disclosure of non-GAAP information (ESMA, 2015). The guidelines aim to encourage European issuers to publish "*transparent, unbiased and comparable information on their financial performance in order to provide users a comprehensive understanding of their performance.*" But as ESMA has no enforcement power, the endorsement and enforcement of the guidelines depends of the initiatives put in place by each national regulator. In sum, the lack of strict rules and strong enforcement of non-GAAP disclosure provides managers of European firms considerable reporting discretion, and allows us to test how capital and product markets shape that discretion.

[10] We collect measures of non-GAAP earnings per share, non-GAAP net income, and adjusted versions of EBITDA and EBIT.

We merge the hand-collected non-GAAP information with financial data from Thomson Reuters Worldscope (financial and price data), FactSet (institutional ownership), and I/B/E/S (analyst forecasts). After the elimination of observations with missing data, our final sample comprises 2,161 observations, representing 315 firms from 21 countries. For the tariff reduction tests in section 5.2. we use data from the World Trade Organization (WTO) on tariff rates on products. We merge the WTO data with SIC codes using the match file developed by Pierce and Schott (2015).

Table 1 presents descriptive information about the sample. Panel A reports country statistics, and Panel B presents statistics by industry. We find that non-GAAP disclosure in press releases of earnings announcements is a common practice in Europe (about 70% of the observations). The mean of *NG exclusions* is positive (0.244), an indication that non-GAAP earnings is higher than accounting earnings. However, there is a wide variation across Europe, with the highest *NG exclusions* in Portugal (1.033), and the lowest in Finland (0.107). We also observe considerable industry variation in non-GAAP disclosure (panel B). The disclosure is most common in the manufacturing industry and *NG exclusions* is highest in the transportation and communication sector.

Table 2 reports descriptive statistics (Panel A) and correlations (Panel B). On average, non-GAAP earnings exceed GAAP earnings by 24% of stock price, or by 30% of GAAP earnings. In monetary terms, the average (median) difference between the non-GAAP and GAAP earnings is 2.24 (1.10) Euros per share. Moreover, GAAP earnings fall short of (i) financial analysts' expected earnings in 61% of cases, (ii) prior year earnings in 37% of the cases, and (iii) profit in 8% of the cases. The Pearson correlations (Panel B) between *NG disclosure* and *NG exclusions* and the variables representing capital market incentives are significantly positive, particularly with the indicator *Analysts' expectations*. Industry competition measures are also correlated with both NG variables.

5. Results

5.1 – Univariate analysis

Table 3 describes the results of univariate tests of the relation between *NG exclusions*, capital market incentives, and industry competition. In Panel A, we test the association between capital market incentives and *NG exclusions*. Considering three alternative earnings benchmarks, we divide the observations into two groups: (1) cases in which accounting earnings meet or exceed the earnings benchmark and (2) cases in which accounting earnings miss the benchmark. When accounting earnings meet or beat analysts' GAAP forecasts, non-GAAP earnings are very similar to GAAP earnings (i.e., non-GAAP earnings are lower than GAAP earnings by 0.03).[11] However, when accounting earnings miss analysts' expectations, non-GAAP earnings exceed the GAAP figure by 0.44. The difference between the two mean values is statistically significant. We observe the same disclosure pattern for the two other earnings benchmarks. In line with hypothesis 1b, these results suggest that capital markets provide incentives for managers to increase the value of non-GAAP exclusions.[12]

In Panel B, we compare *NG exclusions* between high and low industry competition groups (created based on sample median). The mean value of *NG exclusions* is consistently higher when industry competition is high, and for all the competition measures including the tariff reduction cases. These univariate results suggest that intense industry competition is associated with increases of non-GAAP exclusions.

[11] The small negative mean value of NG exclusions (-0.03) is a result of 16% of our sample having non-GAAP earnings that are less than GAAP earnings. However, only 0.1% of these cases report negative NG exclusions when GAAP earnings miss analysts' expectations. To examine whether these percentages reflect outliers that could affect our results we repeat the regression analysis using a winsorized dependent variable at the 1% and 2% top and bottom of the distribution. Additionally, we estimate a robust regression analysis following the suggestion of Leone et al. (2019) that robust regression is an effective method to deal with outliers. Our results do not change. We also performed a Cook's distance analysis and do not find any cases where Cook's exceed the usual threshold of one.

[12] An alternative explanation is that a special item happened, that caused both effects.

5.2 – Non-GAAP exclusions and industry competition

Tables 4 and 5 present the results for the first and second stage regression model, respectively. Table 4 explores the determinants of non-GAAP disclosure. Managers are more likely to disclose non-GAAP earnings in earnings announcements when (1) GAAP earnings miss earnings targets valued by capital markets (analysts' earnings forecasts and past earnings) and (2) industry competition is strong. This result corroborates our prediction that industry competition is an important determinant of management decision to disclose a non-GAAP measure, and extends prior evidence that industry practices influence non-GAAP reporting (e.g., Brown et al., 2018). We also observe a significantly positive coefficient for *prior year NG disclosure*, indicating a strong persistence in firms' non-GAAP disclosure behaviour. This variable is substantially more important in explaining the likelihood of current year disclosure than any other firm specific characteristic.

In table 5, we present the results of estimating the magnitude of non-GAAP exclusions, where we include the inverse Mills ratios from the first-stage probit model (e.g., Guillamon-Saorin et al., 2017; Christensen et al., 2014). Manager's non-GAAP exclusions are substantially higher when GAAP earnings miss analysts expected earnings, past earnings, and do not report a profit (column 1). This evidence, combined with the results in Table 4, is consistent with our first hypothesis that capital markets incentives have a strong influence on both the disclosure decision and the magnitude of non-GAAP earnings.

The results in columns 2 to 4 of Table 5 indicate that all industry competition variables are positively associated with NG exclusions, suggesting that industry competition provide incentives for managers to signal high performance through the increase of non-GAAP earnings metrics. In economic terms, an increase of one standard deviation in industry competition, due to less concentration, results in an increase of about 3.9% (0.027 x 1.481)

in management non-GAAP exclusions. An increase of one standard deviation in competition for price-cost margin leads to about 2.6% (0.033 x 0.795) increase in the magnitude of non-GAAP exclusions, and an increase of one standard deviation in competition related to set-up costs results in 2.9% (0.207 x 0.142) increase in non-GAAP exclusions.

Another important result of our analysis is that the magnitude of non-GAAP exclusions persists over time. The results indicate that users can predict about 40% of the value of next period non-GAAP earnings. We also note that the inverse Mills ratio for non-disclosers, is significantly positive, corroborating the importance of controlling for self-selection bias in our empirical analyses. The variance inflation factors (VIF), reported at the bottom of the Table, suggest that multicollinearity ~~it~~ is not a problem.[13] Overall, our empirical evidence suggests that firms are more likely to disclose non-GAAP information, and increase the magnitude of non-GAAP exclusions when they experience strong competition in product markets, even after considering capital markets incentives.[14]

To further investigate the role of industry competition and non-GAAP disclosures, we test the relation between competition and analysts' non-GAAP exclusions. Differently from managers, analysts do not face pressure from industry competition to disclose high performance, and thus we expect analysts' exclusions to be unrelated to industry product market competition. Table 6 reports the results when the dependent variable is analysts' exclusions, measured as I/B/E/S analyst actual earnings minus GAAP earnings. While some of the variables associated with managers' non-GAAP exclusions are also associated with analysts' exclusions (e.g., earnings benchmarks), industry competition is not. This evidence

[13] Collinearity is considered high if the variance inflation factors exceed 10 (Belsley et al., 1980).
[14] In our study, we model the selection decision. Alternatively, we can avoid the selection concern by estimating the magnitude of non-GAAP exclusions for the subsample of disclosing firms (Doyle et al., 2003; Brown et al., 2012; Lennox et al., 2012). In appendix 2 we present the results for this alternative method. Our conclusions do not change.

is consistent with the idea that incentives and disclosure costs associated with industry competition influence managers' non-GAAP choices.

5.3 – Non-GAAP exclusions and tariff rate reductions

To provide evidence of a causal effect of product market competition on voluntary non-GAAP disclosure, we implement a difference-in-differences design, and test the changes in non-GAAP decisions around an exogenous shock to competition. Similar to other competition studies, we use large reductions in import tariff rates as the exogenous event (e.g. Huang et al., 2017; Guo et al., 2019; Frésard, 2010; Valta, 2012). The idea is that large reductions in tariff rates on imported products into the European Union (EU) substantially increase product market competition that European firms face from firms outside the EU. Tariff reductions are likely exogenous to firms' voluntary disclosure decisions, as they are used by governments as instruments of trade policy, and they affect different industries at different points in time. The staggered occurrence of tariff reductions allows better identification than a single event that can be contaminated by confounding events (Huang et al., 2017).

Following Huang et al. (2017), we assume a large reduction in import tariff rates in an industry-year if the tariff rate reduction, relative to the prior year, is more than three times the median tariff rate reduction during the sample period. We exclude cases where the tariff reduction is preceded, or followed by, a tariff increase higher than 80% of the reduction. We then code variable *Post_tariff reduction* as an indicator variable equal to one if the industry experienced a large tariff reduction in year *t*, and zero otherwise. We replace the competition variables by this new proxy. Thus, in our new model, the coefficient of *Post_tariff reduction* represents the change in non-GAAP disclosure (or NG exclusions), after the reduction in

tariff, for the firms affected by the large tariff reduction, relative to the firms that are not affected by the reduction during the event year.

We obtain data on EU import tariff rates from the World Trade Organization (WTO), and then match the WTO product codes (HS code) with SIC two-digit codes using the matching method of Pierce and Schott (2012)[15]. After eliminating observations for industries where tariff rates are missing in the WTO files, we have a sample of 1,189 observations, for which we identify 74 cases of large tariff reductions, in five industries.

We provide descriptive evidence in Table 7 Panel A. The average decrease in tariff rates for the 74 large tariff reduction firms is 0.421, whereas the average tariff reduction is 0.004 for the full sample, and 0.040 for the subsample that experienced a tariff reduction. We observe that firms affected by a large reduction in import tariffs disclose less non-GAAP information (60.7%) than the sample average reported in Table 1 (70.7%). The average *NG exclusions* for the large tariff reduction sample is substantially higher (0.551) than for the full sample (0.197). This descriptive evidence reinforces our belief that industry competition influences managers' non-GAAP reporting decisions.

In Panel B of Table 7, we present the results of the estimation of the differences-in-differences model. We find that the likelihood of disclosing a non-GAAP number is not statistically different for firms affected by the increased competition associated with lower import tariffs than for non-affected firms. However, the magnitude of non-GAAP exclusions increases substantially when import tariffs are brought down. The coefficient for *Post_tariff reduction* in column (2) of Table 6 Panel A is 0.291 and statistically significant at the one percent confidence level. This finding is in line with the idea that unexpected foreign competition motivates managers to disclose higher non-GAAP figures. Our

[15] Available at http://faculty.som.yale.edu/peterschott/

difference-in-differences specification corroborates our prior results that product market competition influences managers' non-GAAP disclosure choices.

5.4. Industry competition and the quality of non-GAAP exclusions

Our analyses thus far are silent on whether industry competition plays a role in the *quality* of non-GAAP disclosures. To shed light on this question we conduct two additional analyses. First, we assess whether the correlation between current period non-GAAP exclusions and future earnings and future cash flows varies with the intensity of industry competition. Prior research on non-GAAP reporting finds that non-GAAP exclusions are not always transitory, but often negatively correlated with future earnings (e.g.: Frankel et al., 2011; Jennings and Marques, 2011). If industry competition has a positive influence in the quality of non-GAAP exclusions, then we expect a weaker correlation between non-GAAP exclusions and the firm's future earnings (or cash flows) when firms face intense industry competition.

The results reported in Table 8, indicate that *NG exclusions* are negatively related to future operating income (Panel A) and future cash flows (Panel B), in line with prior evidence that non-GAAP exclusions are partially persistent (e.g.: Guillamon-Saorin et al., 2017). However, that persistence is significantly lower when firms operate in highly competitive industries (i.e. competition is above the median in year *t*). For example, when competition is strong due to low industry concentration, non-GAAP exclusions are more transitory, or less correlated with future earnings and future cash flows, than when industry competition is low. The average persistence of *NG exclusions* relative to future earnings (cash flows) of a firm operating in a highly concentrated industry is -1.534 (-1.135) while that persistence drops to -0.336 (-0.131) if the firms faces intense competition due to low industry concentration. We observe a similar result for the two other dimensions of industry

competition: price-cost margin and set-up costs. The evidence in Table 8 suggests that proprietary disclosure costs resulting from competition in product markets increase the *quality* of management non-GAAP exclusions, serving as a disciplinary force for manager's exclusions.

Second, we assess whether firms operating in highly competitive environments are more likely: (1) to exclude only non-recurring items, and (2) to provide a reconciliation between GAAP and non-GAAP earnings. These two non-GAAP practices are usually indicative of higher quality disclosures (e.g., Black and Christensen 2009). We note that European firms are not required by regulation to provide reconciliations or even explanations about the nature of the exclusions. Therefore, providing a reconciliation can be viewed as transparent non-GAAP reporting.

We estimate the model for two dependent variables. The first is an indicator that takes the value of one if the exclusions are non-recurring and the second is an indicator taking the value of one if the firm discloses a reconciliation between the GAAP and the non-GAAP figure. The empirical results in Table 9 provide some evidence that strong industry competition motivates managers to engage in more transparent non-GAAP exclusions. We find that firms dealing with strong profit-margin competition are more likely to exclude only non-recurring exclusions, and that firms in low concentrated sectors and firms facing higher set-up costs are more motivated to provide a reconciliation.

In the spirit of Brown et al. (2018), we also identify whether the firm excludes items that are common in the industry (i.e., if at least 50% of firms in a sector exclude a particular item). We find that in 40% of the times firms exclude common industry items. Following Black et al. (2020) suggestion that industry-common exclusions are of lower quality than firm-specific exclusions, we estimate whether competition decreases the likelihood of the firm excluding industry common items. We find some evidence that firms facing intense

competition, measured by concentration and set-up costs, make less industry-common exclusions.

5.5. Industry competition and firm performance relative to the industry

The results thus far highlight that industry competition is an important determinant of non-GAAP disclosure, but disregard that disclosure costs varies with the firm's performance relative to its peers. We expect that in competitive industries, firms performing poorly will be less optimistic about their non-GAAP earnings than firms that performing well. We test this hypothesis (H3) in Table 10.

We expand our main model by including an interaction term between *Competition* and *Low performance.* The variable *Low performance* is an indicator variable, coded one if the firm's profitability (return-on-assets) in year *t* is in the bottom 10% of the industry, and zero otherwise.[16] The significantly negative interaction coefficients suggest that, in competitive industries, firms with relatively poor financial performance engage in lower *NG exclusions*. We interpret this result as evidence that in competitive environments low performing firms face higher disclosure costs than other industry peers. Strong competition prevents poor performing firms from increasing non-GAAP earnings excessively, because doing so can trigger competitors' actions that will further harm the firm's profitability, and can be perceived by capital markets as misleading.

We also assess whether managers of poor performing firms operating in competitive industries provide more transparent exclusions. The results (not tabulated) indicate they are more likely to disclose a reconciliation between the GAAP and non-GAAP numbers. We find weak evidence (at a 10% significance level) that firms with low performance facing

[16] We could also explore the top performers in the industry, but we prefer to test the bottom industry performers because our hypothesis development is focused on relatively lower performance.

strong competition (associated with concentration) report less persistent non-GAAP adjustments. However, we do not find statistical evidence of less non-recurring adjustments.

An alternative interpretation of the results may be that strong performing firms in competitive industries face more pressure to engage in profit-growing activities to stay ahead of their competitors, which would result in more earnings volatility. To smooth earnings managers of high performing firms would then disclose non-GAAP exclusions of higher magnitude than firms performing poorly. We test this possibility by comparing the average earnings volatility of high and low performing firms, when competition is strong. We do not find evidence that high performing firms experience more earnings volatility, and that the desire to reduce earnings volatility in competitive industries influences non-GAAP exclusions.

6. Conclusion

We study how product market competition shapes non-GAAP disclosure. We provide new evidence that capital markets incentives are not the only determinants of managers' non-GAAP disclosure decisions; competition in product markets also play an important role in these decisions. We examine different sources of competition: (i) low industry concentration, (ii) small price-cost margin, and (iii) reduced entry barriers due to low set-up costs. We find that pressure from all types of industry competition influences the disclosure decision and the magnitude of non-GAAP exclusions. The importance of industry competition for non-GAAP disclosure is incremental to the importance of capital market incentives such as meeting earnings benchmarks, previously pointed as key determinants of non-GAAP disclosures. Using large reductions in import tariff rates as an exogenous event, we provide causal evidence that the magnitude of non-GAAP exclusions calculated by managers increases when firms face unexpected competition.

We find cross-sectional variation in the role of industry competitive for non-GAAP disclosure decisions. Firms with poor financial performance relative to their industry peers, face higher disclosure costs, and hence report lower non-GAAP exclusions. We suggest that strong competition prevents poor performing firms from increasing non-GAAP earnings excessively, because doing so would be perceived by capital markets as misleading, and would motivate competitors to take actions that reduce further the firm's future profitability.

Regarding the quality of non-GAAP disclosure, we find that in competitive environments non-GAAP exclusions are less correlated with future earnings and cash flows, indicating that managers engage in less recurring exclusions. Managers are also more likely to adjust only non-recurring items and to provide a reconciliation when competition is strong, which suggest that industry competition has positive effects on the transparency of non-GAAP disclosure.

References

Aggarwall, R., and Samwick, A. 1999. Executive compensation, strategic competition, and relative performance evaluation: Theory and evidence. Journal of Finance, 54, 1999-2043.

Ali, A., Klasa, S., and Yeung, E., 2014. Industry concentration and corporate disclosure policy. Journal of Accounting and Economics, 58, 240-264.

Altman, E., 1968. Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. Journal of Finance, 23 (4), 589–609.

Barton, J., and Mercer, M., 2005. To blame or not to blame: Analysts' reactions to external explanations for poor financial performance. Journal of Accounting and Economics, 39 (3), 509-533.

Bartov, E., Givoly, D., and Hayn, C., 2002. The rewards to meeting or beating earnings expectations. Journal of Accounting and Economics, 33 (2), 173-204.

Basdeo, D., Smith, K., Grimm, C., Rindova, V., and Derfus, P., 2006. The impact of market actions on firm reputation. Strategic Management Journal, 27 (12), 1205–1219.

Belsley, D., Kuh, E., and Welsch, E., 1980. Regression diagnostics: identifying influential data and sources of collinearity. New York, NY: Wiley & Sons.

Bhattacharya, N., Black, E., Christensen, T., and Larson, C. 2003. Assessing the relative informativeness and permanence of pro forma earnings and GAAP operating earnings. Journal of Accounting and Economics, 36, 285-319.

Bhattacharya, N., Black, E., Christensen, T., and Mergenthaler, R. 2007. Who trades on pro forma earnings information? The Accounting Review, 82, 581-619.

Bhattacharya, S. and Ritter, J., 1983. Innovation and communication: Signalling with partial disclosure. Review of Economic Studies, 50 (2), 331-346.

Black, D., and Christensen, T., 2009. US managers' use of 'pro forma' adjustments to meet strategic earnings targets. Journal of Business Finance and Accounting, 36 (3-4), 297-326.

Black, D., Christensen, T., Ciesielski, J., and Whipple, B., 2018a. Non-GAAP reporting: Evidence from academia and practice. Journal of Business Finance and Accounting, 45, 259-294.

Black, D., Christensen, T., Ciesielski, J., and Whipple, B., 2020. Non-GAAP earnings: A consistency and comparability crisis? Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2759312.

Black, E., Christensen, T., Joo, T., and Schmardebeck, R. 2017. The relation between earnings management and non-GAAP reporting. Contemporary Accounting Research, 34 (2), 750-782.

Bradshaw, M., Sloan, R., 2002. GAAP versus the street: an empirical assessment of two alternative definitions of earnings. Journal of Accounting Research, 40 (1), 41-66.

Boot, A, and Thakor, A., 2001. The many faces of information disclosure. Review of Financial Studies, 14 (4), 1021-1058.

Botosan, C., and Stanford, M., 2005. Managers' motives to withhold segment disclosures and the effect of SFAS no. 131 on analysts' information environment. Accounting Review, 80 (3), 751-771.

Brown, N., Christensen, T., Elliott, B. 2012. The timing of quarterly 'pro forma' earnings announcements. Journal of Business Finance and Accounting, 39, 315-359.

Brown, N., Christensen, T., Menini, A., and Steffen, T. 2018. Non-GAAP earnings disclosure and IPO pricing. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2803795

Carter, S., 2006. The interaction of top management group, stakeholder, and situational factors on certain corporate reputation management activities. Journal of Management Studies, 43, 1146-1176.

Center for Audit Quality, 2018. Non-GAAP measures – a roadmap for audit committees.

CFA Institute, 2016. Investor uses, expectations, and concerns on non-GAAP financial measures.

Choi, Y., Lin, S., Walker, M., and Young, S., 2007. Disagreement over the persistence of earnings components: evidence on the properties of management-specific adjustments to GAAP earnings. Review of Accounting Studies, 12 (4), 595-622.

Committee on European Securities Regulators: CESR, 2005. Recommendation on alternative performance measures.

Christensen, T., Drake, M., and Thornock, J., 2014. Optimistic reporting and pessimistic investing: Do pro forma earnings disclosures attract short sellers? Contemporary Accounting Research, 31 (1), 67–102.

Darrough, M., and Stoughton, N., 1990. Financial disclosure policy in an entry game. Journal of Accounting and Economics, 12 (1-2), 219-243.

Deephouse, D. and Carter, S., 2005. An examination of differences between organizational legitimacy and organizational reputation. Journal of Management Studies, 42 (2), 329-360.

Dedman, E., and Lennox, C., 2009. Perceived competition, profitability and the withholding of information about sales and the cost of sales. Journal of Accounting and Economics, 48 (2-3), 210-230.

Dye, R. 1985. Disclosure of nonproprietary information. Journal of Accounting Research, 23, 123-145.

European Financial Reporting Advisory Group: EFRAG, 2009. Pro-active accounting activities in Europe. Performance reporting, a European discussion paper. Brussels.

European Securities and Markets Authority: ESMA, 2015. Guidelines on alternative performance Measures. Paris.

Evans, J., and Sridhar, S., 2002. Disclosure-disciplining mechanisms: Capital markets, product markets, and shareholder litigation. Accounting Review, 77 (3), 595–626.

Frankel, R. and Li, X., 2004. Characteristics of a firm's information environment and the information asymmetry between insiders and outsiders. Journal of Accounting and Economics, 37 (2), 229-259.

Frankel, R., McVay, S., and Soliman, M., 2011. Non-GAAP earnings and board independence. Review of Accounting Studies, 16, 719-744.

Frederikson, J., and Miller, J. 2004. The effects of pro forma earnings disclosures on analysts' and nonprofessional investors' equity valuation judgements. The Accounting Review, 79, 667-686.

Gigler, F., 1994. Self-enforcing voluntary disclosures. Journal of Accounting Research, 32 (2), 224-240.

Golden, R., 2017. Why the FASB cares about non-GAAP performance measures. FASB outlook: From the Chairman's desk. http://www.fasb.org/jsp/FASB/Page/SectionPage&cid=1176168752402.

Gomez, E., Heflin, F., and Wang, J. 2018. Information environment consequences of SEC non-GAAP comment letters. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3044026

Gonedes, N. 1978. Corporate signaling, external accounting, and capital market equilibrium – Evidence on dividends, income, and extraordinary items. Journal of Accounting Research, 16, 26-79.

Grossman, S., 1981. The informational role of warranties and private disclosure about product quality. Journal of Law and Economics, 24 (3), 461-483.

Guillamon-Saorin, E., Isidro, H. and Marques, A., 2017. Impression management and non-GAAP disclosure in earnings announcements. Journal of Business Finance and Accounting, 44 (3-4), 448–479.

Harris, M., 1998. The association between competition and managers' business segment reporting decisions. Journal of Accounting Research, 36 (1), 111-128.

Healy, P., and Palepu. K., 2001. Information asymmetry, corporate disclosure, and the capital markets: a review of the empirical disclosure literature. Journal of Accounting and Economics, 31 (1-3), 405-440.

Heckman, J., 1979. Sample selection bias as a specification error. Econometrica, 47 (1), 153-161.

Hoogervorst, H., 2016. Performance reporting and the pitfalls of non-GAAP metrics. Speech of the International Accounting Standards Board Chairman, Annual Conference of the European Accounting Association, Maastricht.

Hou, K., and Robinson, D., 2006. Industry concentration and average stock returns. Journal of Finance, 61 (4), 1927-1956.

Huang, Y., Jennings, R., Yu, Y. 2017. Product market competition and managerial disclosure of earnings forecasts: Evidence from import tariff rate reductions. The Accounting Review, 92, 185-207.

Huang, X., Teoh, S. and Zhang, Y., 2014. Tone management. Accounting Review, 89 (3), 1083-1113.

International Accounting Standards Board: IASB, 2017. Discussion paper "Disclosure initiative – Principles of disclosure".

Isidro, H., and Marques, A., 2015. The role of institutional and economic factors in the strategic use of non-GAAP disclosures to beat earnings benchmarks. European Accounting Review, 24 (1), 95-128.

Jennings, R., and Marques, A., 2011. The joint effects of corporate governance and regulation on the disclosure of manager-adjusted non-GAAP earnings in the US. Journal of Business Finance and Accounting, 38 (3-4), 364-394.

Karuna, C., 2007. Industry product market competition and managerial incentives. Journal of Accounting and Economics, 43 (2-3), 275-297.

Laurion, H. 2020. Implications of non-GAAP earnings for real activities and accounting choices. Journal of Accounting and Economics, forthcoming.

Leone, A., Minutti-Meza, M. and Wasley, C., 2019. Influential Observations and Inference in Accounting Research. The Accounting Review, In-Press.

Li, X., 2010. The impacts of product market competition on the quantity and quality of voluntary disclosures. Review of Accounting Studies, 15 (3), 663-711.

Lennox, C., Francis, J., and Wang, Z., 2012. Selection models in accounting research. The Accounting Review, 87 (2), 589-616.

Lougee, B., Marquardt, C., 2004. Earnings quality and strategic disclosure: an empirical examination of pro forma earnings. Accounting Review, 79 (3), 769-795.

Marques, A., 2006. SEC interventions and the frequency and usefulness of non-GAAP financial measures. Review of Accounting Studies, 11 (4), 549-574.

McKinsey&Company, 2013. Avoiding the consensus-earnings trap. Available at http://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/avoiding-the-consensus-earnings-trap.

Milgrom, P., 1981. Good news and bad news: representation theorems and applications. The Bell Journal of Economics, 12 (2), 380-391.

Muiño, F. and Núñez-Nickel, M., 2016. Multidimensional competition and corporate disclosure. Journal of Business Finance & Accounting, 43 (3-4), 298–328.

Newbert, S., 2007. Empirical research on the resource-based view of the firm: an assessement and suggestions for future research. Strategic Management Journal, 28 (2), 121-147.

Pacheco-de-Almeida, G., and Zemsky, P., 2012. Some like it free: Innovators' strategic use of disclosure to slow down competition. Strategic Management Journal, 33 (7), 773–793.

Pierce, J., and Schott, P. 2012. A concordance between ten-digit US harmonized system codes and SIC/NAICS product classes and industries. Finance and Economics Discussion Series – Board of Governors of the Federal Reserve System.

Puhani, P., 2000. The Heckman correction for sample selection and its critique. Journal of Economic Surveys, 14 (1), 53–68.

Raith, M., 2003. Competition, risk and managerial incentives. American Economic Review, 93, 1425-1436.

Rindova, V., Williamson, I., Petkova, A., Sever, J., 2005. Being good or being known: An empirical examination of the dimensions, antecedents, and consequences of organizational reputation. Academy of Management Journal, 48 (6), 1033-1049.

Roberts, P., and Dowling, G., 2002. Corporate reputation and sustained superior financial performance. Strategic Management Journal, 23 (12), 1077-1093.

Rozenbaum, O. 2019. EBITDA and managers' investment and leverage choices. Contemporary Accounting Research, 36 (1), 513-546.

Skinner, D., and Sloan, R., 2002. Earnings surprises, growth expectations, and stock returns or don't let an earnings torpedo sink your portfolio. Review of Accounting Studies, 7 (2-3), 289–312.

Verrecchia, R., 1983. Discretionary disclosure. Journal of Accounting and Economics, 5, 179-194.

Verrechia, R., 1990. Information quality and discretionary disclosure. Journal of Accounting and Economics, 12, 365-380.

Verrecchia, R., 2001. Essays on disclosure. Journal of Accounting and Economics, 32 (1-3), 97-180.

Verrecchia, R. and Weber, J., 2006. Redacted disclosure. Journal of Accounting Research, 44 (4), 791-814.

Wagenhofer, A., 1990. Voluntary disclosure with a strategic opponent. Journal of Accounting and Economics, 12 (4), 341–363.

Walker, M., and Louvari, V., 2003. The determinants of voluntary disclosure of adjusted earnings per share measures by UK quoted companies. Accounting and Business Research, 33 (4), 295-309.

Wiggins, R., and Ruefli, T., 2002. Sustained competitive advantage: temporal dynamics and the incidence and persistence of superior economic performance. Organization Science, 13 (1), 82–105.

Wooldridge, J., 2002. Econometric analysis of cross section and panel data. Cambridge, Massachusetts: MIT Press.

Table 1 – Descriptive statistics by country and by industry

Panel A: Non-GAAP disclosure by country

	Obs.	*NG disclosure (%)*	*NG exclusions (mean)*
Austria	16	1.00	0.922
Belgium	55	0.87	0.440
Switzerland	140	0.77	0.109
Germany	257	0.60	0.359
Denmark	58	0.76	0.183
Spain	110	0.70	0.590
Finland	63	0.68	0.107
France	392	0.75	0.154
United Kingdom	509	0.72	0.128
Greece	28	0.82	0.330
Hungary	12	0.92	0.552
Ireland	29	0.93	0.152
Italy	92	0.70	0.575
Netherlands	121	0.69	0.147
Norway	47	0.79	0.568
Poland	12	0.33	0.407
Portugal	21	0.95	1.033
Russia	56	0.55	0.144
Sweden	133	0.54	0.115
Turkey	10	0.80	0.524
Total	2,161	70.7%	0.244

Panel B: Non-GAAP disclosure by industry

Industry	*Obs.*	*NG disclosure (%)*	*NG exclusions (mean)*
Agriculture, mining and construction	208	0.65	0.269
Manufacturing	542	0.82	0.236
Machinery and electronics	560	0.63	0.192
Transportation & communication	331	0.73	0.521
Retail	236	0.71	0.157
Real state	66	0.50	0.089
General services	178	0.72	0.080
Education, culture and other	40	0.63	0.160

The Table reports non-GAAP disclosure frequency and mean *NG exclusions* by country (Panel A) and by industry groups (Panel B). *NG exclusions* is the difference between non-GAAP earnings disclosed in the press release of the annual earnings announcement and GAAP earnings, scaled by price at beginning of the year.

Table 2 - Descriptive statistics

Panel A: Summary statistics

	Mean	Median	St.dev.	P25	P75
NG disclosure	0.707	1.000	0.455	0.000	1.000
NG exclusions	0.244	0.010	0.691	0.000	0.336
GAAP earnings misses analysts' expectations	0.609	1.000	0.488	0.000	1.000
GAAP earnings misses prior year earnings	0.365	0.000	0.481	0.000	1.000
GAAP earnings misses profit	0.084	0.000	0.277	0.000	0.000
Concentration	0.005	0.281	1.481	-0.567	1.298
Price-cost margin	-0.190	-0.053	0.795	-0.296	0.053
Set-up costs	-0.099	-0.074	0.142	-0.114	-0.039
Institutional ownership	0.274	0.264	0.132	0.188	0.357
Leverage	0.269	0.245	0.198	0.151	0.354
Size	9.174	9.101	1.219	8.345	10.013
ROA volatility	0.034	0.020	0.048	0.010	0.039
Special items, restruct. & merger	0.776	1.000	0.417	1.000	1.000
Impairment & GW	0.416	0.000	0.493	0.000	1.000

Table 2 (cont.) - Descriptive statistics

Panel B: Correlations

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1)	NG disclosure	1													
(2)	NG exclusions	0.2274*	1												
(3)	GAAP earnings misses analysts' expectation	0.8032*	0.3328*	1											
(4)	GAAP earnings misses prior year earnings	0.0355	0.1035*	-0.0175	1										
(5)	GAAP earnings misses profit	-0.0073	0.1577*	-0.0761*	0.2880*	1									
(6)	Concentration	0.0855*	0.0943*	0.0562*	0.0081	0.0103	1								
(7)	Price-cost margin	0.0741*	0.0791*	0.0359	0.0602*	0.0803*	0.0541*	1							
(8)	Set-up costs	-0.0075	-0.0019	-0.0355	-0.0012	0.0543*	0.5869*	0.1143*	1						
(9)	Institutional ownership	0.0158	-0.1419*	-0.0292	0.0072	0.0437*	0.0436*	0.0541*	0.0636*	1					
(10)	Leverage	0.0012	0.1138*	0.0371	0.1264*	0.1183*	-0.0005	-0.1414*	-0.1170*	-0.0299	1				
(11)	Size	0.0255	0.041	-0.0056	0.0011	-0.0041	-0.0566*	0.0652*	-0.1114*	0.0787*	0.0374	1			
(12)	ROA volatility	-0.0393	-0.0113	-0.0735*	0.0827*	0.2507*	0.0811*	0.0425*	0.0807*	0.0502*	0.0475*	-0.2272*	1		
(13)	Special items, restruct. & merger	0.0640*	0.0542*	0.0563*	0.0472*	0.0623*	0.0407	0.0481*	-0.0287	0.0727*	0.1072*	0.2755*	0.0293	1	
(14)	Impairment & GW	0.0770*	0.0500*	0.0433*	0.0121	0.0973*	0.0499*	0.0930*	-0.0205	0.027	-0.0402	0.0873*	-0.0507*	0.0571*	1

The Table reports descriptive statistics (Panel A) and Pearson correlations (Panel B). The symbol * in Panel B indicates statistical significance, at a 5% confidence level. All variables are defined in appendix 1.

Table 3 – Univariate analysis of non-GAAP exclusions

Panel A: Mean values of non-GAAP exclusions when accounting earnings meets (misses) benchmark

Benchmarks:		Analysts' expectations	Prior year earnings	Profit (Avoid a loss)
GAAP earnings meet/exceed benchmark		-0.030	0.180	0.210
GAAP earnings miss benchmark		0.443	0.313	0.548
Test of difference	*F value*	*109.9*	*20.6*	*60.8*
	P value	*[<0.001]*	*[<0.001]*	*[<0.001]*

Panel B: Mean values of non-GAAP exclusions when industry competition is high (low)

Competition measures:		Concentration	Price-cost margin	Set-up costs	Tariff reduction
Low competition		0.190	0.152	0.217	0.201
High competition		0.298	0.332	0.272	0.551
Test of difference	*F value*	*13.37*	*29.96*	*3.33*	*7.66*
	P value	*[< 0.001]*	*[< 0.001]*	*[0.06]*	*[0.006]*

The Table reports univariate tests for *NG exclusions*. Panel A presents average differences in *NG exclusions* by benchmark and Panel B by industry competition. All variables are defined in appendix 1.

Table 4 – The determinants of non-GAAP disclosure decision

	Base line: no competition (1)	*Concentration* (2)	*Price-cost margin* (3)	*Set-up costs* (4)
Capital markets incentives (GAAP earnings miss:)				
Analysts' expectations	0.202***	0.205***	0.230***	0.132*
	(4.027)	(4.061)	(4.757)	(1.951)
Prior year earnings	0.210***	0.210***	0.192***	0.196***
	(3.017)	(3.039)	(2.789)	(3.625)
Profit	-0.092	-0.093	-0.159	-0.036
	(-0.840)	(-0.874)	(-1.460)	(-0.268)
Industry competition		0.050***	0.087**	0.188*
		(2.802)	(2.076)	(1.658)
Firm controls				
NG disclosure in prior year	1.993***	1.991***	2.009***	2.024***
	(18.282)	(18.951)	(19.265)	(19.477)
Institutional ownership	-0.207	-0.212	-0.174	-0.453
	(-0.313)	(-0.314)	(-0.279)	(-1.295)
Special items, restruct. & merger	0.162	0.153	0.197*	0.176*
	(1.643)	(1.526)	(1.937)	(1.705)
Impairment & GW	0.178*	0.180*	0.178*	0.163*
	(1.806)	(1.812)	(1.807)	(1.748)
ROA volatility	-0.064	-0.109	-0.500	-1.472*
	(-0.062)	(-0.108)	(-0.494)	(-1.686)
Leverage	-0.106	-0.092	0.020	-0.088
	(-0.850)	(-0.707)	(0.152)	(-0.565)
Size	0.029	0.031	0.019	-0.096***
	(0.509)	(0.498)	(0.368)	(-5.670)
Intercept	2.628***	2.265***	2.826***	2.615***
	(5.557)	(4.506)	(6.290)	(5.518)
Time, Country, Industry	Yes	Yes	Yes	Yes
Nr.observations	2,161	2,161	2,161	2,161
Pseudo R^2	0.405	0.406	0.401	0.405

The table reports estimates of the first stage regression model of the likelihood of non-GAAP disclosure in earnings announcements. The sample comprises firm-year observations for FT 500 European firms over the period 2003 to 2011. All variables are defined in appendix 1. Robust standard errors clustered by firm are reported in parenthesis. The symbols ***, **, * indicate significance at 1%, 5%, and 10% levels of statistical significance for two-tailed tests.

Table 5 – Non-GAAP exclusions and industry competition *(second stage regression)*

	Baseline: no competition (1)	*Concentration* (2)	*Price-cost margin* (3)	*Set-up costs* (4)
Capital markets incentives (GAAP earnings miss:)				
Analysts' expectations	0.441***	0.441***	0.446***	0.447***
	(8.965)	(8.999)	(9.024)	(8.929)
Prior year earnings	0.094***	0.093***	0.092***	0.088***
	(2.863)	(2.835)	(2.818)	(2.749)
Profit	0.254***	0.256***	0.250***	0.261***
	(2.862)	(2.878)	(2.821)	(2.928)
Competition		0.027***	0.033**	0.207***
		(3.296)	(2.302)	(2.937)
Firm controls				
Prior year NG exclusions	0.397***	0.394***	0.395***	0.385***
	(6.837)	(6.864)	(6.768)	(6.491)
Institutional ownership	-0.384***	-0.398***	-0.385***	-0.380***
	(-3.227)	(-3.306)	(-3.246)	(-3.217)
Special items, restruct. & merger	0.012	0.006	0.011	0.017
	(0.398)	(0.199)	(0.391)	(0.587)
Impairment & GW	0.003	0.002	-0.001	-0.003
	(0.088)	(0.055)	(-0.022)	(-0.097)
ROA volatility	-0.071	-0.161	-0.099	-0.144
	(-0.300)	(-0.626)	(-0.418)	(-0.566)
Leverage	0.090	0.088	0.113	0.128
	(1.238)	(1.216)	(1.521)	(1.528)
Size	0.015	0.016	0.014	0.009
	(1.189)	(1.334)	(1.094)	(0.651)
Intercept	0.108***	0.112***	0.116***	0.109***
	(4.323)	(4.481)	(4.687)	(4.318)
NG x Mills	0.031	0.032	0.031	0.029
	(0.555)	(0.587)	(0.564)	(0.503)
(1 - NG) x Mills	0.108***	0.112***	0.116***	0.109***
	(4.323)	(4.481)	(4.687)	(4.318)
Intercept	-0.042	-0.041	-0.035	0.051
	(-0.085)	(-0.086)	(-0.070)	(0.110)
Time, country & industry FE	Yes	Yes	Yes	Yes
Observations	2,161	2,161	2,161	2,161
Adjusted R^2	0.365	0.368	0.366	0.370
VIF for NG * Mills	1.32	1.33	1.33	1.34
VIF for (1 - NG) * Mills	2.47	2.48	2.51	2.52

The Table reports estimates of the second stage regression model of *NG exclusions* on capital markets incentives and industry competition. The sample comprises firm-year observations for FT 500 European firms over the period 2003 to2011. All variables are defined in appendix 1. Robust standard errors clustered by firm are reported in parenthesis. The symbols ***, **, * indicate significance at 1%, 5%, and 10% levels of statistical significance for two-tailed tests.

Table 6 – Analyst exclusions and industry competition

	Concentration (1)	*Price-cost margin* (2)	*Set-up costs* (3)
Capital markets incentives (GAAP earnings miss:)			
Analysts' expectations	0.060	0.056	0.067
	(0.802)	(0.762)	(0.932)
Prior year earnings	0.373***	0.382**	0.376***
	(2.741)	(2.607)	(2.773)
Profit	1.353***	1.377***	1.351***
	(6.124)	(3.472)	(6.128)
Competition	-0.002	-0.145	0.090
	(-0.156)	(-1.432)	(0.785)
Firm controls			
Prior year NG exclusions	0.565*	0.564	0.566*
	(1.655)	(1.351)	(1.659)
Institutional ownership	-0.270	-0.269	-0.274
	(-1.279)	(-1.082)	(-1.274)
Special items, restruct. & merger	-0.115**	-0.113**	-0.112**
	(-2.380)	(-2.338)	(-2.323)
Impairment & GW	0.167**	0.184**	0.173**
	(2.223)	(2.228)	(2.260)
ROA volatility	-0.271	-0.152	-0.298
	(-0.547)	(-0.366)	(-0.589)
Leverage	0.537*	0.438	0.541*
	(1.672)	(1.172)	(1.658)
Size	-0.040*	-0.035	-0.038*
	(-1.789)	(-1.503)	(-1.758)
Intercept	-0.046	-0.066	-0.021
	(-0.743)	(-1.267)	(-0.338)
NG x Mills	-0.116	-0.121*	-0.055
	(-1.392)	(-1.747)	(-0.631)
(1 - NG) x Mills	-0.046	-0.066	-0.021
	(-0.743)	(-1.267)	(-0.338)
Intercept	-0.499*	-0.806**	-0.515*
	(-1.889)	(-2.211)	(-1.953)
Time, country & industry FE	Yes	Yes	Yes
Observations	2134	2134	2134
Adjusted R^2	0.311	0.316	0.311

The Table reports estimates of the second stage regression model of analysts' exclusions on industry competition. The sample comprises firm-year observations for FT 500 European firms over the period 2003 to 2011. All variables are defined in appendix 1. Robust standard errors clustered by firm are reported in parenthesis. The symbols ***, **, * indicate significance at 1%, 5%, and 10% levels of statistical significance for two-tailed tests.

Table 7 – Large reduction in import tariff rates and non-GAAP disclosures

Panel A: Descriptive evidence

Two-digit SIC code	*Industries with large tariff reductions*	*Obs.*	*Average tariff change*	*NG disclosure (%)*	*NG exclusions (mean)*
13	Oil and gas extraction	6	-0.471	0.500	0.366
26	Paper and allied products	20	-0.673	1.000	0.347
27	Printing, publishing and allied ind.	8	-0.533	0.625	0.269
31	Leather and leather goods	15	-0.156	0.000	0.000
33	Primary metal industries	25	-0.252	0.600	1.004
	Total	74	-0.421	0.607	0.551
Average change in tariff rates for industry-years with tariff decreases			-0.040	0.758	0.194
Average change in tariff rates in all industry-years			-0.004	0.709	0.197

Table 7 (cont.) – Large reduction in import tariff rates and non-GAAP disclosures

Panel B: Regression results

	NG disclosure (1)	*NG exclusions* (2)
Capital markets incentives (GAAP earnings miss:)		
Analysts' expectations	0.259**	0.389***
	(2.543)	(8.916)
Prior year earnings	0.196*	0.036
	(1.812)	(0.959)
Profit	0.052	0.371***
	(0.262)	(5.654)
Post_Tariff reduction	-0.019	0.291***
	(-0.069)	(2.696)
Firm controls		
Prior year NG	1.812***	0.390***
	(13.566)	(15.460)
Institutional ownership	0.674	-0.363**
	(1.371)	(-2.309)
Special items, restruct. & merger	0.268**	-0.010
	(1.993)	(-0.225)
Impairment & GW	0.046	-0.009
	(0.429)	(-0.253)
ROA volatility	-0.080	0.009
	(-0.068)	(0.020)
Leverage	-0.209	0.118
	(-1.222)	(1.456)
Size	-0.052	-0.008
	(-1.210)	(-0.534)
NG x Mills		0.032
		(0.510)
(1 - NG) x Mills		0.096**
		(2.284)
Intercept	2.685***	-0.430*
	(5.091)	(-1.674)
Time, country & industry FE	Yes	Yes
Observations	1,189	1,189
Pseudo R^2	0.374	
Adjusted R^2		0.359

The Table reports descriptive evidence on the relation between *Post_Tariff reduction* and non-GAAP disclosure (Panel A), and estimates of the second stage regression model of *NG exclusions* on *Post_Tariff reduction* (Panel B). The sample comprises firm-year observations for FT 500 European firms over the period 2003 to 2011. All variables are defined in appendix 1. Robust standard errors clustered by firm are reported in parenthesis. The symbols ***, **, * indicate significance at 1%, 5%, and 10% levels of statistical significance for two-tailed tests.

Table 8 – Non-GAAP exclusions and future performance in competitive industries

Panel A: Future operating performance

Dependent variable: Operating income t+1	*Concentration* (1)	*Price-cost margin* (2)	*Set-up costs* (3)
NG exclusions	-1.534***	-0.142***	-0.385***
	(-2.615)	(-4.333)	(-5.366)
High competition	-1.152**	-0.487***	-0.280***
	(-2.441)	(-10.350)	(-9.282)
High competition x NG exclusions	1.168**	0.035**	0.268***
	(1.975)	(2.406)	(4.097)
Size	-1.135	-0.074	0.199
	(-1.196)	(-0.266)	(0.676)
Leverage	1.833***	-0.208***	-0.195***
	(7.153)	(-12.068)	(-8.583)
Intercept	-15.506***	3.175***	2.686***
	(-5.796)	(13.673)	(8.401)
Time, country & industry FE	Yes	Yes	Yes
Observations	1,879	1,879	1,879
Adjusted R^2	0.450	0.288	0.253
NG exclusions + High competition x NG exclusions = 0	-0.36**	-0.11**	-0.12**

Table 8 (cont.) – Non-GAAP exclusions and future performance in competitive industries

Panel B: Future operating cash flows

Dependent variable: CFO t+1	*Concentration* (1)	*Price-cost margin* (2)	*Set-up costs* (3)
NG exclusions	-1.135***	-0.568***	-1.376***
	(-5.601)	(-4.030)	(-8.806)
High competition	-0.558***	-0.868***	-0.057
	(-6.481)	(-3.882)	(-0.634)
High competition x NG exclusions	1.004***	0.380*	1.081***
	(4.318)	(1.787)	(6.734)
Size	-0.281	-0.891	-0.191
	(-1.090)	(-1.326)	(-0.735)
Leverage	2.085***	2.004***	2.089***
	(26.255)	(12.893)	(26.459)
Intercept	-18.010***	-15.904***	-18.349***
	(-20.909)	(-9.858)	(-19.434)
Time, country & industry FE	Yes	Yes	Yes
Observations	1,879	1,879	1,877
Adjusted R^2	0.522	0.491	0.519
NG exclusions + High competition x NG exclusions = 0	-0.13*	-0.19	-0.29***

The Table reports estimates of the regression model of future performance on *non-GAAP exclusions*. In Panel A future performance is measured by operating earnings, while in Panel B future performance is measured by cash flow from operations. The sample comprises firm-year observations for FT 500 European firms over the period 2003 to 2011. All variables are defined in appendix 1. Robust standard errors clustered by firm are reported in parenthesis. The symbols ***, **, * indicate significance at 1%, 5%, and 10% levels of statistical significance for two-tailed tests.

Table 9 - Non-GAAP transparency and industry competition

	Concentration	*Price-cost margin*	*Set-up costs*
Dependent variable:	(1)	(2)	(3)
Non-recurring exclusions	-0.049	0.197**	-0.266
	(-1.425)	(2.111)	(-0.623)
Reconciliation	0.057**	-0.015	1.145**
	(2.513)	(-0.278)	(2.219)
Firm & capital markets controls	Yes	Yes	Yes
Time, country & industry FE	Yes	Yes	Yes

The Table reports estimates of the second stage regression model of two alternative dependent variables (non-recurrent exclusions, and reconciliation) and the industry competition. The sample comprises firm-year observations for FT 500 European firms over the period 2003 to 2011. All variables are defined in appendix 1. Robust standard errors clustered by firm are reported in parenthesis. The symbols ***, **, * indicate significance at 1%, 5%, and 10% levels of statistical significance for two-tailed tests.

Table 10 – Non-GAAP exclusions and firm performance in competitive industries
(second stage regression)

	Concentration (1)	*Price-cost margin* (2)	*Set-up costs* (3)
Analysts' expectations	0.393***	0.407***	0.439***
	(6.073)	(9.426)	(9.280)
Prior year earnings	0.102***	0.086***	0.090***
	(3.767)	(2.890)	(2.951)
GAAP earnings	0.323***	0.205**	0.317***
	(3.085)	(2.343)	(2.893)
Competition	0.029***	0.035***	0.293***
	(3.062)	(2.870)	(3.452)
Low performance	-0.102*	0.014	-0.100
	(-1.878)	(1.447)	(-1.316)
Competition x Low performance	**-0.049****	**-0.035****	**-0.326*****
	(-2.113)	**(-2.080)**	**(-2.954)**
Firm controls			
Prior year NG_exclusions	0.415***	0.384***	0.408***
	(7.087)	(7.019)	(6.665)
Institutional ownership	-0.486***	-0.314***	-0.479***
	(-4.295)	(-3.153)	(-4.164)
Special items, restruct. & merger	0.003	-0.003	0.025
	(0.113)	(-0.131)	(0.901)
Impairment & GW	0.005	-0.001	0.006
	(0.224)	(-0.025)	(0.193)
ROA volatility	-0.132	-0.045	-0.266
	(-0.752)	(-0.204)	(-1.053)
Leverage	0.123***	0.121*	0.149
	(3.926)	(1.824)	(1.554)
Size	0.017	0.011	0.010
	(1.434)	(0.947)	(0.760)
NG x Mills	0.024	0.011	0.044
	(0.528)	(0.210)	(0.764)
(1 - NG) x Mills	0.089***	0.080***	0.113***
	(4.493)	(4.875)	(4.582)
Intercept	-0.236*	0.041	-0.180
	(-1.833)	(0.083)	(-1.249)
Time, country & industry FE	Yes	Yes	Yes
Observations	2,161	2,161	2,161
Pseudo-R^2	0.365	0.368	0.366

The Table reports estimates of the second stage regression model of *NG exclusions* on industry competition, for firm's with high and low performance relative to industry peers. The sample comprises firm-year observations for FT 500 European firms over the period 2003 to 2011. All variables are defined in appendix 1. Robust standard errors clustered by firm are reported in parenthesis. The symbols ***, **, * indicate significance at 1%, 5%, and 10% levels of statistical significance for two-tailed tests.

Appendix 1 – Definition of variables

Dependent variables	
NG disclosure	Indicator variable, coded one when the firm discloses a non-GAAP earnings measure, and zero otherwise.
NG exclusions	Difference between non-GAAP earnings disclosed by management in the press release of the annual earnings announcement and GAAP earnings, scaled by price at beginning of the year.
Analysts' exclusions	Difference between IBES analysts' actual earnings and GAAP earnings, scaled by price at beginning of the year.
Non-recurring exclusions	Indicator variable coded one when the firm does not exclude any recurrent item (stock related charges, research and development costs, depreciation and amortization costs, stock-based compensation costs, and tax-related items), and zero otherwise.
Reconciliation	Indicator variable coded one when the firm discloses a reconciliation (tabular or not) between non-GAAP and GAAP, and zero otherwise.
Capital markets incentives	
Analysts' expectations	Indicator variable, coded one when accounting earnings misses the 12 months' average analysts' consensus forecast of GAAP earnings, and zero otherwise.
Prior year earnings	Indicator variable, coded one when accounting earnings misses last year's accounting earnings, and zero otherwise.
Profit	Indicator variable coded one when accounting earnings misses profit (i.e. is a loss), and zero otherwise.
Industry competition	
Concentration	Principal component of (i) Herfindhal index of concentration, (ii) number of firms in industry, and (iii) four-ratio concentration. The rule of eigenvalue > 1 suggests just 1 component, which explains 76% of all variation. All measures are calculated by two-digit SIC and year.
Price-cost margin	The firm's price-cost margin minus industry price-cost margin divided by the standard-deviation of the industry price-cost margin. Calculated by two-digit SIC and year.
Set-up costs	Calculated as the natural logarithm of weighted average of long-term assets of firms in the industry. The firm's market share (the ratio of the firm's sales to industry sales) is used as the weight.

Post_tariff reduction	Indicator variable coded one if the industry-year experienced a large reduction in import tariff rates and zero otherwise.
Firm controls	
ROA volatility	Calculated as the three-year standard deviation of ROA.
Special items, restruct. & merger	Indicator variable coded one when the firm reports special, extraordinary, restructuring and merger and acquisition items, and 0 otherwise.
Impairment & GW expenses	Indicator variable coded one when the firm reports asset impairments and goodwill amortizations and impairment expenses, and 0 otherwise.
Institutional ownership	Percentage of share held by institutional holders.
Leverage	Debt divided by total assets.
Size	Natural logarithm of total assets.
Low performance	Indicator variable coded one when firm is included in the bottom 10% of the industry, when ranked by ROA and year, and 0 otherwise.

Appendix 2 – Results using only disclosing firms

	Base line: no competition (1)	*Concentration* (2)	*Price-cost margin* (3)	*Set-up costs* (4)
Capital markets incentives (GAAP earnings miss:)				
Analysts' expectations	0.487***	0.488***	0.492***	0.491***
	(7.323)	(7.317)	(7.407)	(7.315)
Prior year earnings	0.120***	0.121***	0.117***	0.121***
	(2.784)	(2.807)	(2.742)	(2.808)
Profit	0.399***	0.395***	0.385***	0.392***
	(3.328)	(3.285)	(3.214)	(3.310)
Competition		0.043***	0.079**	0.289***
		(3.427)	(2.374)	(3.196)
Firm controls				
Prior year NG exclusions	0.395***	0.390***	0.388***	0.392***
	(5.520)	(5.557)	(5.373)	(5.473)
Institutional ownership	-0.637***	-0.627***	-0.633***	-0.649***
	(-3.676)	(-3.652)	(-3.690)	(-3.755)
Special items, restruct. & merger	0.023	0.018	0.026	0.023
	(0.576)	(0.459)	(0.672)	(0.573)
Impairment & GW	-0.015	-0.013	-0.020	-0.013
	(-0.344)	(-0.296)	(-0.455)	(-0.291)
ROA volatility	-0.129	-0.197	-0.190	-0.175
	(-0.345)	(-0.493)	(-0.516)	(-0.457)
Leverage	0.237	0.270*	0.280*	0.270*
	(1.556)	(1.717)	(1.800)	(1.706)
Size	0.018	0.020	0.015	0.020
	(0.847)	(0.922)	(0.694)	(0.928)
Intercept	-0.125	-0.087	-0.097	-0.125
	(-0.268)	(-0.201)	(-0.211)	(-0.270)
Time, country & industry FE	Yes	Yes	Yes	Yes
Observations	1,528	1,528	1,528	1,528
Adjusted R^2	0.378	0.383	0.381	0.380