

## **A Look at EBITDA Reporting and Market Participants: Does Governance Matter?**

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Acknowledgment: The authors acknowledge the financial support of l'Autorité des marchés financiers (Québec). All usual caveats apply.

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### **Does Governance Matter?**

#### Abstract

In this paper, we investigate whether formally disclosing an EBITDA (earnings before interests, taxes, depreciation and amortization) number reduces the information asymmetry between managers and investors beyond the release of GAAP earnings. We also assess if EBITDA disclosure enhances the value relevance and the predictive ability of earnings. Results suggest that EBITDA reporting is associated with greater analyst following and with less information asymmetry (as proxied by Bid-Ask Spread and forecast dispersion). We also document that EBITDA reporting enhances the positive relationship between earnings and stock pricing as well as future cash flows. Moreover, it appears that corporate governance substitutes for EBITDA reporting for stock markets. Hence, EBITDA helps market participants to better assess earnings valuation when a firm's governance is weak. Inversely, when governance is strong, releasing EBITDA information has a much smaller impact on the earnings-stock price relation.

Key word: EBITDA, governance, Non-GAAP.

#### Résumé

Dans cet article, nous examinons si le fait de publier l'EBITDA (earnings before interests, taxes, depreciation and amortization) réduit l'asymétrie informationnelle entre les gestionnaires et les investisseurs au-delà de la publication des résultats conformes aux PCGR. Nous évaluons également si le fait de publier l'EBITDA améliore la pertinence et la valeur prédictive des résultats en PCGR. Il ressort de nos résultats que le fait de publier l'EBITDA est associé à un plus grand suivi des analystes financiers et à moins d'asymétrie informationnelle (écart acheteur-vendeur et dispersion dans les prévisions de résultats). Nous documentons également que la publication de l'EBITDA améliore la valorisation et la valeur prédictive des résultats. En outre, il apparaît qu'une bonne gouvernance se substitue à la publication de l'EBITDA pour les marchés boursiers. Par conséquent, l'EBITDA aide les acteurs du marché à mieux valoriser les résultats lorsque la gouvernance d'une entreprise est faible. Inversement, lorsque la gouvernance est forte, la publication de l'EBITDA a un impact beaucoup plus faible sur la relation cours-résultats.

Mots clés : EBITDA, gouvernance, non-GAAP (non conforme aux normes comptables).

## INTRODUCTION

The recent attention devoted to Valeant Pharmaceuticals International Inc. business model and financial reporting has reignited the debate about the merits of so-called non-GAAP measures, especially EBITDA.<sup>1</sup> For example, during its pursuit of Allegan in 2014, several analysts as well as Allergan's management accused Valeant of using aggressive accounting that magnified its financial performance. A major issue underlying these accusations is that non-GAAP reporting represents information that is not defined by accounting standards. Hence, according to Goldschmidt (2013), non-GAAP information is a numerical measure of historical or future financial performance of an entity, its financial position or cash flows that excludes or includes GAAP numbers.<sup>2</sup>

In that context, the current study aims to explore further how market participants (investors and analysts) view and use EBITDA (Earnings before Interests, Taxes, Depreciation and Amortization). According to PwC (2014), EBITDA is the non-GAAP metric that is the most commonly used by listed corporations. Focusing on a sample of large Canadian firms, we find that EBITDA reporting relates with more extensive analyst following and translates into less information asymmetry between managers and stock market participants, as reflected by the bid-ask spread and analyst forecast dispersion. We also document that EBITDA reporting enhances the positive relationship between earnings and stock pricing and signals higher future cash flows. Finally, it appears that, for stock markets, corporate governance substitutes for EBITDA reporting. EBITDA

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<sup>1</sup> <http://www.bloomberg.com/news/articles/2015-11-11/valeant-creditors-spooked-by-possibility-of-revenue-squeeze>; <http://business.financialpost.com/investing/valeant-accused-of-aggressive-accounting-games-by-renowned-short-seller-jim-chanos>

<sup>2</sup> <http://www.forbes.com/sites/tedgavin/2011/12/28/top-five-reasons-why-ebitda-is-a-great-big-lie/#288b182c469d>

helps market participants to better assess earnings valuation when the governance is weak, suggesting a complementary effect for weak governance. However, when governance is strong, EBITDA reporting has a scant effect on the relation between earnings and stock prices. To the best of our knowledge, this study is the first to investigate the moderating effect of corporate governance on the relation between a non-GAAP measure and information asymmetry as well as the value relevance of earnings.

Our paper aims to further enlighten future discussions about non-GAAP reporting. Despite several attempts by regulators (e.g., Regulation G, SEC 2003) to delineate its use and recurring criticisms as to its reliability and relevance by market observers, many corporations still report EBITDA numbers. A report by McKinsey (2013) provides a clue to this paradox. According to the report, financial statements are difficult to interpret for investors, leading many firms to increasingly resort to some form of non-GAAP earnings to facilitate investors' assessment of their underlying performance. The report highlights that a potential problem with GAAP is its emphasis on producing a single number, net earnings, which is deemed likely to be useful to the firm, as well as to its investors and creditors. However, beyond net earnings, sophisticated investors seek information about its components and, specifically, want to distinguish operating items (sales to customers less the costs of those sales) from non-operating items (interest income or interest expense). They also want to know which items are likely to be recurring and which are likely to be nonrecurring (e.g. restructuring charges). Finally, they want to know which items are real and which, like the amortization of intangibles, merely reflect the application of accounting rules.

Hence, for Segarra (2014), the use of non-GAAP metrics aims to depict financial performance more accurately than GAAP measures do, thus providing investors with a window as to how management sees things. In fact, many managers routinely report non-GAAP earnings numbers (in addition to required GAAP earnings numbers) and justify the practice on the grounds that the non-GAAP earnings numbers more accurately reflect the firm's performance and financial health (Bansal, Seetharaman, and Wang, 2013). However, since they are often unaudited and not subject to any formal standard, such practices raise many concerns among regulators and may actually confuse more than they inform (Cormier, Lapointe-Antunes, and Magnan 2011). Barsky and Catanach Jr. (2014) cite Groupon as an example of this lack of transparency of non-GAAP measure. Indeed in its 2013 10-K report, in addition to reporting an adjusted EBITDA that exceeds net loss by \$375.60 million, Groupon introduces a metric called "operating income (loss) excluding stock-based compensation and acquisition related expense (benefit), net." This wordy non-GAAP measure was \$121.45 million greater than income from operations. The previous year, this firm was called to order by the SEC about the metric "adjusted consolidated segment operating income," because the measure excluded online marketing expenses (a critical part of the firm's business model).

The release of non-GAAP information to the public is a strategic decision that is likely to be vetted by a firm's board of directors. In fact, several firms provide disclosure to that effect. For instance, at a conference sponsored by Barclays (an investment bank and portfolio manager), Kimberley-Clark states that "Kimberly-Clark provides these non-GAAP financial measures as supplemental information to our GAAP financial measures. Management and the company's Board of Directors use adjusted earnings and earnings

per share, adjusted operating profit and margin, adjusted ROIC, adjusted dividend payout and organic sales to (a) evaluate the company's historical and prospective financial performance and its performance relative to its competitors, (b) allocate resources and (c) measure the operational performance of the company's business units and their managers.”<sup>3</sup> Kimberley-Clark's disclosure is consistent with practices revealed by several other firms in their proxy statements. To the extent boards of directors rely on non-GAAP measures for several decisions, including the compensation of executives, one can assume that it must play a role in their selection, use and disclosure. However, up until now, that role and influence have remained relatively unexplored. While the relation between corporate governance and earnings quality can provide some clues in this regard, the evidence is rather weak and inconsistent (e.g., Larcker, Richardson and Tuna, 2007). We argue that this inconsistency may be due to the fact that the relation between earnings quality and governance is correlated with other disclosure variables such as non-GAAP measures.

Our paper provides the following contributions. First, we extend prior research on non-GAAP performance measures by examining how they reduce information asymmetry between managers and market participants, i.e., analysts and investors. Second, we assess how corporate governance influences the relation between EBITDA reporting and information asymmetry between managers and market participants. Third, and perhaps most importantly, we revisit the issue of how corporate governance relates with earnings quality by considering the potentially confounding effect of EBITDA reporting: it appears that such reporting, which makes a firm's underlying financial

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<sup>3</sup> <http://files.shareholder.com/downloads/KMB/0x0x595076/B1F29C39> (September 2012)

performance more transparent, substitutes for governance in moderating the relation between governance and earnings quality.

The paper is organized as follows: Section 1 presents the framework and research hypotheses. Section 2 presents the methodology. The results follow in Section 3 and the last section provides a conclusion and a discussion of the potential results' implications.

## **FRAMEWORK**

### **Institutional Setting**

The International Accounting Standards Board's (IASB) position about non GAAP is somewhat ambiguous. After allowing non-GAAP metrics proliferation, it then firmly criticizes their use. For instance, the IFRS Advisory Council (2011) considers that the widespread use of non-GAAP measures can be perceived as undermining the integrity of the numbers reported under GAAP. It underlines that the main problem with non-GAAP measures is that they lack the rigor and evolved literature to provide answers to detailed issues in financial reporting. More recently, IASB's Chair, Hans Hoogervorst (2015), criticizes the use of non-GAAP measures that offer a selective presentation of an entity's financial performance. In addition, in his view, that selection is not free from bias.

Consistent with these views, and to restrain the use of non-GAAP measures, the IASB has launched the revision of IAS 1 by releasing an Exposure-Draft (ED) (2014/1) on the Disclosure Initiative proposed amendments to IAS 1 (IASB 2014). The ED states that "The IASB does not want to propose amendments that could be seen as encouraging the proliferation of 'non-GAAP' measures. This is not the intention of the proposed amendments; the aim of which is to provide additional guidance on the fair presentation

of subtotals presented in accordance with paragraph 55 or 85 of IAS 1.” This ED aims at improving the disclosure required for reducing the use of non-GAAP metrics.

Reflecting the initial IASB’s stand with respect to non-GAAP reporting, it appears that IFRS mandatory adoption in Europe does not translate into a decrease in the use of non-GAAP measures. In fact, a study by PwC (2007) shows that the transition to IFRS does not change corporate practices with respect to financial communications.

Beyond the IASB’s overall view with respect to non-GAAP reporting, it appears that certain accounting standards can contribute to the proliferation of non-GAAP measures. IFRS 8 on segment reporting is one example. The standard requires the information published to be based on the information used internally, which are not necessarily fully compliant with IFR-based information contained in the consolidated financial statements. This vision "through the eyes of management" leading to the spread of non-IFRS Segment information is criticized by many stakeholders (Sukjar, 2007).

In the United States, several regulations frame the use of non-GAAP measures. Hence, SEC registrants must comply with Regulation G, which addresses all public non-GAAP financial disclosures. They must also comply with Item 10(e) of Regulation S-K, which covers non-GAAP information included in documents filed with the SEC, and Instruction 2 to Item 2.02 of Form 8-K for information furnished to the SEC (in addition to Compliance and Disclosure Interpretations, [Non-GAAP Financial Measures](#), issued in January 2010, further delineates the use of non-GAAP measures. In general, the SEC requires firms that report a non-GAAP measure to include the most directly comparable GAAP financial measure with equal or greater prominence and to reconcile both measures. In addition, in most cases, firms must disclose the reasons why the non-GAAP

measure provides useful information to investors and what management uses the measure for, if applicable (PwC, 2014).

Canadian regulations are somewhat similar to those promulgated by the SEC. The Canadian Securities Administrators Staff Notice 52-306 explicitly states that: “In order to ensure that a non-GAAP financial measure does not mislead investors, an issuer should clearly define the measure and explain its relevance. As well, an issuer should present the measure on a consistent basis from period to period or explain any changes. Specifically, an issuer should provide a clear quantitative reconciliation from the non-GAAP financial measure to the most directly comparable measure calculated in accordance with the issuer's GAAP and presented in its financial statements, referencing to the reconciliation when the non-GAAP financial measure first appears in the document, or in the case of content on a website, in a manner that meets this objective (for example, by providing a link to the reconciliation)...”.

### **Non-GAAP Measures: Opportunistic or Relevant Information?**

#### *Non-GAAP Reporting: A Common Practice*

Despite regulatory concerns, the disclosure of non-GAAP measures is becoming more widespread across listed entities. For instance, Marques (2010) investigates the distribution of non-GAAP financial information of 361 companies from the U.S. S&P 500 for the period 2001-2003. She observes extensive use of non-GAAP information, since 68% of firms regularly disclose such measures, with managers strategically emphasizing the non-GAAP measures compared to GAAP measures. Moreover, she notices that non-GAAP measures appear first in news releases on accounting data. However, the disclosure of non-GAAP measures by a majority of listed firms raises the

question of their relevance. In this regard, some studies highlight the potential for opportunistic behavior by managers in the release of non-GAAP information while other studies show that non-GAAP measures are informative for stock market participants. For instance, Bradshaw and Sloan (2002) show that over the past 20 years, there has been a dramatic increase in the frequency and magnitude of cases where “GAAP” and “Street” earnings differ. Their analysis of press releases underlines that management has taken a proactive role in defining and emphasizing non-GAAP when communicating to financial analysts and investors. They consider that, either this increase is due to an opportunistic behavior by managers with the objective of distorting information, or to a desire to better inform financial analysts and investors (i.e. signalling).

#### *A Reflection of Managerial Opportunism*

Barth, Gow, and Taylor (2012) investigate how market participants (managers and analysts) apply SFAS 123R that requires firms to recognize stock-based compensation expenses. Their results differ between managers and analysts. Hence, it appears that managers opportunistically exclude expenses to increase earnings, smooth earnings, and meet earnings benchmarks. However, there is no evidence that these exclusions result in an earnings measure that better predicts future performance. In contrast, analysts exclude expenses from earnings forecasts when the exclusion increases earnings’ predictive ability of future performance and that opportunism generally does not explain exclusion by analysts incremental to exclusion by managers. Thus, managerial opportunism is the primary explanation for the exclusion of expenses from pro forma earnings while forecasting ability concerns underlie the exclusion from Street earnings.

In a similar vein, Aubert (2010) shows that non-GAAP metrics have the potential to misinform investors as they reflect figures that are opportunistically composed. The study of 116 financial press releases issued by French listed companies on the NYSE-Euronext Paris between 1996 and 2006 shows that non-GAAP earnings are higher than GAAP(or IFRS)-based earnings. The author identifies that 82% of non-GAAP measures were positive instead of negative compared to accounting measure. He concludes that the non-GAAP information tend to misinform market participants by releasing unregulated information that cosmetically improves financial performance.

Webber et al. (2013) provide evidence that is consistent with the view that non-GAAP measures tend to provide investors with an embellished picture of firm performance. Studying the fourth quarter press releases of S&P 100 firms over the period 2005-2010, they find a strong increase in non-GAAP reporting, especially following the financial crisis of 2008. Many firms enhance their financial performance by releasing restated accounting earnings, which exclude restructuring charges, provisions (on tangible, financial assets and goodwill) and gains / losses on financial instruments and tangible assets. Baumker et al. (2014) show also that there is an opportunistic component in non-GAAP reporting. Indeed their study of 253 firm-quarters from the S&P 500 concludes that gains are less likely to be carved out of earnings when there are no concurrent transitory losses.

Doyle, Jennings and Soliman (2013) show that managers' opportunism can manifest itself in the way non-GAAP measures are defined. They show that managers aim to meet or beat analyst expectations by defining non-GAAP in such a way that is not fully anticipated by analysts. As a benchmark beating tool, non-GAAP reporting is used

as a substitute to accrual management. However, ultimately, it appears that investors discount earnings surprises that result from exclusions from GAAP earnings.

### *A Tool to Convey Strategic Information*

However, there is also evidence that non-GAAP reporting can be informative. Venter, Emanuel, and Cahan (2014) study the value relevance of a non-GAAP measure (the headline earnings) relative to GAAP earnings in South Africa where there is a mandatory requirement to report both measures. Their results show that non-GAAP earnings reported under a mandatory regime have higher value relevance than GAAP earnings. Thus, the disaggregation of these items is useful to investors in a setting where managerial motivations are minimized.

Choi and Young (2015) suggests that non- GAAP earnings disclosures tend to be driven by a desire for informative (strategic) reporting when GAAP earnings beat (fail to meet) market expectations. Johnson et al. (2014) offer some insight into management's willingness to engage in non-GAAP reporting by showing a positive association between the prominent disclosure of non-GAAP earnings information and non-sophisticated investor reliance on this information. These results provide important evidence to Australian regulators as these narrative disclosures are not subject to regulation, in contrast to the US where mandatory regulation has been in place since 2003. Curtis, McVay, and Whipple (2014) aim to identify the motivation of manager to disclose non GAAP measures, that is, to inform or mislead. Examining 1920 transitory gains disclosed quarterly in the 10Q/K filings from 2001 to 2009, they conclude that the most pervasive

motivation to disclose non-GAAP earnings in the presence of transitory gains is to inform investors.

Hence, prior work about the use of non-GAAP metrics suggests that while managerial opportunism is an issue in the interpretation of such information, there is also reason to believe that non-GAAP metrics can complement GAAP reporting. Overall, taking into account these concerns, non-GAAP metrics generally improve financial communication and give a better view of the firm. However, the interface between GAAP and non-GAAP reporting as well as the impact of corporate governance on the quality of non-GAAP measures remain relatively unexplored.

### **Corporate Governance and Earnings Reporting**

#### *Corporate Governance and GAAP Earnings Reporting*

The mapping between corporate governance and the quality of earnings reporting can be viewed from two perspectives. On one hand, Bushman, Chen, Engel and Smith (2004) posit that, and find evidence that is consistent with, firms with poor quality measures building strong governance structures to counter poor quality earnings measures. This line of reasoning suggests that corporate governance structures, such as external monitoring and concentrated ownership, respond to quality and that poor quality is associated with strong governance, i.e. improved governance is implemented to increase earnings quality.

On the other hand, another perspective is to the effect that governance deficiencies lead to poor earnings quality (e.g., Holthausen, Larcker and Sloan, 1995; Klein, 2002; Larcker and Richardson, 2004; Bowen, Rajgopal and Venkatachalam, 2008). This line of research suggests that earnings quality responds to governance

structures, i.e., that poor (discretionary) quality is associated with poor governance. For instance, Athanasakou and Olsson (2012) separate innate and discretionary components of earnings quality. Their results suggest that better discretionary earnings quality is associated with better governance, consistent with managers responding to governance structures when making reporting decisions.

### *Corporate Governance and Non-GAAP Earnings Reporting*

There is limited evidence regarding the relation between corporate governance and non-GAAP earnings reporting. Overall, it appears that corporate governance does relate with the quality of published financial information. For example, Frankel, McVay, and Soliman (2011) examine 4246 U.S. firms between 1995 and 2005 and find that board of directors' independence is associated with the dissemination of non-GAAP measures. More specifically, they observe firms with more independent boards tend to use less adjustments and exclusions in determining their non-GAAP measures than other firms. They conclude that board independence is positively associated with the quality of non-GAAP reporting. Similarly, Jennings and Marques (2011) show that before Regulation G, investors were misled by non-GAAP information for firms with weak governance. Following the enactment of Regulation G by the SEC in 2002, there is no evidence of such behavior. Their results show the importance of firm-level corporate governance in ensuring quality non-GAAP reporting, even in a context of strong country-level governance.

Isidro and Marques (2013) focus on 318 large firms belonging to 20 European countries in 2003-2005. They show that the majority of these firms release non-GAAP measures, with 80% of the financial results' press releases containing at least one non-

GAAP measure related to earnings. They document a positive relation between the propensity to disclose non-GAAP and the use of contracts that link director compensation to stock market performance. The existence of such contracts seems to induce some opportunism in non-GAAP reporting. However, they show also that the presence of a competent board of directors does reduce the propensity to disseminate non-GAAP information for opportunistic purposes. There does not appear to be any significant change in non-GAAP reporting in 2005, which is the IFRS transition year.

Finally, Bansal, Seetharaman, and Wang (2013) show that managers whose compensation is more sensitive to the volatility of stock prices tend to disseminate more information about non-GAAP results. However, they show also that managers use these non-GAAP measures less opportunistically. Overall, we can conclude that the quality of a firm's corporate governance associates with both the quantity and the quality of non-GAAP reporting.

### **Hypotheses development**

To understand the mapping between corporate governance and non-GAAP reporting, one needs to consider both country-level governance (i.e., enforcement of relevant laws and regulations) and firm-level governance (i.e., board of directors). With respect to country-level governance, based on a sample of large European firms, Isidro and Marques (2015), investigate the influence of countries' institutional and economic factors on managers' non-GAAP disclosures. They find that managers are more likely to use non-GAAP measures to meet or beat earnings benchmarks that GAAP earnings would miss in countries with efficient law and enforcement, strong investor protection,

developed financial markets, and good communication and dissemination of information. Their findings suggest that in environments in which there is more pressure to achieve earnings benchmarks and less opportunity to manipulate GAAP earnings, managers use more non-GAAP earnings disclosures to meet the benchmarks. In that context, it appears that Canada represents an appropriate context to investigate non-GAAP reporting since the country has a developed well-regulated financial market with extensive analyst coverage for firms comprising the major stock market index. The latter attribute implies that there is pressure to achieve earnings benchmarks. Hence, for our purpose, country-level governance is held constant.

Based upon prior research on non-GAAP reporting, we put forward the following hypotheses:

H1a: EBITDA reporting is positively related to analyst following.

H2a: EBITDA reporting is negatively related to information asymmetry.

Prior research also indicates that non-GAAP reporting takes place in a context in which GAAP reporting does not leave much room for discretion (Isidro and Marques, 2015). Managers view non-GAAP reporting either as a tool to convey additional information that is not adequately reflected in GAAP earnings or as an opportunity to deflect attention from unfavourable underlying earnings performance. If non-GAAP reporting is used strategically by managers, then we expect investors to use such information and to revisit their appreciation of underlying GAAP earnings. In other words, relevant and credible non-GAAP reporting is likely to enhance markets' appreciation of GAAP earnings. Alternatively, if non-GAAP reporting is viewed as

deceptive by investors, then it is not expected to affect their appreciation of underlying earnings. Hence, the following hypotheses:

H3a: EBITDA reporting enhances the positive relation between earnings and stock pricing.

H4a: EBITDA reporting enhances the positive relation between earnings and future cash flows.

In addition, there is also the possibility that there is a substitution effect between firm-level governance and EBITDA reporting. In that respect, Cormier and Magnan (2014) as well as Craighead, Magnan and Thorne (2004) both find that corporate disclosure and corporate governance can act as substitutes to one another. While they focus on either environmental reporting (Cormier and Magnan, 2014) or executive compensation reporting (Craighead et al., 2004), we can infer that their evidence extends to financial reporting. For instance, earnings are likely to be of high quality, i.e., relevant and reliable, if there is strong governance, a situation which will attract greater financial analysts' coverage and reduce information asymmetry. In such a context, EBITDA reporting is likely to be less needed and less relevant for stock market participants. EBITDA is likely to be more relevant in a context of weak governance, i.e. to act as a substitute for less effective governance mechanisms in reducing asymmetry. Overall, EBITDA reporting helps market participants to better assess earnings valuation when the firm-level governance is weak. Hence, the following hypotheses:

H1b: Strong governance substitutes for EBITDA reporting in attracting financial analysts.

H2b: Strong governance substitutes for EBITDA reporting in reducing information asymmetry.

H3b: Strong governance substitutes for EBITDA reporting for stock pricing of earnings.

H4b: Strong governance substitutes for EBITDA reporting for the prediction of future cash flows.

## **METHODOLOGY**

### **Sample**

The sample comprises 233 Canadian firms composing the S&P/TSX Index of the Toronto stock exchange for 2012 and 2013, for a potential number of 466 firm-year observations. These firms represent more than 90% of the Canadian total stock market capitalization. Out of this sample of 233 firms, 8 firms have missing data for a final sample of 225 firms (450 firm-year observations). Stock market and financial variables are extracted from Compustat. Information about non-GAAP information is hand collected from annual reports. Governance scores are extracted from Board Games rankings published on an annual basis by The Globe & Mail, Canada's leading newspaper. 22 firms have no analyst earnings forecasts and 3 firms are followed by less than 3 analysts, thus leaving a sample of 200 firms for the forecast dispersion model (400 firm-year observations).

## Empirical Models

The empirical models are the following:

*EBITDA, governance and analyst following*

$$\text{ANFOL} = \text{BETA} + \text{NEGEPS} + \text{NEGEPSEBITDA10} + \text{EBITDA10} + \text{EBITDA10GOV} + \text{GOV} \quad (1)$$

*EBITDA, governance and information asymmetry*

$$\text{BAS} = \text{LNVOLUME} + \text{LNVOLATILITY} + \text{EBITDA10} + \text{EBITDA10GOV} + \text{GOV} \quad (2)$$

$$\text{FORDIS} = \text{BETA} + \text{LnMV} + \text{ANFOL} + \text{NEGEPS} + \text{EBITDA10} + \text{EBITDA10GOV} + \text{GOV} \quad (3)$$

*EBITDA, governance and value relevance of earnings*

$$\text{Price} = \text{EQPS} + \text{EPS} + \text{EPSNEGEPS} + \text{NEGEPS} + \text{EPSGOV} + \text{EPSEBITDA10} + \text{EPSEBITDA10GOV} + \text{EBITDA10} + \text{EBITDA10GOV} + \text{GOV} \quad (4)$$

*EBITDA, governance and predictive ability of earnings*

$$\text{FCFOPS} = \text{CFOPS} + \text{EPS} + \text{EPSGOV} + \text{EPSEBITDA10} + \text{EPSEBITDA10GOV} + \text{EBITDA10} + \text{EBITDA10GOV} + \text{GOV} \quad (5)$$

Where: ANFOL: Analyst following; BAS: Bid Ask Spread; BETA: Systematic risk; NEGEPS: Binary variable for negative earnings; LnMV: Natural log of market

value; EBITDA10: Binary variable, 1 if the firm reports EBITDA, 0 otherwise;  
NEGEPSEBITDA10: NEGEPS in interaction with EBITDA10; EBITDA10GOV:  
EBITDA10 in interaction with governance score; GOV: Corporate governance score.  
LNVOLUME: Natural log of annual trading volume; LNVOLATILITY: Natural log of  
share price volatility; FORDIS: Forecast dispersion; EQPS: Equity per share; EPS:  
Earnings per share; EPSNEGEPS: EPS times NEGEPS; EPSGOV: EPS times  
Governance score; EPSEBITDA10: EPS times EBITDA10; FCFOPS: Future cash flow  
from operations per share; CFOPS: Cash flow from operations per share.

#### Explanatory variables of asymmetry and stock market valuation

Prior research suggests that stronger corporate governance should be associated with less information asymmetry and should improve analyst forecast accuracy (Vafeas, 2000; Dey, 2005). Moreover, the majority of the prior literature on the relation between corporate governance and firm value, documents that a stronger corporate governance is associated with a higher firm valuation (e.g., Bebchuk et al., 2009, Cremers and Nair, 2005, and Yermack, 1996). A negative (positive) association is expected between GOV and information asymmetry (stock market valuation).

Fortin and Roth (2007) find that beta is positively related to the number of analysts that cover a firm. Hence we expect BETA to be positively related to ANFOL.

*LnVOLUME* and *LnVOLATILITY*. Prior research document that trading volume and share price volatility are fundamental determinants of bid ask spreads. An inverse relationship between spreads and trading activity is expected (Demsetz, 1968). Price volatility is also a determinant of bid ask spreads and as such incorporated in information

asymmetry models of the spread (e.g. Copeland and Galai, 1983; Aitken and Frino, 1996). Hence, we expect a negative (positive) relationship between BAS and *LnVOLUME* (*LnVOLATILITY*). The logarithmic transformation of these two variables is used to reduce the skewness and potential heteroscedasticity problems (Aitken and Frino, 1996).

Patton and Verardo (2010) observe that the increase in systematic risk leads to greater analyst forecast dispersion. We expect a positive association between BETA and FORDIS. Analyst forecasts precision is likely to improve, as more information about a company is processed and disclosed by analysts (Alford and Berger 1999). Thus, a negative association is expected between ANFOL and FORDIS. Firm size can also affect analyst forecasts since analysts tend to spend more effort to follow large firms and thus may obtain more precise information about their future cash flows (Bhushan, 1989). In this paper, we use the log market value of equity (*LnMV*) to control for the impact of firm size on FORDIS and expect a negative association. Hope (2003) documents that negative earnings are associated with more forecast error, suggesting that earnings is more difficult to predict for companies that experience losses. Consistent with Hope (2003), an indicative variable for negative earnings is used. We anticipate a positive relationship between NEGEPS and FORDIS.

The valuation model is inspired by the work of Feltham and Ohlson (1995) and Amir and Lev (1996). Such a model maps a firm's book value and earnings into its stock market valuation. Finally, we expect a positive relationship between future cash flows and GOV, CFOPS, EPS, and EBITDA.

## **RESULTS**

### **Descriptive statistics**

Table 1 provides some descriptive statistics about sample firms' financial variables and governance. On average firms are followed by near 14 financial analysts and more than 30% report EBITDA either in MD&A or in press releases. Moreover, more than one third of sample firms are U.S cross-listed. The Board Games governance score varies from 31 to 98 for an average of 68.

**Table 1**  
**Descriptive Statistics**

	Mean	Std. Dev.	Min.	Max.
ANFOL	13.626	6.576	0	45
BAS (%)	0.521	1.253	0.026	21.286
FORDIS (N:400)	0.099	0.251	0	2.550
Price	27.827	33.281	0.570	424.11
CFOPS	2.859	4.907	-40.169	64.987
Beta (Raw)	0.349	4.988	-22.472	17.956
LnMV	21.871	1.264	18.706	25.356
EBITDA10	0.314	0.464	0	1
VOLUME (in % of shares outstanding)	1.029	0.559	0.001	4.000
VOLATILITY (std. dev. of % changes in daily stock prices)	33.165	17.054	10.363	112.134
EQPS	17.120	29.703	-0.979	439.334
EPS	1.207	2.810	-27.047	26.025
GOV	68.343	15.931	31	98
N:450				

ANFOL: Number of analysts following a firm; BAS: Bid Ask Spread; FORDIS: Forecast dispersion scaled by absolute value of mean forecast; Price: Stock price at year-end; CFOPS: Cash flow from operations per share; BETA: Systematic risk; LnMV: Natural log of market value; EBITDA10: NEGEPS: Binary variable for negative earnings; EBITDA10: Binary variable, 1 if the firm reports EBITDA, 0 otherwise; GOV: Corporate governance score.

## **Multivariate analyses**

We estimate regressions using OLS with robust estimators since results from the Breusch-Pagan / Cook-Weisberg tests show the presence of heteroscedasticity (for the Bid Ask Spread model,  $\text{Chi}^2 = 309.3$ ;  $p < 0.00$  and for forecast dispersion model,  $\text{Chi}^2 = 439.5$ ;  $p < 0.00$ ). We exclude from regressions all observations with standardized residuals exceeding two.

Table 2 reports an ordinary-least-square regression on the relation between analyst following and EBITDA reporting. Consistent with hypothesis 1a, firms that release EBITDA seem to better attract analysts since the coefficient on EBITDA10 is positive and significant (2.937;  $p < 0.056$ ). This association is largely reduced in the presence of good governance, consistent with H1b that Corporate governance moderates the relation between EBITDA reporting and analyst following. Moreover, the joint F test EBITDA10 + EBITDA10GOV ( $F = 42.45$ ;  $p < 0.12$ ) show that the sum of coefficients is approaching zero, suggesting a complete substitution effect. We can observe the substitution phenomenon by comparing beta coefficients (-0.679 for EBITDA10GOV versus 0.589 for GOV).

**Table 2**  
**OLS Estimation of the Relationship between Analyst Following and EBITDA Reporting in Interaction with Corporate Governance**

Dependent variable: ANFOL		Coeff.	P	Beta	
			Value	Coeff.	
			(robust)		
BETA	+	0.132	0.001	0.152	
NEGEPS	+/-	0.535	0.356	0.051	
NEGEPSEBITDA10	+	1.655	0.045	0.074	
EBITDA10	+	H1a	2.937	0.056	0.323
EBITDA10GOV	+/-	H1b	-0.082	0.001	-0.679
GOV	+		0.155	0.000	0.589
R-Square		33.3%			
F Statistics		29.3(0.00)			
F tests of coefficient difference					
EBITDA10 + EBITDA10GOV = 0		2.45(0.12)			
N: 450					

One-tailed if directional prediction, two-tailed otherwise.

ANFOL: Analyst following; BETA: Systematic risk; NEGEPS: Binary variable for negative earnings; EBITDA10: Binary variable, 1 if the firm reports EBITDA, 0 otherwise; NEGEPSEBITDA10: NEGEPS in interaction with EBITDA10; EBITDA10GOV: EBITDA10 in interaction with governance score; GOV: Corporate governance score.

Table 3 and 4 report OLS regressions on the relation between information asymmetry (bid ask spread and forecast dispersion) and EBITDA reporting.<sup>4</sup> Consistent with hypothesis 2a, EBITDA reporting is negatively related to information asymmetry as proxied by bid ask spread (-0.353;  $p < 0.033$ ). Contrary to hypothesis 2b, corporate

<sup>4</sup> A treatment effect controlling for the potential bias caused by endogeneity does not affect the results.

governance does not statistically moderate the relation between EBITDA reporting and BAS (0.003;  $p < 0.121$ ). However, using forecast dispersion as a second proxy for information asymmetry, results reported in Table 4 confirm H2a (-0.219;  $p < 0.015$ ) and H2b (0.003;  $p < 0.035$ ). Hence, a partial substitution effect is observed between EBITDA reporting and corporate governance on their impact on forecast dispersion.

**Table 3**  
**OLS Estimation of the Relationship between Bid Ask Spread and EBITDA**  
**Reporting in Interaction with Corporate Governance**

Dependent variable: BAS	$\alpha$	Coeff.	P value	Beta
			(robust)	coeff.
LNVOLUME	-	-0.248	0.000	-0.247
LNVOLATILITY	+	0.566	0.002	0.228
EBITDA10	-	H2a	-0.353	0.033
EBITDA10GOV	+/-	H2b	0.003	0.121
GOV	-		0.001	0.681
R-Square			8.2%	
F Statistics			17.9(0.00)	
F tests of coefficient difference				
EBITDA10 + EBITDA10GOV = 0			3.49(0.06)	
N: 450				

One-tailed if directional prediction, two-tailed otherwise.

BAS: Bid Ask Spread; LNVOLUME: Natural log of annual trading volume; LNVOLATILITY: Natural log of share price volatility; EBITDA10: Binary variable, 1 if the firm reports EBITDA, 0 otherwise; EBITDA10GOV: EBITDA10 in interaction with governance score; GOV: Corporate governance score.

**Table 4**  
**OLS Estimation of the Relationship between Forecast Dispersion and EBITDA Reporting in Interaction with Corporate Governance\***

Dependent variable: FORDIS		Coeff.	P value	Beta
			(robust)	coeff.
BETA	+	0.004	0.075	0.080
LnMV	-	-0.026	0.017	-0.129
ANFOL	-	0.003	0.160	0.080
NEGEPS	+	0.115	0.009	0.186
EBITDA10	- H2a	-0.219	0.015	-0.401
EBITDA10GOV	+/- H2b	0.003	0.035	-0.359
GOV	-	0.002	0.031	-0.118
R-Square		24.7%		
F Statistics		2.14(0.03)		
F tests of coefficient difference				
EBITDA10 + EBITDA10GOV = 0		4.75(0.03)		
N: 400				

One-tailed if directional prediction, two-tailed otherwise.

FORDIS: Forecast dispersion; BETA: Systematic risk; NEGEPS: Binary variable for negative earnings; LnMV: Natural log of market value; ANFOL: Analyst following; EBITDA10: Binary variable, 1 if the firm reports EBITDA, 0 otherwise; EBITDA10GOV: EBITDA10 in interaction with governance score; GOV: Corporate governance score.

\*Observations with at least three analysts following the firm.

Table 5 presents results of an OLS regression on the investigation as to whether EBITDA reporting enhances the positive relation between earnings and stock pricing. First, as documented in the literature, good corporate governance enhances the association between earnings and stock market valuation as shown the coefficient on EPSGOV (0.095;  $p < 0.001$ ). Consistent with H3a, for firms releasing EBITDA, earnings

appears to be more value relevant since the coefficient on EPSEBITDA10 is positive and highly significant (14.617;  $p < 0.002$ ). This suggests a complementary effect of EBITDA on GAAP earnings for firms with weak governance. Moreover, consistent with H3b, corporate governance moderates the relation between EBITDA reporting and stock pricing of earnings (-0.177;  $p < 0.008$ ).

**Table 5**  
**OLS Estimation of the Relationship between Valuation of Earnings and EBITDA**  
**Reporting in Interaction with Corporate Governance**

Dependent variable: Price			Coeff.	P value	Beta
				(robust)	coeff.
EQPS	+		0.683	0.000	0.614
EPS	+		-3.170	0.277	-0.265
EPSNEGEPS	-		-6.563	0.002	-0.308
NEGEPS	-		-5.087	0.003	-0.062
EPSSGOV	+		0.095	0.001	0.559
EPSEBITDA10	+	H3a	14.617	0.002	0.618
EPSEBITDA10GOV	+/-	H3b	-0.177	0.008	-0.609
EBITDA10	+		-14.517	0.034	-0.241
EBITDA10GOV	+/-		0.230	0.025	0.241
GOV	+		0.002	0.491	0.001
R-Square			75.4%		
F Statistics			189.9(0.00)		
F tests of coefficient difference					
EPS + EPSSGOV = 0			4.16(0.04)		
EPSEBITDA10 +			6.35(0.01)		
EPSEBITDA10GOV = 0					
N: 450					

One-tailed if directional prediction, two-tailed otherwise.

Price: Stock price at year-end; EQPS: Equity per share; EPS: Earnings per share; NEGEPS: Binary variable for negative earnings; EPSNEGEPS: EPS X NEGEPS; EPSSGOV: EPS times Governance score; EBITDA10: Binary variable, 1 if the firm reports EBITDA, 0 otherwise; EPSEBITDA10: EPS multiplies by EBITDA10; GOV: Corporate governance score.

Table 6 presents results of an OLS regression on the investigation as to whether EBITDA reporting enhances the positive relation between earnings and future cash flows. First, consistent with Subramanyam (1996), current cash flows are positively associated with future cash flows (0.506;  $p < 0.000$ ). Consistent with H4a, EBITDA reporting enhances the positive relation between earnings and future cash flows (0.992;  $p < 0.038$ ). The predictive ability of earnings is enhanced for firms that report EBITDA. This also suggests a complementary effect of EBITDA on GAAP earnings for firms with weak governance. Finally, corporate governance moderates the impact EBITDA reporting on the relation between earnings and future cash flows (-0.013;  $p < 0.054$ ). This result is consistent with H4b. Results remain similar when we exclude current cash flows from operations from the regression.

**Table 6**  
**OLS Estimation of the Relationship between Future Cash Flow from Operations**  
**and EBITDA Reporting in Interaction with Corporate Governance**

Dependent variable:		Coeff.	P value	Beta		Coeff.	P value	Beta
FCFO (t+1)			(robust)	coeff.			(robust)	coeff.
CFOPS	+	0.506	0.000	0.666		-	-	-
EPS	+	0.449	0.006	0.377		0.158	0.365	0.129
EPSGOV	+	-0.001	0.754	-0.050		0.004	0.274	0.318
EPSEBITDA10	+    H4a	0.992	0.038	0.431		2.092	0.012	1.168
EPSEBITDA10GOV	+/-    H4b	-0.013	0.054	-0.485		-0.026	0.032	-1.211
EBITDA10	+	0.106	0.460	0.014		-0.527	0.558	-0.095
EBITDA10GOV	+/-	-0.005	0.753	-0.051		0.003	0.850	0.036
GOV	+	0.022	0.003	0.102		0.035	0.000	0.212
R-Square		70.5%				26.7%		
F Statistics		121.3(0.00)				15.42(0.00		
F tests of coefficient difference						)		
EPSEBITDA10 + EPSEBITDA10GOV =0		3.13(0.07)				5.15(0.02)		
N: 450								

One-tailed if directional prediction, two-tailed otherwise.

FCFOPS: Future cash flow from operations per share; CFOPS: Cash flow from operations per share; EPSGOV: EPS times Governance score; EBITDA10: Binary variable, 1 if the firm reports EBITDA, 0 otherwise; EPSEBITDA10: EPS multiplies by EBITDA10; GOV: Corporate governance score.

Many firms release adjusted EBITDA in place or in addition of EBITDA. Since there is more flexibility for managers in the computation of adjusted EBITDA, a question to investigate is whether adjusted EBITDA still reduces asymmetry on stock markets. First, our results suggest no significant difference on information asymmetry, as proxied by bid ask spread, between the release of EBITDA only versus EBITDA plus Adjusted EBITDA. On the contrary, results reported in Table 7 show an increase in bid ask spread for firms releasing only an adjusted EBITDA (1.841;  $p < 0.022$ ) while corporate governance attenuates this increase in BAS (-0.021;  $p < 0.078$ ).

**Table 7**  
**OLS Estimation of the Relationship between Bid Ask Spread and ADJEBITDA**  
**Reporting in Interaction with Corporate Governance**

Dependent variable: BAS		Coeff.	P value	Beta
			(robust)	coeff.
LNVOLUME	-	-0.228	0.000	-0.228
LNVOLATILITY	+	0.605	0.000	0.244
ADJEBITDA10	-	1.841	0.022	0.521
ADJEBITDA10GOV	+/-	-0.021	0.078	-0.403
GOV	-	0.003	0.491	0.037
R-Square		10.2%		
F Statistics		10.1(0.00)		
F tests of coefficient difference				
ADJEBITDA10 +		5.28(0.02)		
ADJEBITDA10GOV = 0				
N: 450				

One-tailed if directional prediction, two-tailed otherwise.

BAS: Bid Ask Spread; LNVOLUME: Natural log of annual trading volume;  
LNVOLATILITY: Natural log of share price volatility; ADJEBITDA10: Binary variable,  
1 if the firm reports only Adjusted EBITDA, 0 otherwise; ADJEBITDA10GOV:  
ADJEBITDA10 in interaction with governance score; GOV: Corporate governance score.

### CONCLUDING REMARKS

This paper investigates whether EBITDA, a well-known non-GAAP measure that is largely used by financial analysts, helps reducing information asymmetry beyond GAAP earnings, and whether it enhances the value relevance and the predictive ability of earnings.

We can observe from prior research that the quality of corporate governance can influenced the diffusion of non-GAAP measures in quantity and quality. We posit that good governance may substitute to non-GAAP in attracting financial analysts and in reducing information asymmetry since in such a case, GAAP earnings is likely to be of good quality.

Results suggest that the reporting of EBITDA is positively related to analyst following, and negatively related to information asymmetry (Bid-Ask Spread and forecast dispersion). We also document an enhancement in the positive relationship between earnings and stock pricing as well as future cash flows for firms reporting EBITDA.

Moreover, it appears that corporate governance substitutes for EBITDA reporting for stock markets. EBITDA helps market participants to better assess earnings valuation when the governance is weak. When governance is strong, the incidence of the release of EBITDA on stock markets decreases substantially.

Our results may provide some insight on the debate concerning changes to the regulation on non-GAAP information, locally and at the international level. Current results should be of interest to financial markets regulatory authorities as they have recently expressed some reserves about the reliability and comparability of non-GAAP measures reported by companies.

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