



International Journal of Managerial and Financial Accounting

ISSN online: 1753-6723 - ISSN print: 1753-6715

<https://www.inderscience.com/ijmfa>

The impact of financial performance on the value relevance of GAAP and non-GAAP profitability measures: evidence from the Amman Stock Exchange

Tareq Z. Mashoka

DOI: [10.1504/IJMFA.2025.10060815](https://doi.org/10.1504/IJMFA.2025.10060815)

Article History:

Received:	26 February 2023
Last revised:	28 June 2023
Accepted:	05 October 2023
Published online:	02 December 2024

The impact of financial performance on the value relevance of GAAP and non-GAAP profitability measures: evidence from the Amman Stock Exchange

Tareq Z. Mashoka

Accounting Department,
Mutah University,
Mu'tah, Jordan
Email: tmashoka@mutah.edu.jo

Abstract: This paper aims to examine the impact of a firm's financial performance on the value relevance of both GAAP and non-GAAP profitability measures in determining its value. The study posits that the value relevance of these measures is influenced by the financial performance of the company. The paper examines the value relevance of the profitability metrics by regressing the market value of equity on the profitability measures for listed firms on the Amman Stock Exchange (ASE) in Jordan from 2001 to 2019. The results show that for firms with consistent financial performance, GAAP profitability measures are more value relevant for investors. However, when firms experience a decline in sales and/or earnings, the results indicate that non-GAAP profitability measures are more value relevant. This paper presents evidence highlighting the significant impact of a company's financial performance on the value relevance of GAAP and non-GAAP profitability measures in evaluating the firm's value.

Keywords: non-GAAP measures; value relevance; financial performance.

Reference to this paper should be made as follows: Mashoka, T.Z. (2025) 'The impact of financial performance on the value relevance of GAAP and non-GAAP profitability measures: evidence from the Amman Stock Exchange', *Int. J. Managerial and Financial Accounting*, Vol. 17, No. 1, pp.103–120.

Biographical notes: Tareq Mashoka holds a PhD in Financial Accounting from the Brunel University. He has an expertise in earnings management, earnings quality, accounting conservatism, and financial reporting. He embarked on his academic journey in 2005, joining the Accounting Department at Mutah University in Jordan, where he passionately teaches financial accounting and financial statements analysis. He is committed to advancing knowledge in accounting and fostering a deep understanding of financial complexities among his students.

1 Introduction

The general purpose of financial statements is to provide relevant information regarding the performance and the financial position of companies. The income statement presents information about a company's profitability from its ongoing operations and peripheral

activities and is structured in accordance with accounting standards (i.e., *GAAP*). Various profitability metrics are shown as *subtotals* within the income statement, depending on the nature of the revenue and expense items included in the computations. Non-GAAP earnings, on the other hand, are supplementary profitability disclosures created by managers or adjusted metrics calculated by analysts and are considered to provide additional relevant information for evaluating a company's performance while GAAP profitability measures provide standardised metrics within the income statement, they may not capture the full picture of a company's financial performance, particularly during periods of deviation from *standard performance patterns*. This limitation calls for alternative metrics (i.e., *non-GAAP*) that can provide more comprehensive and accurate evaluations (Marques, 2017; Charitou et al., 2018; Black et al., 2021; Cormier et al., 2022; Brosnan et al., 2023). However, there are concerns about the relevance of non-GAAP earnings in evaluating a company's true performance as both managers and analysts have significant discretion in calculating these metrics. This can result in a lack of standardisation and comparability between different companies and over time, leading to potential biases and subjectivity in the calculation of non-GAAP earnings. Therefore, investors should be cautious when using non-GAAP earnings as a measure of a company's financial performance (Barth et al., 2012; Ciesielski and Henry, 2017; Bradshaw et al., 2018).

This paper assumes that the value relevance of different profitability measures, GAAP or non-GAAP, may vary based on changes in a firm's *performance patterns*. In normal performance scenarios, where firms operate according to investor expectations and show growth in sales, earnings, and profits, GAAP profitability measures may be adequate for evaluating performance. However, for firms experiencing deviations from standard performance, GAAP profitability measures may not provide a comprehensive view of the company's financial situation, and non-GAAP measures may become more valuable in supplementing this information and providing a more accurate evaluation of the firm's performance. Building upon the model proposed by Collins et al. (1997), this paper incorporates two sets of profitability measures. The incorporation of GAAP and non-GAAP measures into the model enables a more nuanced understanding of a firm's financial situation across various performance scenarios. Previous research supports the notion that the value relevance of GAAP and non-GAAP measures can vary based on a company's performance patterns. For instance, Sinnewe et al. (2017) found that non-GAAP metrics can be more informative during financial crises, while Leung and Veenman (2018) found that non-GAAP measures can provide more information for loss-making firms. Hence, the value relevance of GAAP and non-GAAP measures must be considered relative to a company's performance status, as argued by Nie and Xu (2021). This paper does not assert that one type of measure is inherently superior to the other, rather, it suggests that the performance status of the company determines which set of measures provides more incremental information about the company's true performance and has higher predictive power for future earnings.

The paper aims to examine the value relevance of GAAP and non-GAAP measures for firms experiencing various performance patterns, such as growth or decline in sales, positive or negative growth in earnings, and profit and loss reporting. The hypothesis is that GAAP profitability measures will be more valuable for firms operating within typical performance patterns, while non-GAAP metrics will become more significant when firms deviates from these expectations. The paper intends to contribute to the literature by determining which type of profitability measures, GAAP or non-GAAP, is more relevant

depending on a company's performance status. By doing so, the paper seeks to provide additional evidence on the value relevance of accounting information and its impact on firm valuation, with a focus on the relevance of the income statement.

The results of this study have important implications for both investors and companies. For investors, the findings of this paper can help in their decision-making process by providing a better understanding of which profitability measures to consider when evaluating a company's financial performance. This information can also assist investors in making informed investment decisions, by providing insight into the relative importance of GAAP and non-GAAP metrics in different performance scenarios. On the other hand, companies can use these findings to improve the quality and relevance of their financial reporting by highlighting the importance of including both GAAP and non-GAAP metrics in their financial statements. Furthermore, the study can also inform regulators and standard-setters on the importance of considering a company's performance status when developing accounting standards. The results suggest that the usefulness of GAAP and non-GAAP metrics can change depending on a company's performance patterns, and this can guide the development of accounting standards that better meet the needs of companies and investors.

In conclusion, the paper adds to the ongoing debate about the value relevance of financial reporting and the relative importance of GAAP and non-GAAP metrics. By examining the impact of a company's performance on the value relevance of different profitability measures, the paper provides new insights into the financial reporting landscape and the role of accounting information in firm valuation.

The paper is structured as follows: Section 2 reviews relevant literature, Section 3 develops the hypothesis, Section 4 outlines the methodology, Section 5 presents the results, and Section 6 offers concluding remarks.

2 Literature review

Studies have shown that non-GAAP metrics provide additional information that is valuable to investors and improve their ability to assess a firm's performance. Firms with low earnings informativeness due to the absence of strategic or voluntary disclosures are more likely to report pro forma earnings (Lougee and Marquardt, 2004). Professional investors view pro forma disclosures as a reliable source of information, especially for firms with low intellectual capital disclosures (Elliott, 2006; Yang, 2018). Furthermore, investors believe that non-GAAP earnings are more informative, particularly for firms that frequently report losses (Bhattacharya et al., 2003), and more helpful in improving their evaluation of firms' performance (Reimsbach, 2014). Additionally, street earnings and non-GAAP earnings are found to be more useful when accounting conservatism increases (Heflin et al., 2015). There is strong evidence that non-GAAP measures reduce the information asymmetry between informed and uninformed investors following earnings announcements, and that non-GAAP earnings and street earnings both improve price discovery (Huang and Skantz, 2016). Non-GAAP earnings are also a significant predictor of future cash flows during financial crises (Sinnewe et al., 2017) and serve as a substitute for weak corporate governance (Cormier et al., 2017; Liu, 2023). Bidding firms also rely on non-GAAP disclosures for forecasts (Amel-Zadeh and Meeks, 2019). Firms that have established a strong corporate social responsibility reputation effectively

convey information about their sustainable earnings using non-GAAP reporting (Hwang, 2022). Overall, non-GAAP metrics and disclosures have greater incremental value relevance than GAAP disclosures improving information about firms' main performance, and are meant to provide information rather than mislead investors (Albring et al., 2010; Rainsbury et al., 2015; Marques, 2017; Charitou et al., 2018; Black et al., 2021).

On the other hand, some studies have found that non-GAAP measures as less informative or add no incremental value relevance compared to GAAP measures. Doyle et al. (2003) show that investors do not fully appreciate the predictive value of items eliminated from different non-GAAP measures. Gu and Chen (2004) also find no evidence that excluded or included items in street earnings and non-GAAP metrics explain future abnormal earnings. Similarly, Baik et al. (2009) find that street earnings are less useful in predicting future earnings for glamour stocks. Barth et al. (2012) show that managers exclude certain items, such as stock compensation expense, to report a measure that increases or smoothes earnings and meets or beats earnings targets, while analysts exclude such items only if they increase earnings predictive value, resulting in a measure with low predictive value. Christensen et al. (2014) show that non-GAAP earnings increase the information asymmetry, allowing short sellers to take advantage of misleading disclosures. Ciesielski and Henry (2017) show that non-GAAP earnings and disclosures lack comparability and transparency and have less predictive value as a result. Curtis et al. (2021) explain that the use of non-GAAP earnings is driven by managerial power and efficient contracting in determining CEO bonuses, particularly in firms with high levels of intangible assets, volatile earnings, and loss reporting.

Another stream of research has examined the effect of regulations issued by legislative bodies on pro forma earnings and non-GAAP disclosures. Entwistle et al. (2006) document a decline in the number of firms reporting non-GAAP earnings post regulation, while firms that are still reporting them are doing so in a less biased and less misleading manner. Elshafie et al. (2010) show that after regulating pro forma reporting, the gap in value relevance between GAAP and non-GAAP earnings decreased. Zhang and Zheng (2011) provide evidence that reconciliation required by the SEC *Regulation G* for US firms significantly reduced mispricing caused by non-GAAP metrics. Black et al. (2012) also document an increase in the quality of non-GAAP metrics post-regulation, and a change in investors' perception of pro forma earnings. Moreover, Bond et al. (2017) show that *Regulation G* increases the earnings response coefficient and decreases the amount of positive exclusions. Chen et al. (2021) show that regulations require firms to disclose non-GAAP measures with equal or greater prominence to comparable GAAP measures, leading to higher quality non-GAAP disclosures. Similarly, Feng et al. (2020) document a decrease in manipulating non-GAAP disclosures in the real estate investment industry as a result of increased scrutiny of regulated pro forma earnings.

In conclusion, studies have demonstrated a significant influence and critical role of non-GAAP reporting in adding vital relevant information for assessing firms' performance. Both GAAP and non-GAAP disclosures are assisting investors in fully comprehending earnings. Thus, any additional disclosures are essential to the market, especially for unsophisticated investors (Guest, 2021).

3 Hypothesis development

The purpose of this paper is to assess the value relevance of non-GAAP measures of profitability compared to GAAP measures. Evidence from various studies suggest that non-GAAP measures offer a more accurate and relevant representation of a company's performance (Brown and Sivakumar, 2003; Huang and Skantz, 2016; Bradshaw et al. 2018; Charitou et al., 2018; Arena et al., 2021; Black et al., 2021). However, other studies argue that non-GAAP earnings are less informative, lack comparability and transparency, and have lower predictive value (Christensen et al., 2014; Ciesielski and Henry, 2017). This paper aims to determine the conditions under which each measure (GAAP vs. non-GAAP) is more or less value relevant by assuming that the value relevance of each measure will depend on the financial performance of the firm. In other words, the firms' financial performance status is a crucial factor that determines which group of profitability measures will be more or less valuable informative.

From the perspective of investors, companies are expected to generate sales, control costs, and report profits. This expectation is grounded in the agency theory, which posits that managers will take actions to maximise the firm's wealth. However, unexpected events, temporary incidents, or incorrect managerial decisions can result in declining sales or earnings, or even losses. In such cases, investors may perceive the decline as transitory or uncommon. GAAP measures will capture the full impact of the circumstances affecting the firm's performance during the period, whether recurring or non-recurring. Investors may view the negative growth as noise generated by unusual temporary circumstances, and turn to alternative performance measures (i.e., non-GAAP) that are aligned with their understanding of the causes of the negative results. In other words, investors see GAAP measures of profitability as reflecting true performance plus noise, while non-GAAP measures are adjusted to remove the noise and reveal only true performance.

Building upon existing research, the main argument of this paper is that GAAP measures are more valuable and informative for firms experiencing growth, while non-GAAP metrics are more valuable and informative for firms with weak performance (i.e., negative growth). This paper developed the following hypotheses to explore the conditions under which each measure is more or less value relevant:

H1 The value of non-GAAP measures is significantly greater than that of GAAP measures for firms with declining sales growth.

H2 The value of non-GAAP measures is significantly greater than that of GAAP measures for firms with negative earnings growth.

H1 and H2 focuses on the value relevance of non-GAAP measures for firms with declining growth in sales and in earnings, which is motivated by studies highlighting the informative nature of non-GAAP measures in capturing the underlying performance of firms experiencing decline and negative growth (Huang and Skantz, 2016; Charitou et al., 2018; Black et al., 2021).

H3 The value of non-GAAP measures is significantly greater than that of GAAP measures for firms that report losses.

H3 examines the value relevance of non-GAAP measures for firms reporting losses, as suggested by Leung and Veenman (2018), highlighting the relevance of non-GAAP

measures in accurately representing performance during periods of unfavourable financial results.

4 Research methodology

4.1 Measurement of profitability metrics

Non-GAAP measures are calculated by making adjustments to the subtotals in the income statement. These adjustments exclude non-recurring and recurring items that analysts and managers believe have less predictive power for future operating performance and have a lower correlation with returns (Gu and Chen, 2004; Marques, 2017). These items are typically transitory, such as unusual losses, or non-cash items, such as depreciation, as they do not add predictive value to earnings (Donelson et al., 2011; Black et al., 2022).

The paper will evaluate the value relevance of four specific non-GAAP measures

- *EBITDA*: Earnings before interest, tax, depreciation, and amortisation. This adjustment eliminates the impact of substantial non-cash expenses incurred through accounting methods, before finance costs and income taxes are subtracted.
- *OPBITDA*: Operating profit before interest, tax, depreciation, and amortisation. It is similar to EBITDA, but with a different starting point for the adjustments. This measure is calculated by adjusting operating income for non-recurring gains and losses that relate to non-operating activities.
- *EBITDAG*: This measure is calculated a similar manner to other metrics commonly employed by analysts, such as *EBITDAR* and *EBITDARM*. These variations of *EBITDA* incorporate adjustments for rent expenses and management costs respectively. In this study, *EBITDA* is adjusted to account for the impact of general administrative expenses, which are characterised as fixed costs that are not necessarily influenced by changes in performance.
- *OPBITDAG*: This measure adjusts *OPBITDA* to exclude the impact of general administrative expenses, which are deemed to be fixed in nature and not necessarily linked to performance fluctuations.

In contrast, GAAP metrics are financial measures that follow the Generally Accepted Accounting Principles (GAAP) and International Financial Reporting Standards (IFRS). These metrics are reported in the income statement and include subtotals like gross profit, operating income, and net income. Net income (earnings) is the final amount of profit or loss after deducting financing costs and tax expenses. These metrics provide a consistent and standardised way of reporting financial information.

4.2 Value relevance model and tests design

The value relevance of each profitability measure is evaluated using the model developed by Collins et al. (1997), by examining the association of the various profitability measures with stock prices.

$$MVE_{it} = \alpha + \beta VE_{it} + \gamma E_{it} + \varepsilon_{it}$$

where MVE_{it} is the market value of equity and measured as share prices at end of the fiscal year multiplied by number of shares outstanding for firm i in period t . BVE_{it} is the book value of equity for firm i in period t and measured as total assets minus total liabilities. E_{it} is the profitability metric for firm i in period t .

The design of the tests is as follows: the sample is divided into six groups based on the financial performance of the firms, including those that show growth in sales and those that show decline in sales, those that exhibit growth in earnings and those that exhibit decline in earnings, and those that report profits and those that report losses. To specify the performance status of the firm, a dummy variable is introduced, with a value of 1 indicating the presence of a specific performance status, and 0 indicating otherwise. The model will be executed for each group, alternating between GAAP and non-GAAP profitability measures each time. The comparison of the earnings response coefficients (ERC) will be performed by using a t -test of the differences between two means. The models will be compared to each other using Vuong's Z-score to establish which profitability measure holds the greatest significance.¹

Table 1 Average market indicators

<i>Sector</i>	<i>No. of firms</i>	<i>EPS</i>	<i>BVPS</i>	<i>P/E</i>	<i>P/B</i>
Commercial services	15	0.118	1.240	56.018	1.358
Educational services	6	0.215	1.618	17.305	2.070
Health care services	4	(0.001)	0.993	(20.440)	1.118
Hotels and tourism	12	0.028	1.203	67.505	1.303
Media	2	0.105	2.640	3.740	1.653
Technology and communication	2	0.225	1.465	20.220	2.535
Transportation	14	0.009	0.998	(38.935)	1.005
Utilities and energy	7	0.210	1.845	15.290	1.555
Chemical industries	12	0.023	1.183	27.398	1.033
Electrical industries	3	(0.043)	0.870	(2.828)	0.823
Engineering and construction	20	0.001	1.160	8.965	1.240
Food and beverages	12	0.040	1.593	15.208	1.178
Mining and extraction	9	0.573	4.308	19.350	2.328
Paper and cardboard	5	0.010	0.813	0.360	1.167
Pharmaceutical and medical	7	0.010	1.513	16.335	1.260
Textiles, leather and clothing	6	0.063	2.043	72.880	0.980
Tobacco and cigarettes	2	0.575	2.538	14.585	3.390
<i>Average score for all sectors</i>	<i>17</i>	<i>0.127</i>	<i>1.648</i>	<i>17.073</i>	<i>1.529</i>

Notes: EPS: average earnings per share; BVPS: average book value of equity per share;

P/E: average price to earnings ratio; P/B: average price to book value ratio.

4.3 Sample

The sample for the study includes all firms listed on the Amman Stock Exchange (ASE) that have available data from 2001 to 2019, excluding financial firms. The reason for excluding financial firms is that they are subject to unique regulations and disclose a

different type of earnings figure (i.e., cash earnings). The initial sample consisted of 2,603 firm-year observations, but after dropping observations with missing data, the final sample was reduced to 2,046 observations. The financial data and variables used in the study were obtained directly from the financial statements of the listed firms.

The ASE is divided into two markets: the first market and the second market. Firms listed on the first market are considered the most profitable. If a firm reports losses for three consecutive years, it will be reclassified to the second market. On the other hand, for a second market firm to be considered for listing on the first market, it must have reported profits for two out of the three preceding years.² Table 1 presents key market indicators for the sample firms. Despite the low average EPS across all sectors, the P/E ratio is negative in four sectors due to frequent loss reporting. The average total BVPS is higher than the P/B ratio, suggesting that the market undervalues these firms. However, the majority of sectors have a P/B ratio greater than 1, indicating that investors are placing value on expected future growth.

5 Results

Table 2 displays the descriptive statistics for the variables in the study for the entire sample. $EBITDAG_{it}$ has the highest mean compared to other metrics, as it excludes depreciation, amortisation, general administrative expenses, as well as interest and tax. The GAAP measure (NI_{it}) has the lowest mean score as non-GAAP measures exclude several expense items, indicating that on average, non-GAAP metrics are higher than GAAP metrics.

Table 2 Descriptive statistics

	No. of observations	Mean	Std. deviation	Min.	Max.
MV_{it}	2,046	0.924	0.897	0	15.142
BV_{it}	2,174	0.626	0.732	-27.978	9.634
NI_{it}	2,182	0.006	0.129	-1.953	0.840
$OPBITDA_{it}$	2,165	0.016	0.114	-1.934	0.499
$EBITDA_{it}$	2,169	0.059	0.124	-1.884	0.845
$OPBITDAG_{it}$	2,165	0.065	0.117	-1.388	0.658
$EBITDAG_{it}$	2,168	0.108	0.131	-1.338	0.859

Notes: Number of observations after dropping missing observations.

MV_{it} : market value of equity for firm i in period t , scaled by total assets in period t .

BV_{it} : book value of equity for firm i in period t , scaled by total assets in period t .

NI_{it} : net income for firm i in period t , scaled by total assets in period t .

$OPBITDA_{it}$: operating profit before interest, tax, depreciation and amortisation for firm i in period t , scaled by total assets in period t .

$EBITDA_{it}$: earnings before interest, tax, depreciation and amortisation for firm i in period t , scaled by total assets in period t .

$OPBITDAG_{it}$: operating profit before interest, tax, depreciation and amortisation and general administrative expense for firm i in period t , scaled by total assets in period t .

$EBITDAG_{it}$: earnings before interest, tax, depreciation and amortisation and general administrative expense for firm i in period t , scaled by total assets in period t .

Table 2 presents results for firms showing growth in sales between two periods. The GAAP measure is significantly different from the other non-GAAP measures. The results of Vuong's Z-score indicate that net income is more value relevant than other non-GAAP measures for firms that exhibit growth in sales. Therefore, the primary measure for firms showing growth in sales is the GAAP measure, and non-GAAP measures are secondary for providing information about performance.

Table 3 Sales growth firms

<i>Panel 1: regression results</i>					
<i>Earnings measure</i>	<i>No. of observations</i>	<i>ERC</i>	<i>Intercept</i>	<i>BV_{it}</i>	<i>Adj. R²</i>
<i>NI_{it}</i>	1,850	2.795 (15.50)***	0.0295 (2.82)***	1.119 (46.07)***	66.59%
<i>OPBITDA_{it}</i>	1,837	3.053 (18.56)***	0.0213 (2.07)**	1.072 (43.24)***	68.20%
<i>EBITDA_{it}</i>	1,840	2.685 (18.93)***	0.0121 (1.17)	0.949 (33.75)***	68.07%
<i>OPBITDAG_{it}</i>	1,837	2.191 (19.43)***	0.0102 (1.15)	0.990 (37.97)***	68.67%
<i>EBITDAG_{it}</i>	1,840	1.986 (19.14)***	0.006 (0.58)	0.909 (31.40)***	68.48%
<i>Panel 2: comparison between GAAP measure (NI_{it}) and different non-GAAP measures</i>					
	<i>NI_{it} vs. OPBITDA_{it}</i>	<i>NI_{it} vs. EBITDA_{it}</i>	<i>NI_{it} vs. OPBITDAG_{it}</i>	<i>NI_{it} vs. EBITDAG_{it}</i>	
<i>t</i> -value	-18.952***	11.089***	93.725***	135.524***	
Vuong Z-score	4.677***	4.405***	5.301***	4.975***	

Notes: All variables defined in Table 2.

Panel 1 presents results for five regression models for each profitability measure, *t* values are indicated in parentheses.

ERC is the earnings response coefficient for each regression.

All variables are scaled by total assets at *t*.

***, **, * denotes significance at 1%, 5% and 10% levels respectively.

Panel 2 presents *t* values for differences between the coefficients of the GAAP measure and other non-GAAP measures. Vuong Z-score provides likelihood ratio test for model selection to indicate which earnings measure has higher relevance, significant positive Z-score indicates GAAP measure has higher relevance and significant negative Z-score indicates non-GAAP measure has higher relevancy.

On the other hand, Table 4 shows that for firms experiencing declining sales, non-GAAP measures are more value relevant. The Vuong's Z-score is significantly negative for all non-GAAP measures compared to the GAAP measure. This suggests that GAAP measures lose some of their information content when firms experience deviations from expected performance, and investors may turn to non-GAAP measures to better assess a firm's true performance, as this deviation is perceived temporary and waiting for performance to return to normal. The non-GAAP measures are adjusted to exclude expense items that have low information value, such as depreciation and amortisation, and general administrative expenses which are usually fixed in nature and not impacted by changes in sales levels. By excluding these expenses, investors can gain a clearer view

of a firm's actual performance and make more informed expectations for the future, when sales levels recover. Thus, GAAP profitability measures are more value-relevant for firms that continue to experience growth in sales.

Table 4 Sales decline firms

<i>Panel 1: regression results</i>					
<i>Earnings measure</i>	<i>No. of observations</i>	<i>ERC</i>	<i>Intercept</i>	<i>BV_{it}</i>	<i>Adj. R²</i>
<i>NI_{it}</i>	1,856	0.473 (3.62)***	0.0221 (2.23)**	1.021 (48.26)***	56.27%
<i>OPBITDA_{it}</i>	1,845	0.633 (4.85)***	0.0214 (2.17)**	1.025 (48.52)***	56.58%
<i>EBITDA_{it}</i>	1,846	0.615 (5.31)***	0.0164 (1.68)*	0.993 (45.03)***	57.34%
<i>OPBITDAG_{it}</i>	1,845	1.322 (10.78)***	0.0201 (2.10)**	0.944 (42.49)***	58.63%
<i>EBITDAG_{it}</i>	1,846	0.941 (9.45)***	0.0135 (1.41)	0.918 (38.03)***	58.63%
<i>Panel 2: comparison between GAAP measure (NI_{it}) and different non-GAAP measures</i>					
	<i>NI_{it} vs. OPBITDA_{it}</i>	<i>NI_{it} vs. EBITDA_{it}</i>	<i>NI_{it} vs. OPBITDAG_{it}</i>	<i>NI_{it} vs. EBITDAG_{it}</i>	
<i>t</i> -value	-37.369***	-35.036***	-200.0***	-120.0***	
Vuong Z-score	-2.293***	-3.925***	-4.958***	-5.302***	

Notes: All variables defined in Table 2.

Panel 1 presents results for five regression models for each profitability measure, *t* values are indicated in parentheses.

ERC is the earnings response coefficient for each regression.

All variables are scaled by total assets at *t*.

***, **, * denotes significance at 1%, 5% and 10% levels respectively.

Panel 2 presents *t* values for differences between the coefficients of the GAAP measure and other non-GAAP measures. Vuong Z-score provides likelihood ratio test for model selection to indicate which earnings measure has higher relevance, significant positive Z-score indicates GAAP measure has higher relevance and significant negative Z-score indicates non-GAAP measure has higher relevancy.

Tables 5 and 6 present the results of testing the second hypothesis for firms with changes in earnings levels. The results indicate that firms that exhibit an increase in earnings display improvement in overall performance compared to the previous period. However, for firms experiencing a decline in earnings, investors assess their performance using non-GAAP measures to determine if they can recover in the following period.

The GAAP profitability metric, net income (*NI_{it}*), has the highest value relevance for firms with earnings growth, as indicated by the positively significant Vuong's Z-score for *NI_{it}* compared to the non-GAAP measures. This suggests that GAAP metrics of profitability have higher value relevance and are the dominant performance measures for firms that show an increase in earnings. Contrarily, the results show that non-GAAP measures have significantly higher value relevance for firms with negative growth in earnings (Vuong's Z-score for *OPBITDA_{it}*, *EBITDA_{it}*, *OPBITDAG_{it}*, *EBITDAG_{it}* are -3.033, -4.787, -5.625, and -6.028, respectively). This may be due to the fact that negative growth in earnings can result from either a decline in sales or an increase in

expenses, or both. In this case, investors rely on non-GAAP measures of profitability, as they consider these adjustments to be a more accurate reflection of a firm's true performance and ability to recover and revert to reporting growth in earnings in the future.

Table 5 Earnings growth firms

<i>Panel 1: regression results</i>					
<i>Earnings measure</i>	<i>No. of observations</i>	<i>ERC</i>	<i>Intercept</i>	<i>BV_{it}</i>	<i>Adj. R²</i>
<i>NI_{it}</i>	1,847	1.917 (11.73)***	0.0348 (3.41)***	1.015 (43.79)***	61.57%
<i>OPBITDA_{it}</i>	1,835	1.734 (12.46)***	0.0300 (2.96)***	1.039 (46.57)***	62.41%
<i>EBITDA_{it}</i>	1,837	1.575 (12.89)***	0.0213 (2.08)**	0.947 (37.43)***	62.20%
<i>OPBITDAG_{it}</i>	1,835	1.880 (17.58)***	0.0213 (2.17)**	0.916 (38.63)***	65.11%
<i>EBITDAG_{it}</i>	1,837	1.602 (16.89)***	0.0136 (1.37)	0.846 (32.0)***	64.32%
<i>Panel 2: comparison between GAAP measure (NI_{it}) and different non-GAAP measures</i>					
	<i>NI_{it} vs. OPBITDA_{it}</i>	<i>NI_{it} vs. EBITDA_{it}</i>	<i>NI_{it} vs. OPBITDAG_{it}</i>	<i>NI_{it} vs. EBITDAG_{it}</i>	
<i>t</i> -value	36.562***	71.802***	7.837***	71.421***	
Vuong Z-score	3.286***	2.723***	6.454***	5.583***	

Notes: All variables defined in Table 2.

Panel 1 presents results for five regression models for each profitability measure, *t* values are indicated in parentheses.

ERC is the earnings response coefficient for each regression.

All variables are scaled by total assets at *t*.

***, **, * denotes significance at 1%, 5% and 10% levels respectively.

Panel 2 presents *t* values for differences between the coefficients of the GAAP measure and other non-GAAP measures. Vuong Z-score provides likelihood ratio test for model selection to indicate which earnings measure has higher relevance, significant positive Z-score indicates GAAP measure has higher relevance and significant negative Z-score indicates non-GAAP measure has higher relevancy.

The results for testing the third hypothesis of this paper are presented in Tables 7 and 8. The *t* values for differences and Vuong's Z-score indicate that the GAAP profitability metrics have higher value relevance compared to non-GAAP metrics for profit firms. This suggests that when firms report profits, the market relies primarily on values reported in the income statement as performance measures, while non-GAAP measures are valued but with lower relevance. Conversely, when firms report losses, non-GAAP measures have higher value relevance and are the main performance measures. This is consistent with Leung and Veenman's (2018) findings that non-GAAP metrics have higher value relevance than GAAP measures for loss firms as the latter do not provide incremental information about the causes of losses. Non-GAAP measures in this case are considered more informative and less opportunistic.

Table 6 Earnings decline firms

<i>Panel 1: regression results</i>					
<i>Earnings measure</i>	<i>No. of observations</i>	<i>ERC</i>	<i>Intercept</i>	<i>BV_{it}</i>	<i>Adj. R²</i>
<i>NI_{it}</i>	1,853	1.031 (7.42)***	0.0265 (2.67)***	1.115 (51.40)***	60.88%
<i>OPBITDA_{it}</i>	1,839	1.416 (9.83)***	0.0243 (2.47)**	1.097 (51.14)***	61.53%
<i>EBITDA_{it}</i>	1,844	1.505 (11.35)***	0.0186 (1.93)*	1.032 (45.37)***	62.89%
<i>OPBITDAG_{it}</i>	1,839	1.745 (14.49)***	0.0186 (1.95)*	0.986 (43.12)***	63.66%
<i>EBITDAG_{it}</i>	1,844	1.457 (14.07)***	0.0123 (1.33)	0.949 (38.90)***	64.14%
<i>Panel 2: comparison between GAAP measure (NI_{it}) and different non-GAAP measures</i>					
	<i>NI_{it} vs. OPBITDA_{it}</i>	<i>NI_{it} vs. EBITDA_{it}</i>	<i>NI_{it} vs. OPBITDAG_{it}</i>	<i>NI_{it} vs. EBITDAG_{it}</i>	
<i>t</i> -value	-82.705***	-112.0***	-170.0***	-112.0***	
Vuong Z-score	-3.033***	-4.787**	-5.625***	-6.028***	

Notes: All variables defined in Table 2.

Panel 1 presents results for five regression models for each profitability measure, *t* values are indicated in parentheses.

ERC is the earnings response coefficient for each regression.

All variables are scaled by total assets at *t*.

***, **, * denotes significance at 1%, 5% and 10% levels respectively.

Panel 2 presents *t* values for differences between the coefficients of the GAAP measure and other non-GAAP measures. Vuong Z-score provides likelihood ratio test for model selection to indicate which earnings measure has higher relevance, significant positive Z-score indicates GAAP measure has higher relevance and significant negative Z-score indicates non-GAAP measure has higher relevancy.

OPBITDA_{it} and *EBITDA_{it}* are adjusted to eliminate the effect of depreciation and amortisation, with the former including all operating expenses and the latter including operating expenses and other gains/losses. The market values *OPBITDAG_{it}* and *EBITDAG_{it}* higher than *NI_{it}* as they give a better understanding of the sustainability of losses in future periods. When comparing *OPBITDAG_{it}* and *EBITDAG_{it}* to *NI_{it}*, the difference between them is due to adjustments for non-cash expenses (i.e., depreciation and amortisation) and fixed administrative expenses, neither of which predicts future performance or changes in performance status.

The results align with the findings of Riedl et al. (2021), who identified four categories of loss firms: high R&D, high growth potential, large negative special items, and financial distress. Investors believe these reasons for losses are typically transitory and that firms are more likely to report profits in the future based on investor sentiment. When faced with unusual, transitory, and infrequent events, GAAP profitability measures are adjusted to eliminate the impact of these events on earnings, and alternative profitability metrics (i.e., non-GAAP) are calculated to provide a more accurate reflection of performance. In this scenario, the market relies on non-GAAP metrics during loss

periods or during a decline in sales and/or earnings, waiting for the unusual events to pass.

Table 7 Profit firms

<i>Panel 1: regression results</i>					
<i>Earnings measure</i>	<i>No. of observations</i>	<i>ERC</i>	<i>Intercept</i>	<i>BV_{it}</i>	<i>Adj. R²</i>
<i>NI_{it}</i>	1,816	5.128 (22.97)***	0.0122 (1.40)	0.835 (29.33)***	67.06%
<i>OPBITDA_{it}</i>	1,802	4.389 (21.84)***	0.0029 (0.23)	0.866 (30.61)***	66.53%
<i>EBITDA_{it}</i>	1,816	3.582 (21.87)***	−0.008 (−0.63)	0.738 (23.04)***	66.35%
<i>OPBITDAG_{it}</i>	1,802	2.955 (19.51)***	−0.005 (−0.41)	0.837 (27.04)***	65.04%
<i>EBITDAG_{it}</i>	1,816	2.577 (19.90)***	−0.012 (−0.94)	0.747 (22.19)***	65.09%
<i>Panel 2: comparison between GAAP measure (NI_{it}) and different non-GAAP measures</i>					
	<i>NI_{it} vs. OPBITDA_{it}</i>	<i>NI_{it} vs. EBITDA_{it}</i>	<i>NI_{it} vs. OPBITDAG_{it}</i>	<i>NI_{it} vs. EBITDAG_{it}</i>	
<i>t</i> -value	104.278***	237.920***	342.384***	421.215***	
Vuong Z-score	1.978**	2.907***	4.609***	4.810***	

Notes: All variables defined in Table 2.

Panel 1 presents results for five regression models for each profitability measure, *t* values are indicated in parentheses.

ERC is the earnings response coefficient for each regression.

All variables are scaled by total assets at *t*.

***, **, * denotes significance at 1%, 5% and 10% levels respectively.

Panel 2 presents *t* values for differences between the coefficients of the GAAP measure and other non-GAAP measures. Vuong Z-score provides likelihood ratio test for model selection to indicate which earnings measure has higher relevance, significant positive Z-score indicates GAAP measure has higher relevance and significant negative Z-score indicates non-GAAP measure has higher relevancy.

In summary, the results indicate that the market relies on non-GAAP measures during loss periods or declining sales/earnings, waiting out the unusual events to pass by so that firms revert to normal performance status. Hence, the non-GAAP measures are alternative measures for GAAP metrics if the unusual events persist. However, as soon as firms revert to profits and positive sales/earnings growth, non-GAAP measures become secondary and less value relevant. These findings are consistent with previous studies. Black et al. (2021) and Sinnewe et al. (2017) show that during exceptional periods, non-GAAP earnings can effectively capture the transitory nature of these events, providing a clearer understanding of a firm's true performance. Moreover, Charitou et al. (2018) have shown that non-GAAP earnings exclude non-recurring or unrelated expenses, enabling investors to focus on indicators that reflect the core operational performance of the firm. These findings support the notion that firms disclose non-GAAP earnings to provide more valuable and informative information, particularly during periods of weaker financial performance. Furthermore, the results align with Huang and

Skantz's (2016) findings that the relevance of non-GAAP measures is influenced by the firm's performance status.

Table 8 Loss firms

<i>Panel 1: regression results</i>					
<i>Earnings measure</i>	<i>No. of observations</i>	<i>ERC</i>	<i>Intercept</i>	<i>BV_{it}</i>	<i>Adj. R²</i>
<i>NI_{it}</i>	1,964	−1.136 (−10.86)***	0.0014 (0.30)	0.793 (35.82)***	60.99%
<i>OPBITDA_{it}</i>	1,952	−1.045 (−8.55)***	0.0039 (0.80)	0.839 (38.48)***	60.48%
<i>EBITDA_{it}</i>	1,964	−1.259 (−9.01)***	0.004 (0.88)	0.836 (39.54)***	60.29%
<i>OPBITDAG_{it}</i>	1,952	−0.764 (−5.02)***	0.006 (1.24)	0.922 (49.61)***	59.52%
<i>EBITDAG_{it}</i>	1,964	−0.632 (−4.11)***	0.007 (1.42)	0.933 (52.07)***	59.00%
<i>Panel 2: comparison between GAAP measure (NI_{it}) and different non-GAAP measures</i>					
	<i>NI_{it} vs. OPBITDA_{it}</i>	<i>NI_{it} vs. EBITDA_{it}</i>	<i>NI_{it} vs. OPBITDAG_{it}</i>	<i>NI_{it} vs. EBITDAG_{it}</i>	
<i>t</i> -value	−24.891***	31.452***	−88.966***	−120.0***	
Vuong Z-score	−2.207**	−3.440***	−6.831***	−9.597***	

Notes: All variables defined in Table 2.

Panel 1 presents results for five regression models for each profitability measure, *t* values are indicated in parentheses.

ERC is the earnings response coefficient for each regression.

All variables are scaled by total assets at *t*.

***, **, * denotes significance at 1%, 5% and 10% levels respectively.

Panel 2 presents *t* values for differences between the coefficients of the GAAP measure and other non-GAAP measures. Vuong Z-score provides likelihood ratio test for model selection to indicate which earnings measure has higher relevance, significant positive Z-score indicates GAAP measure has higher relevance and significant negative Z-score indicates non-GAAP measure has higher relevancy.

6 Conclusions

The results of this study suggest that the value relevance of GAAP profitability measures compared to non-GAAP measures is dependent on the firm's performance status. It is not appropriate to determine which set of measures is more informative in an absolute manner; rather, it should be evaluated in relation to the firm's characteristics and financial standing (Nie and Xu, 2021). In instances where a firm experiences uncommon changes in performance, non-GAAP metrics are adjusted to remove elements that are not likely related to true performance, thereby providing a more accurate measure of performance and a better predictor for future earnings. The typical expectation for firms is to show growth in sales and earnings, and report profits. If a firm meets this expectation, GAAP measures of profitability are sufficient to evaluate true performance and forecast future earnings. However, this is rarely the case for many firms. Over time, a

firm may experience continuous growth, but at times, they may also face uncertainty and unusual events due to significant changes in the business environment, leading to a decrease in sales and/or earnings or even reporting losses. In such situations, adjustments are made to GAAP profitability metrics to eliminate the effects of these unfavourable events and provide a more valuable and informative measure of the firm's performance.

The findings of this research add to the existing literature by indicating that GAAP profitability measures are more value relevant than non-GAAP measures for firms that have growth in sales, earnings, or report profits. These results support the argument that GAAP measures are more informative for firms that perform according to standard expectations. On the other hand, non-GAAP measures become more valuable when firms experience negative growth or report losses. This observation is evident when comparing firms based on their performance status, with GAAP metrics being more valuable for firms that show growth and perform as expected by investors. These findings align with previous studies that show non-GAAP measures are informative for ongoing operations (Black et al., 2021), during financial crises (Sinnewe et al., 2017), for firms with weak corporate governance (Cormier et al., 2017; Liu, 2023), and for loss-making firms (Leung and Veenman, 2018). In conclusion, this study highlights the circumstances in which GAAP and non-GAAP metrics provide more valuable information and highlights the increasing or decreasing impact of the value relevance of the information disclosed in financial reports, specifically the income statement.

However, these results should not imply that the market should only rely on non-GAAP measures for firms experiencing unusual performance changes. These events may not be temporary, and the firm may not return to standard performance patterns. As previously stated, GAAP measures capture all events affecting a firm's performance, whether they are due to normal or abnormal activities. Adjusting GAAP measures requires significant discretion on the part of analysts and managers, which raises questions about their motivations. For instance, if managers promote non-GAAP measures as a more accurate reflection of performance, this may be viewed as opportunistic reporting, especially for firms with frequent negative growth and loss reporting. Conversely, analysts may not take into account all the factors contributing to the decline and may not accurately predict the duration of the unusual performance changes. The decline may simply reflect poor management and not transitory changes in the business environment.

References

- Albring, S., Cabán, M.T. and Reck, J.L. (2010) 'The value relevance of a non-GAAP performance metric to the capital markets', *Review of Accounting and Finance*, Vol. 9, No. 3, pp.264–284.
- Amel-Zadeh, A. and Meeks, G. (2019) 'Bidder earnings forecasts in mergers and acquisitions', *Journal of Corporate Finance*, Vol. 58, No. 1, pp.373–392.
- Arena, C., Catuogno, S. and Moscariello, N. (2021) 'The unusual debate on non-GAAP reporting in the current standard practice. The lens of corporate governance', *Journal of Management and Governance*, Vol. 25, No. 3, pp.655–684.
- Baik, B., Farber, D.B. and Petroni, K. (2009) 'Analysts' incentives and street earnings', *Journal of Accounting Research*, Vol. 47, No. 1, pp.45–69.
- Barth, M.E., Gow, I.D. and Taylor, D.J. (2012) 'Why do pro forma and street earnings not reflect changes in GAAP? Evidence from SFAS 123R', *Review of Accounting Studies*, Vol. 17, No. 3, pp.526–562.

- Bhattacharya, N., Black, E.L., Christensen, T.E. and Larson, C.R. (2003) 'Assessing the relative informativeness and permanence of pro forma earnings and GAAP operating earnings', *Journal of Accounting and Economics*, Vol. 36, Nos. 1–3, pp.285–319.
- Black, D.E., Black, E.L., Christensen, T.E. and Gee, K.H. (2022) 'Comparing non-GAAP EPS in earnings announcements and proxy statements', *Management Science*, Vol. 68, No. 2, pp.1353–1377.
- Black, D.E., Black, E.L., Christensen, T.E. and Heninger, W.G. (2012) 'Has the regulation of pro forma reporting in the US changed investors' perceptions of pro forma earnings disclosures?', *Journal of Business Finance and Accounting*, Vol. 39, Nos. 7–8, pp.876–904.
- Black, D.E., Christensen, T.E., Ciesielski, J.T. and Whipple, B.C. (2021) 'Non-GAAP earnings: a consistency and comparability crisis?', *Contemporary Accounting Research*, Vol. 38, No. 3, pp.1712–1747.
- Bond, D., Czerkowski, R., Lee, Y.S. and Loyeung, A. (2017) 'Market reaction to non-GAAP earnings around SEC regulation', *Journal of Contemporary Accounting and Economics*, Vol. 13, No. 3, pp.193–208.
- Bradshaw, M.T., Christensen, T.E., Gee, K.H. and Whipple, B.C. (2018) 'Analysts' GAAP earnings forecasts and their implications for accounting research', *Journal of Accounting and Economics*, Vol. 66, No. 1, pp.40–66.
- Brosnan, M., Duncan, K., Hasso, T. and Hollindale, J. (2023) 'Non-GAAP earnings and executive compensation: an experiment', *Accounting & Finance*, forthcoming <https://doi.org/10.1111/acfi.13098>.
- Brown, L.D. and Sivakumar, K. (2003) 'Comparing the value relevance of two operating income measures', *Review of Accounting Studies*, Vol. 8, No. 4, pp.561–572.
- Charitou, A., Floropoulos, N., Karamanou, I. and Loizides, G. (2018) 'Non-GAAP earnings disclosures on the face of the income statement by UK firms: the effect on market liquidity', *The International Journal of Accounting*, Vol. 53, No. 3, pp.183–202.
- Chen, J.V., Gee, K.H. and Neilson, J.J. (2021) 'Disclosure prominence and the quality of non-AAP earnings', *Journal of Accounting Research*, Vol. 59, No. 1, pp.163–213.
- Christensen, T.E., Drake, M.S. and Thornock, J.R. (2014) 'Optimistic reporting and pessimistic investing: do pro forma earnings disclosures attract short sellers?', *Contemporary Accounting Research*, Vol. 31, No. 1, pp.67–102.
- Ciesielski, J.T. and Henry, E. (2017) 'Accounting's tower of Babel: key considerations in assessing non-GAAP earnings', *Financial Analysts Journal*, Vol. 73, No. 2, pp.34–50.
- Collins, D.W., Maydew, E.L. and Weiss, I.S. (1997) 'Changes in the value-relevance of earnings and book values over the past forty years', *Journal of Accounting and Economics*, Vol. 24, No. 1, pp.39–67.
- Cormier, D., Demaria, S. and Magnan, M. (2017) 'Beyond earnings: do EBITDA reporting and governance matter for market participants?', *Managerial Finance*, Vol. 43, No. 2, pp.193–211.
- Cormier, D., Demaria, S. and Magnan, M. (2022) 'Non-GAAP reporting and capital markets: contrasting France and Canada', *Journal of Financial Reporting and Accounting*, forthcoming <https://doi.org/10.1108/JFRA-11-2021-0383>.
- Curtis, A., Li, V. and Patrick, P.H. (2021) 'The use of adjusted earnings in performance evaluation', *Review of Accounting Studies*, Vol. 26, No. 4, pp.1290–1322.
- Dechow, P. (1994) 'Accounting earnings and cash flows as measures of firm performance: the role of accounting accruals', *Journal of Accounting and Economics*, Vol. 18, No. 1, pp.3–42.
- Donelson, D.C., Jennings, R. and McInnis, J. (2011) 'Changes over time in the revenue-expense relation: accounting or economics?', *The Accounting Review*, Vol. 86, No. 3, pp.945–974.
- Doyle, J.T., Lundholm, R.J. and Soliman, M.T. (2003) 'The predictive value of expenses excluded from pro forma earnings', *Review of Accounting Studies*, Vol. 8, No. 2, pp.145–174.
- Elliott, W.B. (2006) 'Are investors influenced by pro forma emphasis and reconciliations in earnings announcements?', *The Accounting Review*, Vol. 81, No. 1, pp.113–133.

- Elshafie, E., Yen, A.R. and Yu, M. (2010) 'The association between pro forma earnings and earnings management', *Review of Accounting and Finance*, Vol. 9, No. 2, pp.139–155.
- Entwistle, G.M., Feltham, G.D. and Mbagwu, C. (2006) 'Financial reporting regulation and the reporting of pro forma earnings', *Accounting Horizons*, Vol. 20, No. 1, pp.39–55.
- Feng, Z., Lin, Z. and Wu, W. (2020) 'CEO influence on funds from operations (FFO) adjustment for real estate investment trusts (REITs)', *The Journal of Real Estate Finance and Economics*, pp.1–24 <https://doi.org/10.1007/s11146-020-09795-0>.
- Gu, Z. and Chen, T. (2004) 'Analysts' treatment of nonrecurring items in street earnings', *Journal of Accounting and Economics*, Vol. 38, No. 1, pp.129–170.
- Guest, N.M. (2021) 'The information role of the media in earnings news', *Journal of Accounting Research*, Vol. 59, No. 3, pp.1021–1076.
- Heflin, F., Hsu, C. and Jin, Q. (2015) 'Accounting conservatism and street earnings', *Review of Accounting Studies*, Vol. 20, No. 2, pp.674–709.
- Huang, Q. and Skantz, T.R. (2016) 'The informativeness of pro forma and street earnings: an examination of information asymmetry around earnings announcements', *Review of Accounting Studies*, Vol. 21, No. 1, pp.198–250.
- Hwang, J. (2022) 'Corporate social responsibility and non-GAAP reporting', *Applied Economics*, Vol. 54, No. 34, pp.3883–3902.
- Leung, E. and Veenman, D. (2018) 'Non-GAAP earnings disclosure in loss firms', *Journal of Accounting Research*, Vol. 56, No. 4, pp.1083–1137.
- Liu, J. (2023) 'Non-GAAP disclosure following going concern opinions', *Journal of Accounting, Auditing & Finance*, forthcoming <https://doi.org/10.1177/0148558X231175952>.
- Lougee, B.A. and Marquardt, C.A. (2004) 'Earnings informativeness and strategic disclosure: an empirical examination of pro forma earnings', *The Accounting Review*, Vol. 79, No. 3, pp.769–795.
- Marques, A. (2017) 'Non-GAAP earnings: international overview and suggestions for future research', *Meditari Accountancy Research*, Vol. 25, No. 3, pp.318–335.
- Nie, D. and Xu, C. (2021) 'Non-GAAP earnings quality in firms with data breach incident', *Asian Review of Accounting*, Vol. 29, No. 3, pp.383–398.
- Rainsbury, L., Hart, C. and Buranavityawut, N. (2015) 'GAAP-adjusted earnings disclosures by New Zealand companies', *Pacific Accounting Review*, Vol. 27, No. 3, pp.329–352.
- Reimsbach, D. (2014) 'Pro forma earnings disclosure: the effects of non-GAAP earnings and earnings-before on investors' information processing', *Journal of Business Economics*, Vol. 84, No. 4, pp.479–515.
- Riedl, E.J., Sun, E.Y. and Wang, G. (2021) 'Sentiment, loss firms, and investor expectations of future earnings', *Contemporary Accounting Research*, Vol. 38, No. 1, pp.518–544.
- Sinnewe, E., Harrison, J.L. and Wijeweera, A. (2017) 'Future cash flow predictability of non-IFRS earnings: Australian evidence', *Australian Accounting Review*, Vol. 27, No. 2, pp.118–128.
- Subramanyam, K.R. (1996) 'The pricing of discretionary accruals', *Journal of Accounting and Economics*, Vol. 22, Nos. 1–3, pp.249–281.
- Vuong, Q.H. (1989) 'Likelihood ratio tests for model selection and non-nested hypotheses', *Econometrica: Journal of the Econometric Society*, Vol. 57, No. 2, pp.307–333.
- Yang, Y. (2018) 'Do aggressive pro forma earnings-reporting firms have difficulty disclosing intellectual capital? Australian evidence', *Journal of Intellectual Capital*, Vol. 19, No. 5, pp.875–896.
- Zhang, H. and Zheng, L. (2011) 'The valuation impact of reconciling pro forma earnings to GAAP earnings', *Journal of Accounting and Economics*, Vol. 51, Nos. 1–2, pp.186–202.

Notes

- 1 The Vuong (1989) test is used to determine which model better explains the dependent variable, instead of the adj. R^2 criterion, which is not appropriate for hypothesis testing. The null hypothesis is that both models have equal explanatory power for the market value. A positive Z-score indicates that the first model (using the GAAP measure) has a higher explanatory power, while a negative score indicates that the second model (using the non-GAAP measure) is more effective in explaining the dependent variable, for further reading see Dechow (1994) and Subramanyam (1996).
- 2 Although reporting profits is the decisive factor that determines listing status, there are other secondary factors that must be met such as the number of shareholders, number of trading days, and free float ratio.