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Cash Flow from Operations and Earnings as Predictors of Future
Cash Flows

Under IFRS

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Abstract

This study examines the predictive ability of various earnings measures and CFO for predicting future cash flows under IFRS. The analysis is based on a comprehensive and balanced panel dataset of annual reports from Swedish listed companies on Nasdaq Stockholm covering the period from 2006 to 2023, ensuring the reliability and robustness of the results. Applying a similar methodological approach to Ball and Nikolaev (2022), this analysis compares the predictive ability of three accrual-based earnings measures: Net Income, EBIT, and EBITDA, relative to CFO. The analysis is based on cross-sectional and pooled OLS regression, industry-specific estimations, and fixed-effects models.

The findings consistently show that EBITDA outperforms the other metrics as the most reliable predictor of future cash flows across all model configurations and time frames. By directly comparing different earnings-based measures, this study provides new insights into the informativeness of intermediate versus bottom-line earnings metrics when forecasting future cash flows. This contribution to the literature identifies a clear hierarchy in predictive accuracy among earnings measures, providing a deeper understanding of the relative usefulness of each metric. Addressing the impact of estimation uncertainty and the limitations of accrual-based earnings measures is crucial, especially concerning the growing focus on intangible assets under IFRS, which highlights their potential to influence the reliability and comparability of earnings measures.

Furthermore, this context is relevant due to the upcoming implementation of IFRS 18 on Presentation and Disclosure in Financial Statements, mandatory for reporting periods on or after 1 January 2027. This thesis enhances the international literature on the predictive ability of financial performance metrics by both expanding the empirical context beyond the U.S. and clarifying how specific earnings measures perform under IFRS. The results are relevant not only for researchers but also for policymakers and standard-setters such as the IASB, by informing ongoing discussions about the relevance and decision-usefulness of financial reporting.

Keywords: IFRS, Earnings, Operating Cash Flows, Predictive Power, Net Income, EBIT, EBITDA, Accrual Accounting, Financial Reporting Quality, Intangible Assets.

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List of Abbreviations

CFO	Cash Flow From Operations
DCF	Discounted Cash Flow
EBIT	Earnings Before Interest and Taxes
EBITDA	Earnings Before Interest, Taxes, Depreciation, and Amortisation
EU	European Union
FASB	Financial Accounting Standards Board
FTSE	Financial Times Stock Exchange Index
GAAP	Generally Accepted Accounting Principles
IAS	International Accounting Standards
IASC	International Accounting Standards Committee
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standards
NI	Net Income
NYSE	New York Stock Exchange
OECD	Organization for Economic Cooperation and Development
OLS	Ordinary Least Squares
PAT	Positive Accounting Theory
R&D	Research and Development
UK	United Kingdom
US	United States

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1. Introduction

This section presents the background, followed by a problem discussion motivating the research for this study. The purpose and research question are raised and formulated after considering the identified gaps in the previous academic literature.

1.1 Background

One of the primary purposes of financial statements is to provide stakeholders with relevant information about a company's performance and financial position, where various earnings measures and cash flows are commonly used to predict future cash flows (IASB, 2018). The International Accounting Standards Board (IASB) (2018) expressed that *“The objective of financial statements is to provide financial information about the reporting entity’s assets, liabilities, equity, income, and expenses that is useful to users of financial statements in assessing the prospects for future net cash inflows to the reporting entity and in assessing management’s stewardship of the entity’s economic resources.”* This emphasis on future cash flows aligns with the recognition by the Financial Accounting Standards Board (FASB) (1978), stating that financial reporting should provide information for creditors, investors, and others who use the information for decision-making. FASB (1978) further claimed that accrual accounting methods provide investors with more relevant information in making predictions of future cash flows than operating cash flows themselves. Freeman, Ohlson, and Penman (1982) highlight that earnings metrics are linked to a company valuation indicator and play a crucial role in determining the value of companies. Damodaran (2012) further supports this relationship by arguing that investors aim to acquire future earnings, implying that today's earnings should be a reliable predictor of future cash flows.

A previous study that examined whether FASB’s statement holds was a study by Ball and Nikolaev (2022), who explored US GAAP. They emphasized that earnings, particularly when calculated on an accrual basis, are superior in predicting future operating cash flows than operating cash flows. Thus, earnings' ability to predict future operating cash flows has increased in recent decades (Ball & Nikolaev, 2022). They stated that the relationship between current

earnings and future cash flows is not universal since it varies across companies due to differences in industry, accounting methods, and growth rates. Ball and Nikolaev's (2022) study was built on previous research by Nallareddy, Sethuraman, and Venkatachalam (2020), but they made some adjustments to the methodology. Nallareddy et al. (2020) found that earnings have outperformed cash flows over the past two decades in predicting future operating cash flows. Nevertheless, from 1989 to 2015, earnings' ability to predict cash flows improved, largely due to the increasing predictability of operating cash flow, rather than improved earnings' accruals components (Nallareddy et al., 2020). In addition, the predictability can vary based on firm characteristics. The authors suggested that this improvement could be attributed to shorter operating cycles, improved recognition of intangible assets, and declining levels of non-cash working capital (Nallareddy et al., 2020).

The effectiveness of earnings and cash flows as predictors of future cash flows often depends on the accounting framework that is applied. In Sweden, all listed companies have complied with IFRS regulations since January 1, 2005 (IFRS Foundation, n.d). Aharony, Barniv, and Falk (2010) claimed that the mandatory adoption of IFRS is beneficial to investors in the European capital markets. Under IFRS, there is some room for interpretation since it is considered a flexible framework, particularly regarding accruals. This flexibility can create room for earnings management, such as abnormal accruals, where managers manipulate income in one period to boost short-term results (Runesson, Samani, and Marton, 2022). This can distort the relationship between earnings and future cash flows, and raises concerns about whether the standardized nature of IFRS enhances or diminishes the predictive ability of earnings. The Swedish market setting is interesting for examining this issue, since companies that comply with IFRS can be compared to other countries that comply with the same framework. Van der Meulen, Gaeremynck, and Willekens (2007) argued that IFRS and US GAAP differ in terms of predictive ability, with the latter offering superior predictive power. US GAAP is a rule-based framework that has a form of private-sector standard setting, with detailed and specific rules for various accounting situations. In contrast, IFRS is a principle-based framework that has a form of state legislation setting that provides general guidelines that allow more room for interpretation (Van der Meulen et al., 2007).

1.2 Problem Discussion

Earnings and operating cash flows are widely used to evaluate financial performance, yet there remains considerable debate on whether earnings or cash flows are the most reliable predictor of future operating cash flows. Oh, and Penman (2024) showed that there has been a decline in earnings information in recent years. This is due to mismatches between the revenues and the expenses, which reduces the informativeness of companies' financial reports (Oh & Penman, 2024). A recent study by Starica and Marton (2025) points out one potential reason for a decline in the usefulness of earnings over time, which is more unrecognized of intangible assets in firms' financial statements. This trend highlights that it is essential to understand intangible assets and the impact of different accounting treatments of intangible assets on companies' financial reporting.

There are several differences between the two reporting frameworks of US GAAP and IFRS. As previously discussed, one area where they differ is regarding the treatment of intangible assets, especially internally generated intangible assets. IFRS applies stricter recognition criteria for such assets compared to US GAAP (PwC, 2024). According to Lim, Macias, and Moeller (2020), these assets have become increasingly important in recent years as they tend to appear more in companies' financial statements. Intangible assets are crucial to this study, as the treatment of intangible assets under IFRS can affect the ability to predict earnings and cash flow. For instance, the capitalization of development costs can increase companies' reported profits, meanwhile, impairment and amortization affect both the income statement and the operating cash flows (Lim et al., 2020). Sahut, Boulerne, and Teulon (2011) studied the information content of intangible assets under the local GAAP compared with IFRS for European listed companies. They found that the companies report a higher book value for other intangible assets under IFRS compared with the local GAAP, and that this information has greater informational value (Sahut et al., 2011).

There are currently challenges under existing standards in the presentation of financial information and disclosures. One major issue has been the lack of consistency and clarity in distinguishing between operating profit and net profit. This makes it difficult for users to evaluate a company's operational performance independently of the company's overall

profitability. This lack of clarity of financial statements diminishes comparability across companies and has diminished the transparency of companies' financial information. Such transparency is essential for decision making, valuations of companies, and their performance. To address this issue, there will be a new standard, IFRS 18, regarding Presentation and Disclosure in Financial Statements. The new standard requires a clearer distinction between the operating profit and net profit (IASB, 2024). By providing more structured subtotals and consistent categories, IFRS 18 aims to enhance users' ability to evaluate companies' future cash inflows and evaluate the financial health of the company more accurately. IFRS 18 is also expected to resolve prior limitations under existing standards in the presentation of financial information and disclosures by enhancing comparability and transparency. Thus, this is crucial for decision-making, valuation, and performance assessments. As the IASB (2018) stated that the objective of financial statements is to assist users in evaluating a company's potential for future net cash inflows. Therefore, enhancing the predictive ability of earnings and cash flows under the new standard is essential for improving the utility of financial performance in evaluating companies' future potential.

This study focuses on Cash Flow From Operations (CFO) and various earnings measures such as Net Income (NI), EBIT (Earnings before Interest and Taxes), and EBITDA (Earnings before Interest, Taxes, Depreciation and Amortisation) as used in the article by Ball and Nikolaev (2022). The bottom line earnings of these earnings measures is Net Income, which contains items related to investing and financing cash flows, and these items do not appear in cash flows from operations (Dechow, 1994). For instance, depreciation, amortization, and expenses, which reflect the weighted average of investing cash flows in past periods and do not correspond to any actual cash movements in operating activities (Ball & Nikolaev, 2022). In addition, including non-operating components when predicting future operating cash flows adds noise, absent from cash flows themselves, which mitigates the reliability of earnings as a predictor (Dechow, Kothari, & Watts, 1998).

Earnings are often considered a key measure of profitability, but as Sloan (1996) demonstrated, they are influenced by estimates and accruals, which may skew the accurate reflection of a company's financial position. Francis, LaFond, Olsson, and Schipper (2005) mentioned that accrual-based earnings are affected by the quality of accounting systems and managerial

judgment, which might not consistently represent the true economic situation. Barth, Cram, and Nelson (2001) emphasized that each accrual element, such as the amortization of intangible assets or depreciation, is crucial in predicting future cash flows, which provides additional insights into current cash flow. Dechow, Kothari, and Watts (1998) argued that cash flows can be seen as less flexible, although it is often seen as a more reliable metric for assessing financial health.

As Nallareddy et al. (2020) and Oh and Penman (2024) noted, longer operating cycles and uncertainty recognition of intangible assets increase the estimation uncertainty. This variability in revenue and expenses can weaken the predictive ability of earnings. Previous studies within the same field, such as Ball and Nikolaev (2022) and Nallareddy et al. (2020), have mainly focused on US companies under US GAAP, and there have been limited empirical studies outside the US. This has created a gap in the literature and a need for updated evidence on whether findings on the predictive power of earnings and cash flows in the US can be replicated in a Swedish context, and whether FASB's claims hold empirically in Sweden. Breuer, Labro, Sapra, and Zakolyukina (2024) illustrated the importance of integrating empirical research and formal theory to understand accounting phenomena. This approach could potentially enhance validity, fostering new theories and deepening the understanding of accounting practices. This study adopts the perspective by Breuer et al. (2024) by examining how cash flows and earnings serve as predictors of future cash flows under IFRS.

1.3 Purpose of the Study and Research Question

The purpose of the study was to examine the predictive ability of various earnings measures and operating cash flows as predictors of future cash flows among Swedish listed companies that apply the IFRS framework in the period 2006-2023. This study contributes to the literature in several ways. First, it extends the model by Ball and Nikolaev (2022) to Sweden, a new geographical setting which has not been previously studied in this context. Second, it focuses on a different regulatory framework, specifically IFRS, whereas much of the prior research has been conducted under US GAAP (e.g., Dechow, 1994; Sloan, 1996; Oh & Penman, 2024). Third, the study covers a more recent and extended time period, 2006-2023, compared to some prior studies. These three aspects, in terms of country, regulatory framework, and period, together,

make this study a distinctive and timely addition to the research and deepen the understanding of the accounting role regarding the predictive ability of earnings and cash flows (Breuer et al., 2024). Thus, evaluating whether Ball and Nikolaev's (2022) findings hold in a European setting.

This study was motivated by two primary factors. First, IFRS is a principle-based accounting framework compared to US GAAP, which is a rule-based accounting framework. This difference can influence how financial elements such as earnings and cash flows are recognized and presented in the financial statements. Second, both accounting frameworks face inherent challenges related to the complexity of economic transactions and the judgment needed to present accurately in the company's financial reports. This leads to increased estimation uncertainty regarding accrual-based earnings. The reliability of earnings can be influenced by other factors such as the treatment of intangible assets and the length of operating cycles, as emphasized in prior research by Nallareddy et al. (2020) and Oh and Penman (2024).

While this study has focused on Swedish listed firms reporting under IFRS, its findings also have implications and relevance for interpreting financial reporting under, for instance, US GAAP. Although IFRS and US GAAP have differences in their approach, their common objective is still to provide useful information to their users of financial statements. Both frameworks have the aim of enabling comparative analysis and relevant analysis. Therefore, this study contributes to the broader accounting literature by offering insights into the predictive ability of earnings and cash flows, applicable to multiple regulatory frameworks. This study is timely given the upcoming introduction of IFRS 18 by the IASB, which aims to improve the structure, presentation, and comparability of financial performance reporting (IASB, 2024). By examining the predictive ability of current earnings and operating cash flows, the findings can provide empirical input to standard-setting discussions. In particular, this study contributes to assessing whether the revised reporting formats under IFRS 18 enhance the decision-usefulness of financial statements. Therefore, the purpose of this study is to provide insights for investors, creditors, and standard-setters such as the IASB, potentially contributing guidance for the upcoming implementation of IFRS 18.

Given these considerations, the research question this study aims to answer is:

- *To what extent are cash flows from operations and accrual-based earnings measures useful in predicting future cash flows under IFRS in Sweden during the period 2006-2023?*

2. Regulatory Setting

This chapter presents the regulatory setting under IFRS, delving deeper into the intangible assets section and concluding with the recent changes and developments within the IASB.

2.1 IFRS

There have historically been several macroeconomic events that have affected the financial performance of Swedish companies. The specific event of the implementation of IFRS in Sweden for all listed firms was on January 1, 2005 (IFRS Foundation, n.d). IFRS issued by the IASB, which has been a standard-setting organization since 2001 (IFRS Foundation, n.d), was built on the establishment by the International Accounting Standards Committee (IASC), which developed IAS (International Accounting Standards) in 1973 (FASB, n.d.). The introduction of IFRS in Sweden had a significant impact and a general goal to harmonize the regulations and the development of financial markets with global standard setters (Hartmann, Marton, and Andersson Sols, 2020). La Porta, Lopez-De-Silanes, and Shleifer (1999) argued that strong corporate governance structures can significantly enhance the reliability and interpretability of financial reporting.

Proponents of the IFRS framework assert that its adoption offers considerable advantages. Ball (2006) mentioned that IFRS enhances comparability and therefore reduces information costs and the information risk to investors. One of the primary purposes of the adoption of IFRS is to enhance financial reporting by implementing a high-quality standard framework (Ball, 2006). Barth, Landsman, and Lang (2008) found that firms that comply with the IAS have higher accounting quality compared to firms that do not comply with the IAS. One benefit of IFRS is that it enhances the comparability between firms and their annual report present stakeholders with a more transparent view of the company (Barth et al., 2008). Ball (2006) emphasizes the

importance of comparability under IFRS, noting that it can reduce information asymmetry and lower information costs for investors. Similarly, La Porta et al. (1999) pointed out how corporate ownership structures influence the quality and transparency of financial reporting, making IFRS even more essential for stakeholders. IFRS provides flexibility in terms of allowing companies to make judgments and the ability for companies to influence how companies present their economic situation, which can be argued as a benefit of the framework.

Agoglia, Douppnik, and Tsakumis (2011) further indicate that principles-based standards such as IFRS do not necessarily lead to increased opportunistic reporting by financial statement preparers. Instead, IFRS may promote more economically meaningful and relevant reporting (Agoglia et al., 2011). Müller (2014) examined the impact of the mandatory adoption of IFRS in Europe in 2005 for companies listed on the largest European stock markets such as the Paris, Frankfurt, and London stock exchanges. The findings indicate that the adoption of IFRS improved the value relevance and the quality of statements, which is considered important for investors. Additionally, it enhanced compliance with the OECD Principles of Corporate Governance regarding transparency and high-quality disclosure (Müller, 2014). Van Tendeloo and Vanstraelen (2005) determined that IFRS adopters do not present different earnings management behavior compared to companies that comply with the local German GAAP, and IFRS adoption in Germany is not linked to lower earnings management. Moreover, Marton (2017) stated that IFRS provides a consistent framework for addressing financial reporting issues and holds a strong and legitimate position in Swedish financial reporting. On the other hand, compared to other European countries, Sweden experienced a relatively small impact on financial reporting following the introduction and the mandatory adoption of IFRS (Hamberg, Mavruk, and Sjögren, 2013). This could be explained by the low level of earnings management and the strong legal enforcement and rule of law that already exists in Sweden (Hamberg et al., 2013). In a recent study, Li, Sougiannis, and Wang (2024) concluded from their findings that the mandatory adoption of the IFRS framework enhances accruals-based accounting systems and improved reporting of cash flows. They further noted that the forecast accuracy of earnings and cash flows was increased following the mandatory adoption of IFRS.

However, some studies present a more reserved and cautious view on the adoption of the IFRS framework. Ahmed, Neel, and Wang (2013), investigated the effects of the mandatory adoption of IFRS in 2005, of 1,600 companies from 20 countries, and found that the accounting quality declined after the adoption of IFRS. This was mainly due to factors such as income smoothing and accrual aggressiveness (Ahmed et al., 2013). One potential drawback of IFRS annual reports is that companies perhaps use accounting principles to manipulate their financial statements to look good over being good. This could create a misleading impression of companies' financial positions (Ahmed et al., 2013). Callao and Jarne (2010) argued that IFRS has encouraged opportunistic behavior and discretionary accounting, which affect the quality of financial information. For instance, increased discretionary accruals as well as flexible accounting choices that allow manipulations of earnings (Callao & Jarne, 2010). Hellman (2011) emphasizes that the flexibilities can result in variations and inconsistencies in financial reporting practices, as companies interpret standards differently depending on their unique operational context. La Porta et al. (1999) suggested that concentrated ownership structures can result in opportunistic management of earnings, which points out the ongoing challenges in the quality of financial reporting under post the adoption of IFRS. Hjelström and Schuster (2011) revealed the importance of addressing how management incentives influence accounting practices and hence affect the outcome of the transition to IFRS. They suggest the need for a deeper understanding of the relationship between incentives, standards, and accounting practices.

Despite several benefits of IFRS, the flexibility might result in discretion in the financial reporting, which can lead to information asymmetry between the users of financial statements and preparers. This can create an incentive for preparers to manipulate financial statements as proposed by Positive Accounting Theory (PAT) (Watts & Zimmerman, 1986). Thus, the level of information uncertainty is lower for preparers compared with users. A trend towards an increase in information uncertainty can be attributed to factors such as globalization and market complexity (Runesson et al., 2022). As previously mentioned, IFRS aims to enhance flexibility and transparency, but this can perhaps allow preparers to take advantage of subjective judgments such as accrual-based earnings. It is essential to examine and evaluate whether cash flow or earnings are better predictors of future performance under IFRS, since it is crucial to understand financial statements.

2.2 Intangible Assets

Intangible assets were selected as a key area of comparison between IFRS and US GAAP framework due to their growing importance in firm valuation and their substantial influence on accrual-based earnings (Lev & Gu, 2016; Barth, Li & McClure, 2021). Prior literature has emphasized that the recognition, measurement, and disclosure of intangible assets, particularly internally generated ones, differ between the two frameworks (Lim, Macias & Moeller, 2020; Barker et al., 2021). These differences are important theoretically and have practical implications for earnings quality and thus for the predictive power of accrual-based measures (Srivastava, 2014; Lev & Gu, 2016). Under IFRS, development costs can be capitalized under strict conditions, whereas US GAAP largely requires expensing such costs (PwC, 2024; Penman, 2007). These differing treatments lead to structural differences in reported earnings, which directly affect comparability and relevance. Recent literature further argues that the growing proportion of intangible assets in total firm value has reduced the explanatory power of traditional accounting metrics (Starica & Marton, 2025; Srivastava, 2023). For these reasons, understanding the role of intangible assets is central to understanding the differences in predictive ability under the two different frameworks.

Building on the IFRS principles that were presented earlier, the guidelines for intangible assets are outlined in IAS 38, which defines the criteria for measuring, recognizing, and disclosing intangible assets (IFRS, n.d.). Intangible assets are identifiable non-monetary assets without physical substance (IFRS, n.d.). An expenditure for an intangible item is recorded as an expense on the income statement unless the item qualifies as an intangible asset and *“It is probable that there will be future economic benefits from the asset, and the cost of the asset can be reliably measured.”*(IFRS, n.d.). Determining whether the intangible asset should be recognized on the balance sheet can arguably be challenging. Srivastava (2014) discussed that research in accounting has historically suggested that the increase in intangible assets reduces the relevance of financial reporting, particularly for the stock market. High-tech companies tend to have a growing portion of intangible assets in their balance sheet and tend to experience a reduction in the relevance of their accounting reports (Srivastava, 2014). The cost of generating other internally generated intangible assets is categorized into whether they occur during the development phase or the research phase. Development expenditures that meet certain criteria

are recognized as the cost of an intangible asset, while research expenditures are recognized as an expense (IFRS, n.d.). Barker, Lennard, Penman, and Teixeira (2021) pointed out that current accounting practices treat investments in intangible assets as expenses on the income statement, thereby mixing investments to gain future revenues with earnings from current revenues. Lim et al. (2020) argued that a significant and increasing proportion of companies' assets consists of intangible assets. Despite their growing importance, internally generated intangible assets are absent from companies' balance sheets (Lim et al., 2020).

As noted earlier, one difference between US GAAP and IFRS is regarding the recognition of internally generated intangible assets. The latter allows recognition if specific criteria are met, such as the probability of future economic benefits (PwC, 2024). In contrast, US GAAP does not allow the recognition of internally generated assets, which requires them to be recognized as an expense when they occur (PwC, 2024). Another distinction is regarding R&D costs; IFRS permits capitalization of development under certain conditions, while US GAAP generally requires R&D costs to be recognized as expenses when they occur, with a few exceptions for development costs (PwC, 2024). Additionally, intangibles are allowed to be measured at fair value under IFRS and are measured at historical cost under US GAAP (PwC, 2024). Both historical cost accounting and fair value accounting have challenges, the former has difficulties matching revenues and expenses. Meanwhile, the latter has difficulties with the alignment of assets and liabilities (Penman, 2007).

2.3 Recent Changes and Developments within IASB

There have been recent changes and developments that have been happening within the IASB. There will be a new standard, IFRS 18, regarding Presentation and Disclosure in Financial Statements. This new standard will be mandatory for annual reporting periods on or after 1 January 2027, with earlier application permitted (IASB, 2024). With the introduction of IFRS 18, there will be two new mandatory subtotals in the statement of profit and loss: operating profit or loss and profit or loss before financing and income taxes (PwC, n.d.). The subtotals are derived from categorizing income and expenses into the following categories: operating, investing, and financing. The new standard requires a clearer distinction between the operating profit and net profit, and enables companies to more effectively and consistently communicate information that

is useful to investors (PwC, n.d.). Eng and Vichitsarawong (2022) investigated operating income and EBIT among eight different countries that have adopted IFRS. They emphasized that operating income, as well as EBIT, is informative and that EBIT provides more explanatory power than NI. In addition, profit measures have more explanatory power and predictive power in corporate governance countries (Eng & Vichitsarawong, 2022).

3. Literature Review

This section presents the theoretical framework in the form of previous research and concludes with the hypothesis development.

3.1 Earnings and Cash Flows as Predictors

The statement of cash flows specifies the sources of cash from financing, investing, and operating activities during a specific period (IFRS, n.d.). There are different definitions of cash flows: cash flow from operations, cash flow from investing, and cash flow from financing (Concur, n.d.). This study focused on cash flow from operations (CFO), which reflects companies' revenues and expenses (Concur, n.d.). Another definition of operating cash flow is that it refers to cash generated from the company's core operations (Damodaran, 2012). Generally, it details the changes in cash balances and the actual cash flow during that period. In both accounting and financial theory, cash flows are emphasized as key in decision-making for financial and investment purposes (Damodaran, 2012).

As mentioned in the regulatory setting section, there are differences between IFRS and US GAAP, such as the definition and measurement criteria for cash flows. Under US GAAP, dividends must be reported as a financing activity, and under IFRS, they can be classified as a financing activity or an operating activity (IFRS Foundation, 2014). Further, under US GAAP, interest paid is classified as an operating activity compared with IFRS, where interest paid is classified as a financing activity or an operating activity (IFRS Foundation, 2014). US GAAP uses an indirect method for the cash flow statement and requires a reconciliation for companies that use the direct method. In contrast, under IFRS, both the indirect and the direct methods are allowed (IFRS Foundation, 2014). Another difference is regarding the recognition of revenues

and expenses, for instance, impairment and lease accounting, because of the different standards in accrual accounting (IFRS Foundation, 2014).

Damodaran (2012) asserted that assets are acquired based on expectations of the future cash flows they can generate. The Discounted Cash Flow (DCF) model suggests that an asset's value is determined by the timing and amount of its future cash flows, discounted to their present value by investors (Damodaran, 2012). Earnings consist of operating cash flow and accruals, and the primary contribution of financial reporting is to transform cash flows into reported earnings through accruals. Starica and Marton (2025) highlight that earnings are considered central to the valuation of firms, where the firm value reflects expectations of DCF. Literature tends to focus on bottom-line earnings, such as NI, meanwhile another performance measure, such as EBITDA, has been argued to retain its relevance over time, particularly compared to cash flow (Marton & Starica, 2021). Unlike cash flow, EBITDA is consistently more useful throughout the period 1990-2020, and this holds across both high-tech and low-tech companies (Marton & Starica, 2021).

Operating cash flow is tied to companies core, value-creating activities, while accruals reflect investments in or liquidation of operating items and adjustments in net operating assets (Damodaran, 2012). Ball, Gerakos, Linnainmaa, and Nikolaev (2016) explained that accruals are the non-cash component of earnings and reflect adjustments to cash flow to generate a profit measure that is mostly independent of the timing of receipts and payments of cash. The character of cash flow is considered objective as it involves actual transactions with liquid assets, while accruals are more subjective since they require management estimates of non-cash-related items (Damodaran, 2012). It is suggested that cash flow is a better indicator of future earnings, as it captures both value-generating activities in the current period and the sale or acquisition of assets affecting future periods (Runesson et al., 2022). Nevertheless, as a firm's operating cycle lengthens, accruals can better smooth timing mismatches in revenues and expenses, making accruals more stable as a profitability measure (Sloan, 1996). The author further stated that cash flows tend to be more persistent than accruals, and the market may not fully understand this difference, leading to the potential overvaluation of high-accrual companies.

Kim and Kross (2005) studied the relationship between earnings and one-year-ahead operating cash flows from 1973 to 2000 within the regime of the FASB. They concluded that the ability of earnings to predict future operating cash flows has been increasing over time. The reasons for this are not obvious, but one explanation could perhaps be market inefficiency (Kim & Kross, 2005). This means that prices may not reflect the present value of future cash flows, as well as challenges within the research of market efficiency in asset pricing. Greenberg, Johnson, and Ramesh (1986) determined that, for most companies in their sample, current earnings are a better predictor of future cash flow than current cash flows. Dechow et al. (1998) tested 1337 firm samples from the years 1963-1992 and concluded that earnings better predict future operating cash flows in comparison with current operating cash flows.

However, Bowen, Burgstahler, and Daley (1986) showed results that do not support the FASB's statement that earnings provide a better forecast of future cash flows compared to cash flows themselves. Arnold, Clubb, Manson, and Wearing (1991) built on the findings by Bowen et al. (1986), which provided evidence on the relationship between earnings and cash flows in the UK during the period 1965-1984. They reported that earnings in the UK are not superior to cash flows as predictors of future cash flows. In line with that, Finger (1994) asserted that cash flow is a better short-term predictor of future cash flow than earnings. Further, Mulenga and Bhatia (2017) supported the claim that operating cash flow is a better predictor of future cash flows. Dechow (1994) also observed that cash flows provide a more fundamental measure of performance than earnings, with accruals enhancing earnings' ability to accurately reflect company performance. Dechow (1994) and Dechow et al. (1998) determined that accrual-based earnings measures are generally seen as better predictors of future cash flows.

3.2 Earnings Quality and Accruals

In the context of earnings quality, Freeman, Ohlson, and Penman (1982) discussed earnings persistence, which is a measure of earnings from one year carried forward into the next year, and how sustainable these are. High persistence is an indicator that companies' earnings have more sustainable cash flow streams, which is preferable since it is more useful for discounted cash flow-based equity (Freeman et al., 1982). Persistent earnings are a key indicator of earnings quality and are more valuable to investors due to their stability and predictive power (Freeman et

al., 1982). Despite this, Lev and Gu (2016) noted that bottom-line numbers, such as earnings, may not provide a complete picture of how companies generate, preserve, and utilize strategic assets to create value. Srivastava (2023) illustrated the decreasing relevance of earnings, especially when earnings are a negative number, and argued that there is a growing limitation to the current methods of calculating earnings. Lastly, Barth, Cram, and Nelson (2001) discussed that cash flow and accrual components of current earnings have substantially greater predictive ability for future cash flow than several aggregated earnings lags.

Dechow, Dichev, and McNichols (2002) mentioned that one role that accruals play is to adjust or shift the recognition of cash flows over time, which will make the earnings a more accurate measure of the company's performance. On the other hand, accruals rely on projections and assumptions of future cash flows. Dechow et al. (2002) maintained that the quality of earnings and accruals is decreasing as the size of the estimation error in accruals increases. In addition, the quality of accruals is positively related to more consistent earnings persistence. In line with this, Bhattacharya, Desai, and Venkataraman (2013) investigated NASDAQ and NYSE firms from 1998-2007 and found that low-earnings quality is linked to higher information asymmetry, leading to increased trading costs. This impact on earnings quality is more pronounced for companies with poor disclosures, especially during earnings releases (Bhattacharya et al., 2013). The authors pointed out that low-quality earnings can lead to informed and uninformed investors, due to differentially informed investors. Consequently, higher information asymmetry is costly since it increases the risk of adverse selection for market participants and reduces liquidity. As a result, regulators and standard-setters are focused on the quality of accounting information and its impact on capital allocation decisions (Bhattacharya et al., 2013). Bushman, Lerman, and Zhang (2016) showed that the correlation between accruals and cash flows has significantly declined and diminished in magnitude over the last fifty years. The authors also determined that the correlation has largely disappeared in recent years.

Concerns regarding earnings quality and managerial judgments raise questions about the incentives behind accounting choices. Watts and Zimmerman (1986) introduced PAT, which is a framework that helps to understand these behaviors. PAT adopts a positive approach to accounting research, focusing on utility maximization, incentives, and their impact on accounting

practices. PAT includes two competing perspectives: the efficiency and opportunistic perspectives (Watts & Zimmerman, 1986). The efficiency perspective views accounting procedures as chosen cost-effectively to maximize firm value. In contrast, the opportunistic perspective sees managers selecting accounting methods based on contract features, often to maximize personal utility at the expense of stakeholders (Watts & Zimmerman, 1986). This can lead to earnings manipulation and reduced accounting quality, as managers might manipulate earnings to meet their goals. Such practices may diminish the reliability of accrual-based earnings in predicting future cash flows (Fields, Lys & Vincent, 2001). PAT helps explain how managerial incentives shape accounting choices, including accrual management techniques such as abnormal accruals and earnings smoothing. Fields et al. (2001) explored these dynamics, highlighting a potential conflict between firm interests and stakeholder concerns. The authors further state that firms may prioritize accounting choices that benefit them, such as tax-reducing methods, even at the expense of stakeholders, ultimately strengthening their cash flows.

3.3 Hypothesis Development

Based on the presented literature review, operating cash flow reflects a company's core activities; nevertheless, it might be affected by timing mismatches in revenues and expenses (Sloan, 1996). In contrast, accruals-based earnings adjust for these mismatches and provide a more accurate performance measure as well as long-term trends (Ball et al., 2016; Dechow et al., 1998). Sloan (1996) further emphasizes that, although cash flows are typically persistent, accrual-based earnings incorporate estimations that can predict future financial outcomes.

In the Swedish context, the adoption of IFRS has strengthened the legitimacy of financial reporting, making accrual-based earnings a greater predictor of future cash flows (Marton, 2017; Barth et al., 2001). However, the reliability of accruals may be affected by managerial discretion, as pointed out in Positive Accounting Theory (Watts & Zimmerman, 1986).

Considering these theoretical perspectives and the Swedish regulatory context, it is expected that accruals-based earnings provide a greater predictive ability regarding future cash flow. Therefore, the following hypothesis is presented:

H_1 : *Accruals-based earnings are a superior predictor of future operating cash flows compared to operating cash flows.*

4. Methodology

This chapter presents the research methodology, including data collection and analysis, statistical tests and research design, sample construction, and concludes with summary statistics.

4.1 Methodology, Data Analysis, and Data Collection

The analysis was applied through a quantitative method that builds on the study by Ball and Nikolaev (2022). The scope was narrowed to nearly all Swedish companies, primarily and secondary listed on the Swedish stock exchange under the IFRS framework. Nasdaq Stockholm, formerly OMX Nordic Exchange, is the market for the sample (Nasdaq, n.d). The Swedish market, including Nasdaq Stockholm, is particularly interesting to examine as it represents the largest of Nasdaq's European stock exchanges and is one of the most prominent in Europe (Nasdaq, n.d.). Sweden's main index has gained 85% over the past decade compared with the London FTSE 100, which gained 17%, and the Euro Stoxx 600 index, which has gained 49% (Financial Times, 2024). Having a sample of the firms listed on Nasdaq Stockholm and their influence on Swedish businesses offers insights into the performance and impact on the European economy (Nasdaq, n.d). The president of Nasdaq Stockholm, Fredrik Ekstöm, stated, *“Nasdaq Stockholm has been at the forefront of embracing new technologies and home to some of the most innovative companies. The exchange will continue to play a critical role leading global capital markets, with our expertise in sustainability and green transformation helping to build a more inclusive economy.”*(Nasdaq, n.d).

Companies that were excluded from the sample were financial companies, such as banks and insurance companies (one-digit SIC code of 6), since they differ regarding their accounting principles, which could skew the analysis and reduce the comparability with non-financial companies. The following ten industries were selected (one-digit SIC codes) from the Capital IQ database: Communication Services, Consumer Discretionary, Consumer Staples, Energy, Health Care, Industrials, Information Technology, Materials, Real Estate, and Utilities. The final dataset

comprised a complete balanced panel of 174 firms with annual observations for every year in the period 2006-2023. At first, the starting point of 2005 was chosen since this was the year when it became mandatory for all Swedish companies to comply with IFRS. Conversely, the data output from the year 2005 was not sufficient, perhaps due to delayed effects of the shift to IFRS. Instead, the study had the starting point of 2006 to ensure more representative and accurate results, minimizing potential inconsistencies as well as enhancing the reliability. Furthermore, the endpoint of 2023 was selected because it was the year with the most recent annual reports available for all companies in the sample. The choice of the IFRS framework was due to it holding a strong and legitimate position in Swedish financial reporting (Marton, 2017). In addition, companies that adopted IFRS have demonstrated improvements in value relevance and the quality of their financial statements (Müller, 2014).

To achieve the research goals, firm-level data were extracted from the Capital IQ database and analyzed through an Ordinary Least Squares (OLS) regression, including both pooled OLS and fixed effects models. The regression executed in the study helps to observe companies' future operating cash flows across time. The earnings measures selected, NI, EBIT, and EBITDA, were examined separately because they highlight different aspects of financial performance. NI represents overall profitability, including all expenses and non-operating items. EBIT isolates operating performance by excluding interest and taxes, but still includes depreciation and amortization. EBITDA goes a step further by excluding non-cash expenses like depreciation and amortization, offering a clearer view of cash flow generation. Examining these earnings measures individually helps to mitigate the issue of multicollinearity. This is essential because a high correlation between them could occur, as illustrated in the pairwise correlation matrix. This approach enables a more precise interpretation of the predictive ability of each earnings measure on its own, which avoids the distortion that could arise from analyzing the combined effects. The cash flow measure that was selected is: Cash Flow from Operations (CFO), as had been used in previous studies such as Ball and Nikolaev (2022).

To address firm-level heterogeneity that is constant over time and that potentially could influence the output, a panel data approach was employed using fixed effects models. Fixed effects estimation accounts for all firm-specific characteristics that do not change over time, such as

industry, positioning, corporate culture, or stable managerial policies, by allowing a unique intercept of each firm. This approach eliminates omitted variable bias from unobservable factors, which allows a more accurate estimation of the relationship between earnings measures, CFO, and future cash flows. Moreover, the fixed effects models use a fully balanced panel dataset, in which all 174 companies are observed over the whole period 2006-2023. This enhances the reliability and validity of the output, ensuring comparability between all companies, including the untabulated sample, and over the whole period.

4.2 Statistical Test and Research Design

4.2.1 Statistical Test

OLS regression is a widely used statistical method for modeling the relationship between a dependent variable and one or more independent variables. The goal of OLS regression is to estimate the coefficients of the model that best fit the data (Ball & Nikolaev, 2022). To account for potential firm-level heterogeneity, as a complement to OLS regression, a pooled panel data model and a fixed effects model were executed. This approach helps account for unobserved, firm-specific factors that are constant over time, such as governance structure, industry type, and reporting practices. These factors could perhaps otherwise distort the results. The fixed effects model eliminates heterogeneity by assigning each firm to have a unique intercept, which helps capture changes within each firm over time. While earnings measures, NI, EBIT, and EBITDA are analyzed individually. The use of the same set of dependent and independent variable structures across all models enables a comparison of coefficient size and R-squared values. This approach aligns with Ball and Nikolaev (2022), who similarly performed separate regressions to compare and evaluate the predictive ability of earnings measures. By keeping the model structure consistent, it made it possible to evaluate the metrics that provide the strongest explanatory power in terms of predicting future operating cash flows.

Control variables were intentionally excluded from the model to isolate the impact of each predictor, CFO, NI, EBIT, and EBITDA, on the explained variance in future cash flows. Incorporating control variables might distort the direct relationship and also reduce the comparability between the models. Furthermore, the fixed effects model accounts for

time-invariant, firm-specific factors, which serve as control variables in traditional regressions. As a result, the exclusion does not significantly impact the validity or purpose of the comparative analysis. The relationship that was studied was: $E_{t-1} \rightarrow CFO_t$

Univariate Model

$$\text{Cash Flow From Operations}_{i,t} = B_0 + B_1 \text{Predictor}_{i,t-1} + \varepsilon_{i,t}$$

In the Univariate model, the predictor refers to either CFO, NI, EBIT, or EBITDA, which enables comparison of the predictive ability of each cash flow or earnings measure on its own.

Bivariate Model

$$\text{Cash Flow From Operations}_{i,t} = B_0 + B_1 \text{Cash Flow from Operations}_{i,t-1} + B_2 \text{Earnings}_{i,t-1} + \varepsilon_{i,t}$$

In the Bivariate model, earnings refer to either NI, EBIT, or EBITDA, where the model examines whether accrual-based earnings offer incremental information beyond cash flows from operations in predicting future cash flows from operations.

The hypothesis H_1 proposes that accrual-based earnings measures (NI, EBIT, and EBITDA) are superior to CFO in predicting future operating cash flows in Swedish listed firms. Using both industry-level and firm-level data, it will assess whether earnings measures offer more informative insights regarding companies to generate future cash flows.

4.2.2 Research Design

Table 1. Variable definitions

Variable	Definition
<i>CFO (Cash Flow from Operations)</i>	Cash flow from operating activities represents the net cash generated from a firm's core business operations.
<i>Net Income (NI)</i>	Net earnings after all expenses, taxes, and costs, including non-operating income and expenses.
<i>EBIT (Earnings Before Interest and Taxes)</i>	Operating profit before deducting interest and income tax expenses measures a firm's core operating performance.
<i>EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization)</i>	EBIT adjusted for non-cash expenses (depreciation and amortization), providing a measure of profitability before financing and accounting decisions.

Table 1. Outlines the key variables used, all defined under the IFRS framework.

The first variable is CFO, which measures the actual cash that was generated from operational activities, which makes a direct indicator of liquidity. As mentioned earlier, previous studies indicate that accrual-based measures perhaps provide a more accurate economic performance, since they smooth out timing differences in cash inflows and cash outflows.

NI, which reflects the “bottom line” earnings, including all revenues and expenses, incorporates non-operating and operating factors. Due to the broad inclusion, it was anticipated that NI would be less accurate as a predictor of future operating cash flows in comparison to more specific earnings measures.

Subsequently, EBIT was examined, which is a measure that eliminates the effects of interest and taxes. Compared to NI, EBIT offers a more accurate representation of a company's core operational performance, as it focuses on profits derived directly from operating activities rather than being influenced by financing or tax strategies. However, EBIT incorporates certain non-cash components, which perhaps can limit the predictive power.

Lastly, EBITDA is a more refined measure of earnings since it excludes non-cash depreciation and amortization expenses, thus providing a more accurate reflection of cash-based performance.

Because depreciation and amortization do not directly impact cash flows, it was anticipated that EBITDA would show superior predictive ability in comparison to EBIT in terms of forecasting future operating cash flows.

4.2.3 Sample Construction and Data

The sample period started in 2006 because this was the first year for comprehensive information regarding companies' financial statements, following the mandatory adoption of IFRS for Swedish listed companies. All the variables were lagged by one year (n-1) to analyse the predictive ability of each measure on future cash flow from operations. To address potential issues with the dataset, fixed effects models were employed to control for firm-level heterogeneity that could otherwise distort and bias the results, thereby ensuring a more reliable analysis. To handle outliers, winsorizing the 1% of the observations was done, 0,5% at the top level, and 0,5% at the bottom level. Firm-year observations with missing values were excluded as missing because only wanting to use firms that have been active throughout the whole period of 2006-2023. The variables are in million Swedish kronor (MSEK), historical rate. Dropping financial firms, defined as those with a one-digit SIC code of 6.

4.2.4 Summary Statistics

Table 2: Summary Statistics

Variable	Min	1st Quartile	Median	3rd Quartile	Max	Mean	SD
CFO	3	1784	2705.5	3642	4656	2629.904	1230.513
NI	27	1880.5	2744.5	3670.5	4594	2656.199	1243.11
EBIT	17	1828	2729.5	3683.5	4637	2663.204	1238.328
EBITDA	11	1790.5	2757	3742	4676	2687.619	1244.28

All figures are presented in Swedish kronor million (MSEK). The sample consists of 174 firms from 2006-2023.

Table 2 presents the descriptive statistics for the main variables in the analysis: CFO, NI, EBIT, and EBITDA. The median values for the four variables were relatively aligned, with the highest of EBITDA 2757 MSEK and the lowest of CFO 2705,5 MSEK. This is an indicator that the companies perform on similar levels on their financial performance. The lowest minimum value

was CFO with 3 MSEK, and the highest minimum was NI with 27 MSEK, which indicates a variation in financial strengths and firm size in the sample. The highest max value was EBITDA, and the lowest max value was NI, showing that there was little variation in the reported values of the largest firms.

The mean values were also relatively aligned, highest of EBITDA 2687,6 MSEK and the lowest of CFO 2629,9 MSEK, which follows the anticipated expectations since EBITDA excludes non-cash expenses in terms of depreciation and amortization. This results in marginally higher values. Across all variables, the standard deviation was between 1230,5 MSEK to 1244 MSEK, indicating moderate variation in the company's performance at the firm level. The descriptive statistics show that the dataset is suitable and balanced to investigate the earnings measures and the future cash flows predictive relationship.

Table 3: Pearson Correlation Matrix

	CFO	NI	EBIT	EBITDA
CFO	1.0000			
NI	0.4210	1.0000		
EBIT	0.4837	0.5866	1.0000	
EBITDA	0.4991	0.5262	0.6965	1.0000

Pearson correlation coefficients range from -1 to 1, indicating the strength and direction of linear relationships between variables.

Table 3 presents the Pearson Correlation Matrix. The correlation coefficient between the cash flow variable CFO and earnings measures: NI, EBIT, and EBITDA. The findings highlight that all variables show positive correlations and align in capturing aspects of firm performance. The correlation between CFO and EBITDA was stronger than the correlation with NI and EBIT, which suggests that EBITDA perhaps provides more accurate predictions of the ability to generate future cash flows. In addition, the correlation between the earnings variables themselves was relatively high, with the strongest correlation being between EBIT and EBITDA, with the value of 0,6965. Because of the high correlation, especially among the earnings measures, they were not included in the same regression model to mitigate the issue of multicollinearity. Instead,

the different earnings measures were tested on their own and, where applicable, alongside with CFO to maintain the interpretability and robustness of the results of the regressions.

5. Results

This chapter presents the empirical results. It begins by assessing the overall predictive ability of earnings and cash flow measures. Then, it explores time variation in predictive power and concludes with an analysis of long-horizon predictability.

5.1 Predictive Ability Results

The analysis began by assessing the predictive power of CFO compared with earnings measures, which was done by a cross-sectional regression. This step made it possible to identify the relationship between future operating cash flows across a sample of companies and current accounting data. The cross-sectional perspective enabled the evaluation of the explanatory power of earnings measures: NI, EBIT, and EBITDA, which gave insights into the immediate predictive value of these financial variables. Since the median values are closely aligned with the mean values, only the mean values were presented in the tables below to maintain conciseness.

Ball and Nikolaev (2022) emphasized the importance of selecting appropriate earnings variables when assessing their predictive ability compared to CFO. They concluded that bottom-line earnings in this case, NI, include components that are related to operating activities as well as financing and investing activities, which are not reflected in CFO. For instance, depreciation and amortization, which are both major components of EBIT and EBITDA, reflect the weighted average of past investing cash flows over time and are not directly represented in operating cash flows. This distinction matters because the inclusion of non-operating components adds noise to the earnings as a predictor of future operating cash flows. As a result, it can reduce the predictive ability in comparison with a CFO. Thus, when comparing earnings and CFO, it should be considered that the variations between the various earnings measures, since EBIT, EBITDA, and NI, can reflect different elements of a firm's capacity to generate cash.

The results indicate that EBITDA has the strongest predictive ability in terms of generating future cash flows in comparison to EBIT and NI. EBITDA excludes depreciation and amortization and is generally more aligned with CFO. Although it still includes certain non-operating expenses or income items. EBIT includes both depreciation and amortization, incorporating non-cash expenses that reflect past investment decisions, which perhaps mitigate its direct comparability with CFO. NI is argued to be the broadest earnings measure, which includes all items, including financing costs as well as taxes, which complicates the predictive relationship with the operating cash flows. This understanding is crucial when interpreting the output of the regression and evaluating the predictive ability of various earnings measures compared with CFO. The heterogeneity in firm characteristics and accounting practices also influences the performance of the measures. This aligns with Ball and Nikolaev's (2022), which focused on firm heterogeneity as a next step in their analysis.

Following this, the analysis was extended to a robust framework by introducing a time-series dimension, which was done through the time-series estimation for each firm through pooled panel data with fixed effects. To improve the precision of the findings and to gain a deeper understanding of the differences between sectors, a firm-level and an industry-level estimation was conducted. These adjustments made it possible to capture specific dynamics within certain companies and industries, which enhances the understanding of how earnings and cash flows can predict future performance for companies. The analysis of industry-level highlights the specific trends, while the estimation of firm-level provides insights into the predictive ability for companies.

5.1.1 Cross-Sectional Estimation Across Years

The analysis evaluated the predictive power of earnings measures concerning CFO using a single-predictor model annually. CFO served as a benchmark to assess different earnings metrics, with individual regressions calculating R-squared and coefficient slopes. Interpreting coefficients is crucial for understanding variable relationships. The sign indicates the direction, while the magnitude shows the strength of the effect. Statistically significant coefficients suggest a non-random relationship, aiding decision-making. Proper interpretation ensures model validity and guides refinement (Ozili, 2023).

R-squared measures the proportion of variance in the dependent variable explained by the independent variables. Ozili (2023) noted that while a higher R-squared indicates a better fit, it does not support causality or guarantee model validity. Even with a low R-squared, the model may still be useful if the variables are statistically significant and theoretically justified (Ozili, 2023). R-squared should be interpreted alongside other statistical tests and the research context. The next step compared the yearly variations between CFO model and earnings measures.

Table 4A: Cross-Sectional Regressions Aggregated Across Years - One Predictor

	Coefficient	Δ Coefficient	R^2	$\Delta Mean R^2$	N
<i>CFO</i>	0.411***		0.184		17
<i>NI</i>	0.309***	-0.102	0.111	-0.073	17
<i>EBIT</i>	0.384***	-0.027	0.164	-0.002	17
<i>EBITDA</i>	0.402***	-0.009	0.191	0.007	17

Table 4A presents the results of cross-sectional regressions that forecast year-ahead operating cash flows in-sample. Table 4A is based on yearly cross-sectional OLS regressions of the following form: $Cash\ Flow\ From\ Operations_{i,t} = B_0 + B_1 Predictor_{i,t+1} + \varepsilon_{i,t}$.

The columns shows the mean values of the following statistics, which was aggregated across the years: the regression coefficient (β), the difference between the benchmark coefficient on Cash Flows (Δ Coef.) and the coefficient on a given earnings predictor, the coefficient of the determination of R-squared, the difference between R-squared between a given predictor and the benchmark of the cash flow predictor (ΔR^2), and the number of yearly observations (N). Shown in Table 1 is the definition of variables. The statistic significance is indicated by the following ***, **, and * for the 1%, 5%, and 10% levels, respectively

The findings from the cross-sectional analysis are shown in Table 4A, where CFO has the highest average slope coefficient 0,411, which indicates a strong correlation with future cash flows. In comparison, NI has a lower coefficient of 0,309 and a lower explanatory power R^2 of 0,111, suggesting that NI is a less effective predictor. EBIT 0,384 and EBITDA 0,402 perform better than NI. EBIT exhibits a smaller negative deviation from CFO model. While the best predictor of future cash flows is EBITDA, which outperforms CFO with a difference in R-squared value of 0.007. Figures 1 and 2 in the Appendix present the year-by-year coefficients and R-squared values, respectively, corresponding to the results shown in Table 4A.

Table 4B: Cross-Sectional Regressions Aggregated Across Years - Two Predictors

	CFO Coefficient	Earnings Coefficient	R^2	N
<i>NI</i>	0.342***	0.166***	0.213	17
<i>EBIT</i>	0.297***	0.243***	0.238	17
<i>EBITDA</i>	0.279***	0.266***	0.255	17

Table 4B presents the results of cross-sectional regressions that forecast year-ahead operating cash flows in-sample. Table 4B is based on yearly cross-sectional OLS regressions of the following form:

$$\text{Cash Flow From Operations}_{i,t} = B_0 + B_1 \text{Cash Flow from Operations}_{i,t-1} + B_2 \text{Earnings}_{i,t-1} + \varepsilon_{i,t}$$

The columns report the means of the following statistics, aggregated across years: the regression coefficient for cash flows (β_1), the regression coefficient for earnings (β_2), the coefficient of determination (R^2), and the number of yearly observations (N). See Table 1 for variable definitions and Table 2 for sample construction. Statistical significance is indicated by ***, **, and * for the 1%, 5%, and 10% levels, respectively.

To examine the incremental informativeness of earnings measures, a two-predictor analysis was performed where future operating cash flows are explained by earnings and the current operating cash flows measure. The results from Table 4B demonstrate that all earnings measures provide supplementary information beyond CFO. EBIT and EBITDA have higher regression coefficients 0,243 and 0,266, respectively, in comparison to NI 0,166, which suggests that they provide more relevant information for predicting future cash flows. The model, including both CFO and EBITDA, has the highest R-squared value of 0.255, which is as expected beforehand.

These results are aligned with the hypothesis H_1 , which examines whether accruals-based earnings are a superior predictor of future operating cash flows than current operating cash flows in Swedish listed companies. The findings suggest that EBIT and EBITDA outperform NI, while CFO remains a strong predictor. Thus, concluding that some accruals-based earnings measures enhance the prediction of cash flow, but they do not necessarily exceed the predictive power of operating cash flows in all cases.

5.1.2 Pooled Estimation by Firm

The analysis included the time dimension by moving from a cross-sectional approach to a pooled estimation approach. Accruals modify the timing of cash flow recognition in reported earnings, and Table 5 demonstrates substantial inter-firm variation in both operating cash flows and earnings. The heterogeneity makes it complicated to interpret the results of the cross-sectional

predictability (Hsiao, 1985). Controlling for firm-specific heterogeneity is crucial for various reasons. First of all, the link between current earnings and future cash flows is likely to differ across companies because of differences in operating cycle lengths, accounting methods, and business models. Second, companies vary in profitability levels, which results in a cross-sectional correlation between future cash flows and earnings. This can potentially create a misleading mechanical relationship between the independent and dependent variables, despite earnings not providing any additional information on the predictability. Third, companies vary systematically regarding the role of the components of non-operating earnings, for instance, depreciation and other non-term accruals. This variation can potentially introduce noise into the cross-sectional regressions.

In Table 5A, the results of the pooled estimation are presented, where the slope coefficient and R-squared values for single-predictor models are estimated by an OLS analysis. In Table 5B the results of fixed-effects regression are presented. Both tables include specifications of the model with firm fixed effects and without fixed effects.

Table 5A: Pooled Estimation - One Predictor OLS

	Coefficient	Δ Coefficient	R^2	$\Delta Mean R^2$	N
<i>CFO</i>	0.377***		0.195		3132
<i>NI</i>	0.275***	-0.102	0.131	-0.064	3132
<i>EBIT</i>	0.356***	-0.021	0.180	-0.015	3132
<i>EBITDA</i>	0.376***	-0.001	0.197	0.002	3132

Table 5A presents the output for pooled in-sample year-ahead forecasts of operating cash flows, using the model $Cash\ Flow\ From\ Operations_{it} = B_0 + B_1 Predictor_{it-1} + \varepsilon_{it}$. The estimation is conducted without firm fixed effects, where the standard errors are clustered by industry (firms without industry data are clustered together). The columns show the coefficient, delta coefficient, R-squared, mean R-squared, and the number of firm-year observations (N). See Table 1 for variable definitions. Statistical significance levels:***, **, and * for the 1%, 5%, and 10% levels, respectively.

In Table 5A, the pooled estimation results without fixed effects are presented, which are aligned with the earlier cross-section findings. In particular, the operating cash flow with an R-squared value of 0,195 is superior compared to the NI R-squared value of 0,131 regarding predicting

future operating cash flows. After excluding non-operating components, the EBITDA R-squared value is 0,197, which is larger than both CFO measure and the EBIT measure with an R-squared value of 0,180.

Table 5B: Pooled Estimation Fixed Effects - One Predictor

	Coefficient	Δ Coefficient	R^2	$\Delta Mean R^2$	N
<i>CFO</i>	0.129***		0.027		3132
<i>NI</i>	0.042***	-0.087	0.011	-0.016	3132
<i>EBIT</i>	0.132***	0.003	0.026	-0.001	3132
<i>EBITDA</i>	0.167***	0.038	0.039	0.012	3132
<i>Firm fixed effects</i>	Yes				

Table 5B presents the output for pooled in-sample year-ahead forecasts of operating cash flows, using the model

$Cash\ Flow\ From\ Operations_{it} = B_0 + B_1 Predictor_{it-1} + \varepsilon_{it}$. The estimation is conducted with firm fixed effects. Standard errors are clustered by industry (firms without an industry are clustered together). The columns show the coefficient, delta coefficient, R-squared, mean R-squared, and the number of firm-year observations (N). See Table 1 for variable definitions. Statistical significance levels:***, **, and * for the 1%, 5%, and 10% levels, respectively.

Table 5B presents pooled estimation fixed-effects with one predictor. The R-squared value decreased across all models, indicating the importance of firm-specific heterogeneity in terms of explaining variations in future cash flows. CFO's R-squared value declined from 0,195 to 0,027, and NI's R-squared value decreased from 0,131 to 0,011. Interestingly, EBITDA has the highest explanatory power among the earnings measures and outperforms CFO within the fixed-effects specification, with an R-squared value of 0,039. This supports the idea that non-operating components affect the cross-sectional differences.

Table 5C: Pooled Estimation OLS - Two Predictors

	CFO Coefficient	Earnings Coefficient	R^2	N
<i>NI</i>	0.318***	0.149***	0.213	3132
<i>EBIT</i>	0.271***	0.231***	0.235	3132
<i>EBITDA</i>	0.255***	0.257***	0.246	3132

Table 5C presents the output for pooled in-sample year-ahead forecasts of operating cash flows using both cash flow from operations and earnings as predictors, using the model: $Cash\ Flow\ From\ Operations_{i,t} = B_0 + B_1 Cash\ Flow\ from\ Operations_{i,t-1} + B_2 Earnings_{i,t-1} + \varepsilon_{i,t}$

The estimation is conducted without firm fixed effects. Standard errors are clustered by firms. The columns report, respectively, the coefficients on CFO and Earnings, R-squared, and the number of firm-year observations (N).

Table 5C presents the analysis by the estimation of the pooled OLS with two predictors. In the regression, CFO and the earnings measures were incorporated as predictors of future operating cash flows. The findings indicate that CFO, with a coefficient of 0,318, has a higher explanatory power in terms of the coefficient in comparison to NI, with a coefficient of 0,149. While EBIT weakens CFO coefficient when replacing NI. This dominance diminishes when EBITDA replaces NI in the model, where the coefficient for EBITDA is significant and stronger than CFO coefficient. As previously mentioned, the model including both EBITDA and CFO generates the highest R-squared value across all models.

Table 5D: Pooled Estimation Fixed Effects - Two Predictors

	CFO Coefficient	Earnings Coefficient	R^2	N
<i>NI</i>	0.126***	0.014	0.027	3132
<i>EBIT</i>	0.101***	0.100***	0.036	3132
<i>EBITDA</i>	0.085***	0.141***	0.045	3132
<i>Firm fixed effects</i>	Yes			

Table 5C presents the results for pooled in-sample year-ahead forecasts of operating cash flows using both cash flow from operations and earnings as predictors, using the model:

$$Cash\ Flow\ From\ Operations_{i,t} = B_0 + B_1 Cash\ Flow\ from\ Operations_{i,t-1} + B_2 Earnings_{i,t-1} + \varepsilon_{i,t}$$

The estimation is conducted with firm fixed effects. Standard errors are clustered by firms. The columns show the CFO coefficient, the Earnings coefficient, R-squared, and the number of firm-year observations (N).

Table 5D presents pooled estimates of fixed effects with two predictors, the variable CFO and earnings. In this regression, the explanatory power decreases, as is notable since the coefficient declined from 0,318 in Table 5C to 0,126 for the NI model in the table above. The earnings variables retain a strong predictive power, particularly EBITDA, with the coefficient of 0,141, which is higher compared to CFO with the coefficient of 0,085. The results suggest that after controlling for firm-level heterogeneity, accrual-based earnings measures provide a greater incremental predictive value compared to operating cash flows. In general, the results from pooled estimates show that the superiority of operating cash flows in predicting future cash flows is due to cross-sectional variation, rather than an inherent weakness of accrual accounting. The control for firm-specific heterogeneity with fixed effects, then the accrual-based earnings, especially EBITDA, has a greater predictive power compared to the CFO. This result is in line with the hypothesis H_1 , stating that EBITDA has a superior predictive power for future operating cash flows in comparison to operating cash flows.

5.1.3 Pooled Estimation by Industry

Building on earlier findings that illustrate the significance of the firm-level heterogeneity, the analysis took a step further in terms of estimating equations 1 and 2, industry by industry. The industry-level pooled estimation includes firm fixed effects, which allows for variation at the firm level. This also enables the slope coefficient and the intercept to be different between industries.

Table 6 presents the output from industry-level analysis. It displays the R-squared values and the average slope coefficient, which is aggregated by the classification of each industry. The test statistics used a variation between cross-industries, which is a similar approach to Fama and MacBeth (1973), resulting in a conservative standard error compared to standard pooled regressions. Consistent with previous steps, the univariate model used a single predictor at a time, meanwhile the Bivariate Model compared cash flows and accruals in the predictability power.

Table 6A: Pooled Industry-Level Estimation OLS - One Predictor

	Coefficient	Δ Coefficient	R^2	ΔR^2	N
<i>CFO</i>	0.368***		0.146		10
<i>NI</i>	0.259***	-0.109	0.090	-0.056	10
<i>EBIT</i>	0.338***	-0.03	0.134	-0.012	10
<i>EBITDA</i>	0.361***	-0.007	0.152	0.006	10

Table 6A presents the output for pooled industry-level in-sample forecasts of year-ahead operating cash flows, estimated by one-digit SIC code using the following model: $Cash\ Flow\ From\ Operations_{i,t} = B_0 + B_1 Predictor_{i,t-1} + \varepsilon_{i,t}$

The columns show, respectively, the coefficient, delta coefficient, R-squared, delta R-squared, and the number of industries (N). See Table 1 for variable definitions. Statistical significance levels:***, **, and * for the 1%, 5%, and 10% levels, respectively.

Table 6A presents the pooled industry-level estimation OLS with one predictor. In other words, accounting for industry-level heterogeneity and the alignment to the mean slope coefficient for CFO with the value of 0,386 and NI with a value of 0,259. The R-squared value of CFO is 0,146, which is higher compared to NI with the value of 0,090, which supports the results for cross-sectional. Considering alternative measures of earnings such as EBIT and EBITDA, these two have a higher value of predictive power, with 0,134 and 0,152, compared to NI. EBIT has a lower R-squared value than CFO, however, EBITDA outperforms CFO with an R-squared value difference of 0.006. This indicates that, despite differences within industry-level, EBITDA is still more effective in predicting the future operating cash flows.

Table 6B: Pooled Industry-Level Estimation OLS - Two Predictors

	CFO Coefficient	Earnings Coefficient	R^2	N
<i>NI</i>	0.302***	0.140***	0.169	10
<i>EBIT</i>	0.260***	0.220***	0.190	10
<i>EBITDA</i>	0.242***	0.250***	0.200	10

Table 6B presents the output for pooled industry-level in-sample forecasts of year-ahead operating cash flows using both cash flow from operations and earnings as predictors, estimated by a one-digit SIC code using the following model:

$$Cash\ Flow\ From\ Operations_{i,t} = B_0 + B_1 Cash\ Flow\ from\ Operations_{i,t-1} + B_2 Earnings_{i,t-1} + \varepsilon_{i,t}$$

The columns report, respectively, the means of the following statistics aggregated across industries: the regression coefficients on cash flow from operations (β_1) and earnings (β_2), the coefficient of determination (R^2), and the number of industries (N). The standard errors are clustered at an industry level. See Table 1 for variable definitions. Statistical significance levels: ***, **, and * for the 1%, 5%, and 10% levels, respectively.

Table 6B shows supplementary insights since it includes the model CFO and one earnings-based predictor. Consistent with the output of the pooled estimation, accrual-based earnings enhance the predictive power in addition to CFO alone. For instance, in the model, the CFO coefficient declines to a value of 0,242, meanwhile the coefficient of EBITDA remains high at a value of 0,250, which results in an R-squared value of 0,200. This pattern continues for other earnings measures, where NI and EBIT have significant explanatory power when they are combined with CFO.

An insight from incorporating the differences of industry-level is that EBITDA predicts future cash flows more accurately compared to CFO and other earnings measures. It also maintains the information advantage over CFO when it is controlled for variations in the industry-specific context. The results support the hypothesis H_1 of the study, EBITDA is a superior predictor of future operating cash flows than current operating cash flows in Swedish listed companies. These results are in line with findings by Dechow (1994) and Dechow and Dichev (2002), which suggests that operating cash flows themselves provide a noisy or incomplete representation of earnings capacity to allocate performance over time.

5.1.4 Dynamic Panel Data Bias

While firm-level heterogeneity biases cross-sectional estimates, incorporating lagged values of cash flows or earnings as regressors in panel data models, such as fixed effects models, violates the strict exogeneity condition. This approach does not fully eliminate the bias (Nickell, 1981; Anderson & Hsiao, 1981; Arellano & Bond, 1991). This issue is particularly relevant when the time dimension of the panel is relatively short. A key question is whether this bias accounts for the observed superiority of accrual-based over cash-based variables.

Ball and Nikolaev (2022) stated that as the number of periods increases, the estimation bias decreases, which results in more accurate estimations of the output. The authors argued that the observed advantage of accrual-based measures, especially operating earnings, perhaps be

attributed to dynamic panel bias, which is more evident in shooter panels. To mitigate these concerns, Ball and Nikolaev (2022) suggested methodological alternatives, for instance, instrumental variable techniques and firm-level estimation, which reduce the endogeneity concerns and enhance the structural relationship. To address these concerns, the study shifts to a firm-level regression approach to mitigate potential dynamic bias in panel settings.

5.1.5 Firm-Level Estimation

The final test estimates the models in the univariate model and the bivariate model, being separated for each firm time series. This approach relies on a balanced panel dataset, consisting only of firms with annual observations for the full 2006-2023 period. Consequently, the sample inherently consists of more established, consistent reporting practices. These companies tend to display more consistent financial patterns, and their operating cash flows are expected to be less volatile because of the growth effects. As a result, they offer more reliable insights into predictive relationships in comparison with a possible broader, unbalanced sample.

Table 7A. Firm-Level Estimation - One Predictor

	Coefficient	Δ Coefficient	R^2	ΔR^2	N
<i>CFO</i>	0.162 ***		0.125		174
<i>NI</i>	0.050***	-0.112	0.087	-0.038	174
<i>EBIT</i>	0.139***	-0.023	0.105	-0.02	174
<i>EBITDA</i>	0.166***	0.004	0.140	0.015	174

Table 7A presents the output for firm-level forecasts of year-ahead operating cash flows, estimated separately for each firm:

$$Cash\ Flow\ From\ Operations_{i,t} = B_0 + B_1 Predictor_{i,t-1} + \varepsilon_{i,t}$$

The columns report, respectively, the coefficient, delta coefficient, R-squared, delta R-squared, and the number of firms (N). See Table 1 for variable definitions. Statistical significance levels: ***, **, and * for the 1%, 5%, and 10% levels, respectively.

The outputs of the analysis that are illustrated in Table 7A are related to the univariate model, and Table 7B is for the bivariate model. In line with the findings from industry-level, Table 7A presents that CFO has superior predictive power compared to NI, with the mean coefficient value of CFO with 0,162 and for NI with 0,050. NI has the weakest coefficient value of 0.050 and

R-squared value of 0.087, making it the least effective measure for predicting future cash flows among the earnings metrics examined. The strongest predictor is EBITDA with a coefficient of 0.166 and R-squared value of 0.14, which is higher than both CFO and EBIT. This implies that EBITDA offers a more accurate and reliable estimation of measuring future operating cash flows compared to CFO and the other earnings measures examined.

Table 7B. Firm-level estimation - Two predictors

	CFO Coefficient	Earnings Coefficient	R^2	N
<i>NI</i>	0.124***	0.038***	0.195	174
<i>EBIT</i>	0.108***	0.100***	0.199	174
<i>EBITDA</i>	0.101***	0.117***	0.228	174

Table 7B is based on the following time-series regression, estimated by firm:

$$Cash\ Flow\ From\ Operations_{i,t} = B_0 + B_1 Cash\ Flow\ from\ Operations_{i,t-1} + B_2 Earnings_{i,t-1} + \varepsilon_{i,t}$$

The columns report, respectively, the CFO coefficient, the Earnings coefficient, R-squared, and the number of firms (N). See Table 1 for variable definitions. Statistical significance levels:***, **, and * for the 1%, 5%, and 10% levels, respectively.

Table 7B shows firm-level “horse races” between cash-based and accrual-based predictors. Consistent with the output of pooled industry-level data, where CFO and earnings measures both support forecasting future operating cash flows. The predictive significance of CFO declines when the accrual-based earnings measure is added, as expected. The coefficient of CFO has a value of 0,124 when it is paired with NI in comparison with 0,162 from Table 7A. In addition, when CFO is paired with EBITDA, it gets a value of 0,101. The coefficient of accrual-based earnings is statistically significant with EBITDA, which has the strongest predictive ability with an earnings coefficient of 0,117 and an R-squared value of 0,228. In sum, the firm-level estimation supports the previous findings that firm-level heterogeneity plays a crucial role in cross-sectional regressions, and EBITDA still is a superior predictor of future operating cash flows from operations compared with cash flows themselves.

5.2 Time Variation in the Predictive Ability of Earnings versus Operating Cash Flow

Previous research indicates that earnings and operating cash flow predictive ability has increased over time (Kim & Kross, 2005; Nallareddy et al., 2020). These insights are derived from cross-sectional models that do not account for firm-level heterogeneity. This study controls for heterogeneity by using fixed-effects panel regression, which accounts for time-variant first-specific characteristics. This approach enables the separation of the predictive value of earnings and cash flows from biasing factors such as accounting practices, managerial practices, or industry affiliation, which are factors that could influence the estimates.

The observed trends in the estimation predictability are perhaps partially due to firm-level patterns, rather than an improvement in the accuracy of the prediction. The findings are consistent with previous research, highlighting an increase in the predictive ability of operating cash flows. While the exact cause of this trend remains unclear, a potential explanation is the decline over this period in the relative size of non-cash working capital and increased expenditures on intangibles (Bushman et al., 2016; Nallareddy et al., 2020). The predictive ability of operating cash flows has been improved over time, the GAAP changes are unlikely to be the reason for the increased informativeness of the predictors of earnings-based. Instead, the trend is likely reflected from broader structural changes, such as shifts of companies that want to go public or changes in firm characteristics (Ball & Nikolaev, 2022).

5.3 Longer-Horizon Predictive Ability

Consistent with the approach by Ball and Nikolaev (2022), the analysis includes a two-year-ahead forecasting performance for CFO and accrual-based earnings measures. This approach makes it possible to assess whether EBITDA and other earnings measures continue over a longer time horizon and the relative influence shifts over an extended timeframe. The literature has historically been focused on short-term forecasting, but there is an increasing interest in gaining an understanding of how well accounting variables can predict the performance of CFO over a longer period. This perspective is crucial for investors and analysts who focus on a multi-year perspective in the risk assessment and valuation processes.

Assessing the predictability over a longer time horizon allows for an evaluation of the robustness and consistency of the output. This provides insights into how much the information of current accounting reflects sustainable performance compared to short-term fluctuations. It also offers evidence on the usefulness of earnings compared to cash flows information to use in strategic decision-making in a longer time frame. Over longer periods beyond a horizon of one year, the link between current and future operating cash flows is affected by two opposing factors: cash flows reflect companies' underlying economic performance, which creates a positive autocorrelation. On the other hand, short-term fluctuations in cash flows typically result in negative autocorrelation, as they tend to reverse over shorter periods (Dechow, 1994; Dechow & Dichev, 2002).

Table 8A: Cross-Sectional Regressions Aggregated Across Two Years - One Predictor

	Coefficient	Δ Coefficient	R^2	$\Delta Mean R^2$	N
<i>CFO</i>	0.362***		0.151		16
<i>NI</i>	0.285***	-0.077	0.100	-0.051	16
<i>EBIT</i>	0.340***	-0.022	0.142	-0.009	16
<i>EBITDA</i>	0.361***	-0.001	0.164	0.013	16

Table 8A presents the results of cross-sectional regressions that forecast two-year-ahead operating cash flows in-sample. Table 4A is based on yearly cross-sectional OLS regressions of the following form: $Cash\ Flow\ From\ Operations_{i,t} = B_0 + B_1 Predictor_{i,t-1} + \varepsilon_{i,t+1}$.

The columns shows the mean value of the following statistics, which was aggregated across the years: the regression coefficient (β), the difference between the benchmark coefficient on Cash Flows (Δ Coef.) and the coefficient on a given earnings predictor, the coefficient of the determination of R-squared, the difference between R-squared between a given predictor and the benchmark of the cash flow predictor (ΔR^2), and the number of yearly observations (N). See Table 1 for the definition of variables. The statistic significance is indicated by the following ***, **, and * for the 1%, 5%, and 10% levels, respectively

The output from the aggregated cross-sectional regressions is presented in Table 8A, which shows that CFO has the highest coefficient value of 0,362 and an R-squared value of 0,151. This indicates that CFO is most effective as a single predictor of future cash flow when compared to NI and EBIT. On the other hand, NI has the weakest performance with a coefficient of 0,285 and with an R-squared value of 0,100, representing the largest negative deviation from the benchmark of CFO and in predicting future cash flows from operations. EBITDA is the strongest

predictor and comes close in coefficient size compared to CFO, however, EBITDA surpasses CFO's explanatory power by a delta R-squared is 0,013.

Table 8B: Cross-Sectional Regressions Aggregated Across Two Years - Two Predictors

	CFO Coefficient	Earnings Coefficient	R^2	N
NI	0.294***	0.166***	0.183	16
EBIT	0.259***	0.219***	0.202	16
EBITDA	0.240***	0.246***	0.216	16

Table 8B presents the results of cross-sectional regressions that forecast two-year-ahead operating cash flows in-sample. Table 4B is based on yearly cross-sectional OLS regressions of the following form:

$$Cash\ Flow\ From\ Operations_{i,t} = B_0 + B_1\ Cash\ Flow\ from\ Operations_{i,t-1} + B_2\ Earnings_{i,t-1} + \varepsilon_{i,t}$$

The columns report the means of the following statistics, aggregated across years: the regression coefficient for cash flows (β_1), the regression coefficient for earnings (β_2), the coefficient of determination (R^2), and the number of yearly observations (N). See Table 1 for variable definitions. Statistical significance is indicated by ***, **, and * for the 1%, 5%, and 10% levels, respectively.

To further assess the incremental informativeness of earnings measures, a two-predictor regression analysis was performed, which is illustrated in Table 8B. In these models, future cash flows are explained simultaneously by CFO and each corresponding earnings measure. The results indicate that all earnings measures provide supplementary explanatory power beyond CFO when it is accounted for on its own.

EBITDA yields the highest earnings coefficient with a value of 0,246 and also the highest R-squared value of 0,216 among all earnings measures, which suggests that it provides the most relevant and valuable additional insights. EBIT performs strongly with a value of the coefficient of 0,219 and an R-squared value of 0,202, while NI offers the weakest contribution with a coefficient value of 0,166 and an R-squared value of 0,183. Figure 3 in the Appendix illustrates the coefficients from annual cross-sectional regressions of two-year-ahead operating cash flows on two predictors, one earnings measure and CFO measure.

Table 8C: Forecasting Two-Year-Ahead Operating Cash Flows - One Predictor

Industry estimation

	Coefficient	Δ Coefficient	R^2	ΔR^2	N
<i>CFO</i>	0.322***		0.110		10
<i>NI</i>	0.247***	-0.075	0.071	-0.039	10
<i>EBIT</i>	0.299***	-0.023	0.099	-0.011	10
<i>EBITDA</i>	0.324***	0.002	0.116	0.006	10

Firm fixed effects Yes

Table 8C presents the output for pooled industry-level in-sample forecasts of two-year-ahead operating cash flows, estimated separately for each one-digit SIC-code industry using the following model: $Cash\ Flow\ From\ Operations_{i,t} = B_0 + B_1 Predictor_{i,t-1} + \varepsilon_{i,t}$

The columns report, respectively, the coefficient, delta coefficient, R-squared, delta R-squared, and the number of industries (N). See Table 1 for variable definitions. Statistical significance levels:***, **, and * for the 1%, 5%, and 10% levels, respectively.

Table 8C shows the output from the industry-level estimation with one predictor. CFO continues to be a strong predictor, with a coefficient with the value of 0,322 and an R-squared value of 0,110. Of the accrual-based earnings measures, EBITDA shows the highest predictive ability with an R-squared value of 0,116, meanwhile, NI has an R-squared value of 0,071. The variation in explanatory ability indicates that higher accrual content in NI perhaps reduces the forecasting effectiveness for cash flows over an extended period. To sum it up, EBITDA is the strongest predictor in terms of coefficient and R-squared value, compared to NI, EBIT, and CFO.

Table 8D: Forecasting Two-Year-Ahead Operating Cash Flows - One Predictor

Firm-level estimation

	Coefficient	Δ Coefficient	R^2	ΔR^2	N
<i>CFO</i>	0.103***		0.088		174
<i>NI</i>	0.029***	-0.074	0.075	-0.013	174
<i>EBIT</i>	0.098***	-0.005	0.091	0.003	174
<i>EBITDA</i>	0.133***	0.03	0.105	0.017	174

Table 8D presents the output for firm-level forecasts of two-year-ahead operating cash flows, carried out in-sample. Table 8D is based on a time-series regression, estimated separately for each firm:

$$\text{Cash Flow From Operations}_{i,t} = B_0 + B_1 \text{Predictor}_{i,t-1} + \varepsilon_{i,t}$$

The columns report, respectively, the coefficient, delta coefficient, R-squared, delta R-squared, and the number of firms (N). See Table 1 for variable definitions. Statistical significance levels:***, **, and * for the 1%, 5%, and 10% levels, respectively.

Table 8D presents the output of the firm level. The explanatory power of all predictors decreased. EBITDA still outperformed CFO and the other earnings measures with an R-squared value of 0,105. The CFO coefficient is still significant with a value of 0,103, but the predictive ability decreases for a two-year estimation. Like the industry-level output, NI has the lowest explanatory power with an R-squared value of 0,075, which supports that earnings measures that consist of higher portions of accruals lose their predictive ability over time. In this case, EBIT also has a higher R-squared value compared to CFO, with a difference of 0.003. One possible reason why EBIT has a higher R-squared than CFO in the two-year forecast is that EBIT, as an accrual-based measure, is more stable over time and less affected by short-term fluctuations. In contrast, CFO can be more volatile due to temporary changes in working capital. Over longer horizons, the smoothing effect of accruals may make EBIT a better indicator of long-term performance, while the predictive power of CFO tends to decline. This result suggests that EBIT can outperform cash flow measures when forecasting further into the future.

Table 8E: Forecasting Two-Year-Ahead Operating Cash Flows - Two Predictors

Industry estimation

	CFO Coefficient	Earnings Coefficient	R^2	N
<i>NI</i>	0.260***	0.150***	0.133	10
<i>EBIT</i>	0.231***	0.199***	0.146	10
<i>EBITDA</i>	0.213***	0.229***	0.154	10
<i>Firm fixed effects</i>	Yes			

Table 8E presents the output for pooled industry-level in-sample forecasts of two-year-ahead operating cash flows using both cash flow from operations and different earnings measures as predictors. The regression is estimated separately for each one-digit SIC-code industry using the following model:

$$\text{Cash Flow From Operations}_{i,t} = B_0 + B_1 \text{Cash Flow from Operations}_{i,t-1} + B_2 \text{Earnings}_{i,t-1} + \varepsilon_{i,t}$$

The columns report, respectively, the CFO coefficient, earnings coefficient, R-squared value, and number of industries (N). The standard errors are clustered at the industry level. See Table 1 for variable definitions. Statistical significance levels:***, **, and * for the 1%, 5%, and 10% levels, respectively.

Table 8E presents the analysis of a two-predictor model setting at the industry level. To add an earnings measure besides the CFO variable generally enhances the explanatory power, with an R-squared value increasing across all the models. The highest predictive ability has the combination of CFO and EBITDA, with an R-squared value of 0,154. Meanwhile, the combination of CFO and NI has the lowest R-squared value of 0,133. These findings indicate that EBITDA has more relevant information for predicting long-term cash flows in comparison to the other earnings measures.

Table 8F: Forecasting Two-Year-Ahead Operating Cash Flows - Two Predictors

Firm-level estimation

	CFO Coefficient	Earnings Coefficient	R^2	N
NI	0.086***	0.028***	0.157	174
EBIT	0.063***	0.082***	0.162	174
EBITDA	0.050***	0.129***	0.174	174

Table 8F presents the output for firm-level forecasts of two-year-ahead operating cash flows, carried out in-sample. Table 8F is based on the following time-series regression, estimated by each firm:

$$Cash\ Flow\ From\ Operations_{i,t} = B_0 + B_1 Cash\ Flow\ from\ Operations_{i,t-1} + B_2 Earnings_{i,t-1} + \varepsilon_{i,t}$$

The columns report, respectively, the CFO coefficient, the Earnings coefficient, R-squared, and the number of firms (N). The standard errors are clustered at the industry level. See Table 1 for variable definitions. Statistical significance levels:***, **, and * for the 1%, 5%, and 10% levels, respectively.

Table 8F shows the firm level with an overall pattern that is consistent. The combination of CFO and EBITDA model has the highest R-squared value of 0,174 compared to NI, with the lowest R-squared value of 0,157. Notably, the coefficient of CFO decreases across all the models, which indicates that when adjusting for accrual-based earnings measures, the cash flows' predictive ability decreases over time.

In summary, the findings indicate that accrual-based earnings measures, particularly the consistent and superior performance of EBITDA, offer superior predictive power for future operating cash flows over extended periods compared to CFO. The decline in CFO predictive power over multiple years indicates that earnings-based predictors capture more relevant information to forecast long-term cash flows. These findings are consistent across firm-level

estimations as well as industry-level estimations, which supports the reliability and robustness of the conclusions of this study.

6. Conclusions and Final Discussion

In the final chapter, the key findings and contribution of the study, and the study's limitations, together with proposals for final research, are presented.

6.1 Conclusion and Contribution

This study assesses the predictive power of CFO and various earnings measures, such as NI, EBIT, and EBITDA, to predict future operating cash flows. The analysis focused on Swedish listed companies on Nasdaq Stockholm under the IFRS framework from 2006 to 2023. Across all models, EBITDA consistently proves to be the strongest and most reliable predictor, followed by EBIT and then NI, which indicates a coherent hierarchy in the predictive ability of the different earnings metrics. This hierarchy indicates that earnings measures capture operating performance before non-cash charges such as depreciation and amortization, which offer more timely and more reliable information to predict future cash flows. The superior performance of EBITDA as a predictor of future operating cash flows compared to CFO supports prior findings by Ball and Nikolaev (2022), who argue that accrual-based earnings outperform cash flows in terms of predictive power. However, the results of this study differ from theirs in a crucial regard: EBIT and particularly NI are consistently outperformed by CFO across most model specifications. This indicates that accrual-based earnings are not consistently superior, with their performance possibly varying by the accounting frameworks.

One probable explanation for this inconsistency is the difference in accounting frameworks. Ball and Nikolaev (2022) performed their study under US GAAP, a rules-based framework with stricter guidance on accrual recognition and measurement. In contrast, IFRS is a principles-based framework and allows greater managerial discretion, especially in areas such as revenue recognition, impairment testing, and the treatment of intangible assets. This flexibility can reduce the reliability of accrual components in earnings, especially EBIT and NI, and introduce estimation uncertainty that diminishes their predictive power compared to CFO. These issues

may be especially pronounced in IFRS settings with a large proportion of intangible assets, such as those found in Sweden.

The difference between EBITDA and EBIT demonstrates that the impact of depreciation and amortization policies can affect earnings quality, which can differ across companies and industries. NI is comprehensive as it includes more non-operating items as well as financial expenses, which potentially reduce its predictive reliability in comparison to EBIT and EBITDA. The findings from this study support the view that accruals address the timing issues and noise in cash flows, leading to enhanced quality of information for forecasting. This viewpoint is in line with previous findings by Dechow (1994) and Dechow et al. (1998), who showed the importance of accruals in enhancing the predictive ability of earnings. EBITDA's superior performance highlights the value of focusing on operating profitability before non-cash accounting estimates, which can introduce noise and reduce information clarity.

The findings correspond with long-established insights from practitioner-focused literature, such as FASB (1978), which points out the value of decision-making of earnings information. The findings remain relevant within the IFRS reporting framework, since the central objective of IFRS is to ensure comparability and transparency in financial reporting. However, the predictive value of earnings might also be influenced by managerial judgement in the application of accruals and by accounting practices that differ across industries, as emphasized by Watts and Zimmerman (1986). The flexibility that is allowed under the IFRS's principle-based framework can result in differences in how accurately earnings represent the underlying economic performance, which perhaps reduces the predictive reliability. Recognizing these influences is essential when interpreting variations in the predictive ability of earnings measures such as NI, EBIT, and EBITDA.

Recent studies by Oh and Penman (2024) offer additional insights by showing that the predictive value of earnings is especially affected by the capitalization of intangible assets. This can distort accruals when the estimation uncertainty is high, particularly under the IFRS framework, where firms have more discretion. The findings of this study reflect the variability in the quality of accruals under IFRS, partly due to intangibles, which makes EBITDA's resilience and robustness significant. EBITDA remains a strong predictive power despite these challenges, which implies

that it effectively captures the core operating performance of companies. This includes how companies handle intangible assets like R&D and goodwill, which are frequently influenced by estimations and managerial judgment, thus impacting the reliability and quality of accrual-based earnings.

Notably, the outputs are in contrast to findings by Nallareddy et al. (2020), who showed that cash flows are a better predictor of future cash flows compared to earnings. Ball and Nikolaev (2022) attribute the discrepancy to the methodological differences with Nallareddy et al. (2020), who lacked attention to firm heterogeneity. Starica and Marton (2025) further support the importance of methodological precision regarding model specification, including variable selection and treatment of heterogeneity, which are crucial when evaluating financial performance indicators under IFRS. The findings point out the importance of robust model design and the inclusion of heterogeneity in evaluating various earnings measures under the IFRS framework.

The implications of the findings in this report are of interest to investors, creditors, and policymakers. All of these stakeholders rely on the financial statements and demand comprehensive, comparable, and reliable information to identify which performance indicators are most useful for decision-making related to future performance (Agoglia et al., 2011). While IFRS strives to harmonize the reporting standards, the findings indicate that earnings quality and its predictive power can vary depending on how companies use accruals and the economic context in which the company operates. This concern is relevant for firms with high levels of intangible assets, where financial statements perhaps lack reliability and transparency (Sahut et al., 2011).

EBITDA's consistent predictive ability indicates that certain earnings measures can remain valuable under the IFRS framework, despite its principle-based and flexible structure. As Sahut et al. (2011) pointed out, the increasing complexity of financial statements under IFRS raises concerns about transparency and reliability, particularly for intangible-intensive firms. The findings from this report confirm that EBITDA remains a strong predictor. That said, further analysis indicates that its predictive ability perhaps varies with the degree of intangible assets intensity held by companies. This is because intangible assets frequently involve substantial managerial judgements as well as the involvement of estimation uncertainty. The potential

variability emphasizes crucial discretion of future research to explore how intangible intensity influences the usefulness of various earnings measures within the IFRS framework. Nonetheless, the differences between IFRS and US GAAP in terms of classification rules, for instance, regarding the treatment of dividends and interests in the cash flow statement. The core conceptual distinction between accrual-based measures and cash remains consistent between the two frameworks. The findings of this study show that accrual-based earnings, especially EBITDA, have a superior predictive ability across IFRS, consistent with previous studies under US GAAP.

To sum up, this study contributes to the literature by demonstrating the ranking among earnings measures in their ability to predict future cash flows as well as extending previous research from the US to a European context. By this empirical evidence, these insights advance academic understanding with practical relevance for financial reporting in terms of decision-making usefulness. Given the upcoming introduction of IFRS 18 on Presentation and Disclosure in Financial Statements, this study is timely. It offers empirical evidence that can contribute to the ongoing discussion regarding which performance measure provides the most decision-useful information. This may support the IASB and other standard setters in implementing and refining the new IFRS 18 standard.

6.2 Limitations and Further Research

This study provides insights, but still has some limitations. The sample is limited to only Swedish listed firms on Nasdaq Stockholm, which perhaps limit the generalizability to other countries that are under IFRS, especially those with different regulatory, economic, or industry environments. Another limitation is that the analysis includes companies with complete annual data sets from 2006 to 2023. This may introduce selection bias since it excludes financial companies such as banks and insurance companies, as well as companies with shorter or financial reports that have been interrupted (Arellano & Bond, 1991). Furthermore, the report is focused on a limited set of earnings measures: NI, EBIT, and EBITDA, which perhaps do not fully capture the full range of accrual-based measures that are used in practice. The regression assumes a linear relationship and does not account for potential macroeconomic events that could impact the earnings and cash flow patterns. Moreover, this study does not account for

industry-specific or firm-level time trends, which future research could include to enhance precision and control (Nickell, 1981).

Another limitation is the lack of formal significance testing for differences between the estimations of the coefficient. No t-tests were conducted to assess whether the variation in predictive ability across the different earnings measures is statistically significant. This constrains the ability to make robust comparative claims, and future research would include such statistical tests to increase the validity of the conclusions. Unlike Ball and Nikolaev (2022), this study does not scale the financial variables by total assets. The decision to use unscaled variables was so to maintain the interpretability of the coefficient and to prevent potential distortions that are related to the denominator effects, when companies have near-zero asset bases or are volatile. Although the methodological choice of this study may limit the comparability between companies of different sizes, its impact of the findings is limited because of the homogenous nature of the sample that was used. Swedish listed companies that report under IFRS with full reporting periods, which mitigate the variation in firm size. Nevertheless, future research should replicate the analysis using scaled variables to examine whether the relationship identified in the study remains consistent under other model specifications.

Furthermore, the findings that EBIT and especially NI are consistently outperformed by CFO across most model specifications raise important questions about the limitations of certain accrual-based measures under IFRS. While prior literature, such as Ball and Nikolaev (2022), finds that earnings measures outperform CFO under US GAAP, this study's results confirms Ball and Nikolaev (2022) that EBITDA is a superior predictor compared to CFO, however this study also suggests that such superiority does not universally apply regarding EBIT and NI. Future research should therefore investigate whether the relatively poorer performance of EBIT and NI is specific to the Swedish IFRS context or whether it reflects a broader pattern across IFRS-adopting jurisdictions. This would help clarify the role of accounting standards, enforcement mechanisms, and firm-level characteristics in shaping the predictive power of different financial metrics.

Beyond the methodological refinements, future research could expand the scope by including data from additional countries, extending the time horizon, or employing alternative

methodological approaches. Future research could also investigate firm characteristics that perhaps influence the predictive performance of the earnings metrics. A research focus could be to explore the relationship between intangible assets that can affect the usefulness of NI, EBIT, and EBITDA. As intangible assets typically involve higher estimation uncertainty and also allow for managerial discretion, they can introduce noise and distort accrual-based metrics within the IFRS framework (Oh and Penman, 2024). Analyzing firms based on the degree of intangible asset intensity could potentially determine whether EBITDA's superior predictive power holds consistently (Sahut et al., 2011). This analysis would apply across both companies with high levels of intangible assets and those with low levels of intangible assets.

In conclusion, future research could explore whether the upcoming new standard IFRS 18 could influence the predictive ability of the financial metrics. This would enhance the policy relevance and the understanding of how modifications in disclosures and presentations impact the informativeness of the financial statements, especially regarding earnings and cash flow information. Researchers may also consider testing other types of earnings measures beyond NI, EBIT, and EBITDA, to evaluate whether alternative definitions provide better or complementary forecasting power. Other measures could, for instance, be Gross Profit, Sales, Operating Income, Operating Income Before Interests, Taxes, Depreciation and Amortization (OIBITDA), Operating Income Before Interests and Taxes and After Depreciation and Amortization (OIBIT), and Sales. Such work would help assess the consistency of the results and further clarify the comparative advantages of accrual-based earnings and cash flows in predicting future financial performance. Future research could assess whether the implications of IFRS 18 revised structure enhance the comparability and the predictive ability relevance of the financial statements, particularly for companies operating in settings with high levels of intangible assets intensity (Sahut et al., 2011).

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Appendix

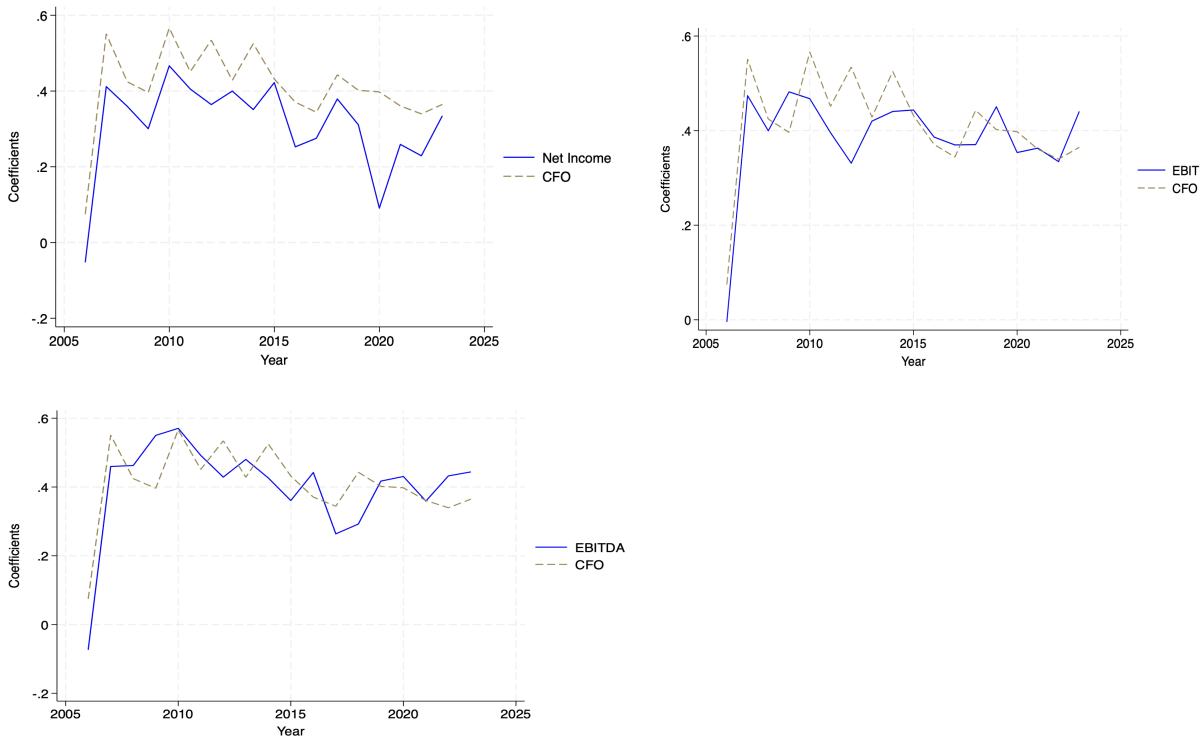


Figure 1. The figure shows the coefficients from annual cross-sectional OLS regressions of year-ahead operating cash flows on a single predictor of CFO in comparison with NI, EBIT, and EBITDA. Moving clockwise with the starting point top-left, the predictors that are shown are CFO and the earnings measures, NI, EBIT, and EBITDA. Solid lines represent the earnings measures, and the dashed lines represent the CFO. See Table 1 for the definitions of the variables.

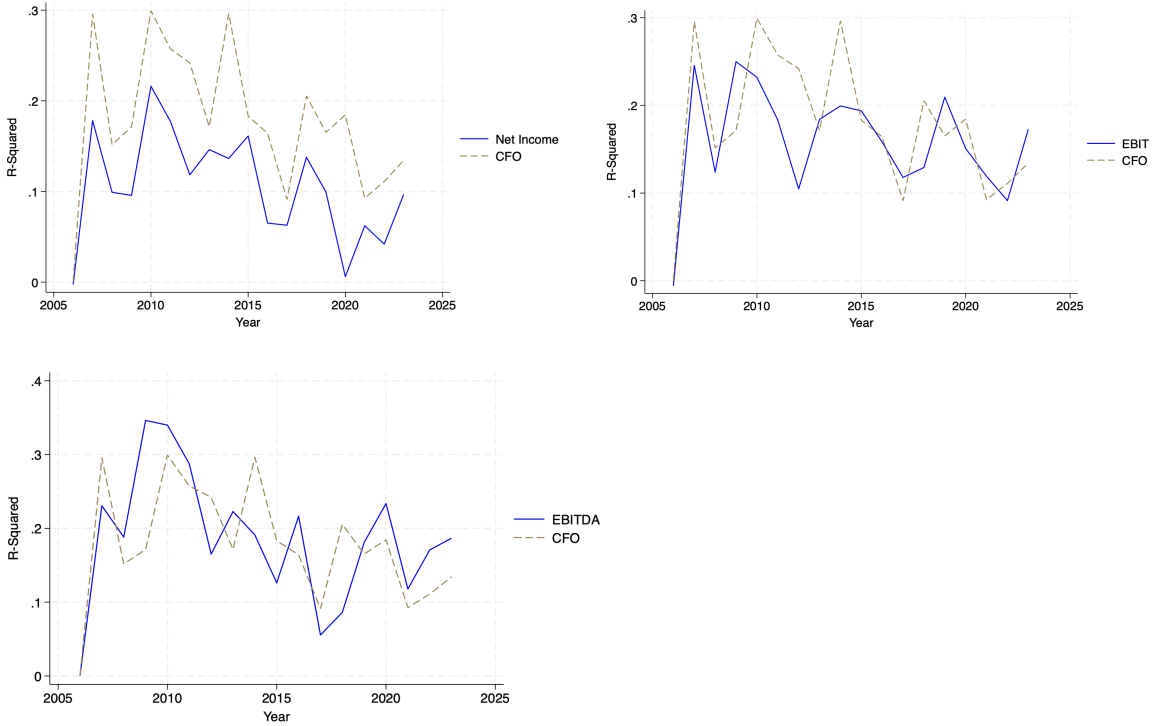


Figure 2. The figure shows R-squared values from annual cross-sectional OLS regressions of year-ahead operating cash flows on a single predictor of CFO, NI, EBIT, and EBITDA. Moving clockwise with the starting point top-left, the predictors that are shown are CFO and the earnings measures, NI, EBIT, and EBITDA. Solid lines represent the earnings measures, and the dashed lines represent the CFO. See Table 1 for the definitions of the variables.

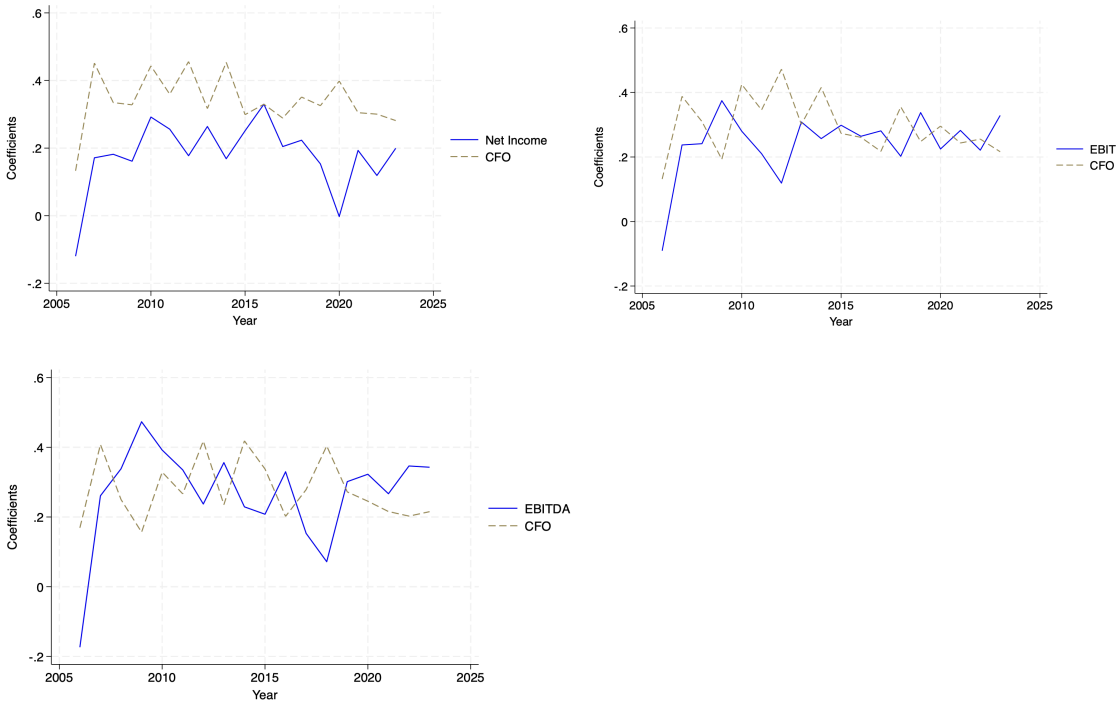


Figure 3. The figure shows the coefficients from annual cross-sectional OLS regressions of year-ahead operating cash flows on two predictors: one earnings measure and operating cash flows. Moving clockwise with the starting point top-left, the predictors that are shown are CFO and the earnings measures, NI, EBIT, and EBITDA. Solid lines represent the earnings measures, and the dashed lines represent the CFO. See Table 1 for the definitions of the variables.