W kierunku umiędzynarodowienia / Towards internationalization

The predictive power of comprehensive income in Polish companies listed on the Warsaw Stock Exchange

KATARZYNA BAREJA *, *MAGDALENA GIEDROYĆ* **,
MAŁGORZATA WRZOSEK ***

Abstract

Poland is historically classified within the Continental European model of accounting. The aim of the paper is to find the answer to the question of whether the Anglo-Saxon measure of financial results, which is comprehensive income, introduced into Polish reporting practice by the implementation of IFRS, has better predictive power than net income. The consequences of reporting comprehensive income are still a research gap in Poland. This article fills the gap regarding the predictive value of comprehensive income on the Polish market, and at the same time, it constitutes a contribution to global research in this area. The content presented in this article was developed using studies of the domestic and foreign literature. The methodology adopted in our study refers to the commonly used methodology of quantitative research on value relevance and the predictive value of comprehensive income. Our results indicate that net income and comprehensive income have the same predictive value for future performance. The research showed that neither other comprehensive income as a single indicator nor separate items of other comprehensive income has significant predictive power for future performance. The results of our research may help legislative bodies to make decisions on whether to extend the financial statement by requiring the statement of comprehensive income. In addition, our study presents, in a very broad way, the results of the latest research on NI and CI.

Keywords: comprehensive income, predictive power, relevance.

Streszczenie
Wartość predykcyjna dochodu całkowitego w polskich spólkach notowanych na warszawskiej Giełdzie Papierów Wartościowych

Rachunkowość w Polsce zaliczana jest do modelu kontynentalnego rachunkowości. Dlatego interesują-cym zagadnieniem wydaje się odpowiedź na pytanie, czy anglosaska miara dokonań, jaką jest dochód

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* Katarzyna Bareja, PhD, associate professor, SGH Warsaw School of Economics, Institute of Accounting, Collegium of Management and Finance, ORCID: 0000-0002-7259-8940, kbarej@sgh.waw.pl

** Magdalena Giedroyć, PhD, associate professor, SGH Warsaw School of Economics, Institute of Accounting, Collegium of Management and Finance, ORCID: 0000-0002-8736-1970, mgiedr@sgh.waw.pl

*** Małgorzata Wrzosek, PhD, associate professor, SGH Warsaw School of Economics, Institute of Econometrics, Collegium of Economic Analysis, ORCID: 000-0002-8008-013X, mwrzos@sgh.waw.pl

całkowity, wprowadzona do raportowania finansowania przez implementację MSSF, ma większą wartość prognostyczną niż wynik finansowy netto. Konsekwencje raportowania dochodu całkowitego w tym zakresie nadal stanowią lukę badawczą w polskiej literaturze przedmiotu. Artykuł, uzupełniając lukę odnośnie do wartości prognostycznej dochodu całkowitego raportowanego przez polskie podmioty notowane na rynku kapitałowym, stanowi równocześnie wkład do literatury światowej poświęconej temu tematowi. Artykuł został napisany po przestudiowaniu badań polskich i zagranicznych dotyczących dochodu całkowitego. Zastosowana metodologia wpisuje się w powszechnie stosowaną metodologię badań ilościowych z obszaru tzw. *value relevance research*. Nasze wyniki wskazują, że wynik finansowy netto oraz dochód całkowity mają taką samą siłę predykcyjną dla przyszłych dokonań. Badanie wykazało, że ani inne dochody całkowite jako jedna wielkość ani inne dochody całkowite rozbite na elementy nie są istotne w prognozowaniu przyszłych dokonań. Taka konkluzja może pomóc twórcom prawa bilansowego, w podjęciu decyzji, czy rozszerzać sprawozdawczość finansową w Polsce o sprawozdanie z dochodów całkowitych. Ponadto nasze badanie obszernie prezentuje wyniki najnowszych badań na temat zysku netto i dochodów całkowitych.

Słowa kluczowe: dochód całkowity, wartość predykcyjna, relewantność.

Introduction

Historically, two approaches can be observed in the debates on income reporting. Under the first approach, the current operating performance income concept, extraordinary and nonrecurring gains and losses, are excluded from income. Under the second, the all-inclusive income concept, all revenues, expenses, gains, and losses recognised during the period are included in income, regardless of whether they are considered to be results of operations of the period (SFAS 130, pp. 4–5). The second approach is called the comprehensive income concept. The comprehensive income statement provides a holistic view of the company's results which are not fully included in the profit or loss account.

Comprehensive income is a relatively new economic category in financial reporting practice. The concept of comprehensive income in its present form first appeared in US GAAP in the Statement of Financial Accounting Standards No. 130 – Reporting Comprehensive Income, and was effective for fiscal years beginning after December 15, 1997. As a result of the convergence of US GAAP and IFRSs, the International Accounting Standards Board (IASB) revised IAS 1 in 2007, demanding that starting in 2009, entities present comprehensive income (CI) as an overall measure of performance as a sum of net income (NI) and other comprehensive income (OCI) components. Both the FASB and IASB are still dealing with their policy deliberations in providing guidance associated with OCI reporting that focuses on the needs not only of investors but also of creditors (Huang et al., 2016, p. 206). Recently, the presentation of OCI has changed with the introduction of IFRS 9.

The aim of financial reporting should be to provide information to help users assess the prospects for future net cash inflows to the entity (Conceptual Framework, 2010, 2018). All the amendments to IFRS should increase the usefulness of reporting information. As IFRS change constantly, it seems obvious that research on the predictive value of reporting items should be carried out. In line with the objective stated in the

Conceptual Framework, the main aim of this paper is to find out whether the current comprehensive income of Polish listed companies has better predictive value than the current net income for year-ahead cash flow from operations (CFO), comprehensive income and net income. There is a range of views on whether comprehensive income has a better predictive value (e.g., Dhaliwal et al., 1999; Jones, Smith, 2011; Incollingo et al., 2014; Palea, Scagnelli, 2017). To achieve the main aim, we compared the distributions of NI and CI, then analysed the structure of OCI disclosed in Polish companies' financial statements, and whether it has changed from 2009. Finally, we tested if separate components of OCI have a predictive value for future CFO and future NI.

The content presented in this article was developed using studies of the domestic and foreign literature. The methodology adopted in the study refers to the commonly used methodology of quantitative research on value relevance and the predictive power of comprehensive income (Dhaliwal et al., 1999; Pronobis, Zülch, 2010, 2011). Additionally, we use descriptive statistics.

Using a sample of 601 firm-year observations of companies listed on the Warsaw Stock Exchange over the 2009–2017 period, we found that the distribution of comprehensive income was similar to the distribution of net income. So, we decided that there was no use looking for the difference between NI and CI in explaining future operating cash flows and future NI, as the almost perfect similarity of distributions of NI and CI showed that there could be no difference in their predictive value. However, as the difference between NI and CI could be comprised of several components, some of them might have positive values and others negative values. So, we decided to go deeper into the components of OCI to find out if the counterbalance effect could exist and explain why the value of OCI was close to zero.

The specific research questions investigated in the first part of the study are:
- What are the value and standardised value of components of OCI, and did they change between 2009 and 2017?
- What components of OCI do Polish companies report in their statements of other comprehensive income?
- What component of OCI is the most often reported?
- Do components of OCI have predictive power for future CFO and future NI?

In Poland, IFRS have been applied to listed companies since 2005. The statement of profit or loss was the primary element of the financial statement that provided useful information on the results of the entity's performance. Since 2009, public companies listed on the Warsaw Stock Exchange (WSE) that prepare their financial statements in accordance with IFRS have been required to disclose comprehensive income.

The motivation to focus primarily on Polish companies is because there are relatively few empirical studies that have explored this issue in Central and East European countries. These countries were historically classified to the Continental European model of accounting. The main capital suppliers in these countries were creditors for whom the financial statements were prepared. So, the primary objective of the financial statement was to provide information to creditors based on the prudence principle. Conservative accounting is contrary to comprehensive income, which originated in fair

value accounting. The mandatory adoption of the Anglo-Saxon driven IFRS in 2005 in Continental European model countries did not fully change the attitude to the purpose of financial reporting.

Poland is interesting to investigate because the Polish capital market has been developing for almost 30 years but remains immature compared to countries which are the subject of the majority of previous studies (Meluzin et al., 2018, p. 476). One aspect of an immature capital market is that the users of financial statements do not fully explore the usefulness of new reporting categories and do not require that preparers pay attention to them in the reporting process. Many differences in accounting policies chosen by companies in Poland could lead to different accounting practices and thus to the different usefulness of accounting amounts (Kvaal, Nobes, 2010, 2012), including the predictability of different accounting categories.

As companies have the possibility to choose from several options, the gains and losses recognised in OCI could differ across countries, leading to different levels of the predictive value of OCI. Moreover, as some researchers show, there are national patterns of IFRS practices which justify the choice to study a single country (Ball, 2006; Nobes, 2008; Kvaal, Nobes, 2010, 2012; Nobes, Parker, 2012; Nobes, Stadler, 2015). Research which is based on one selected country helps reduce the problems and biases that could result from differences in institutional environments (Pronobis, Zülch, 2010, 2011; Hung, Subramanyam, 2007).

Our study contributes to the broad literature by filling the gap regarding the predictive power of comprehensive income as opposed to NI, and it explores the structure of OCI in Polish companies listed on the WSE. At the same time, it contributes to international research in this area. Globally, the paper addresses the IASB's deliberation on the future shape of performance reporting. Locally, it addresses Polish accounting rules. In Poland, the comprehensive income statement is currently prepared only when the entity applies IFRS. The Polish Accounting Act does not require comprehensive income reporting. There is no such category in financial statements prepared under Polish rules. Thus, the results of our research may help legislative bodies make decisions on whether to extend the financial statement by requiring the statement of comprehensive income. In addition, our study presents, in a very broad way, the results of the latest research on NI and CI. It is unique research as it shows the structure of OCI and its changes from the beginning of its obligatory disclosures.

1. Background

The concept of comprehensive income includes net income (having realised and unrealised components) and other comprehensive income (consisting of unrealised components) for the period. Unrealised components are transitory. Entities applying IAS/IFRS are required to present in their financial statements the following (*IAS 1*, paragraph 7):

1. Changes in revaluation surplus.
2. Actuarial gains and losses on defined benefit plans.
3. Gains and losses arising from translating the financial statements of a foreign operation.
4. Gains and losses from investments in equity instruments measured at fair value through other comprehensive income.
5. The effective portion of gains and losses in hedging instruments in a cash flow hedge.
6. For particular liabilities designated as at fair value through profit or loss, the amount of the change in fair value that is attributable to changes in the liability's credit risk.
7. Gains and losses on financial assets measured at fair value through other comprehensive income.
8. Changes in the value of the time value of options when separating the intrinsic value and time value of an option contract and designating as the hedging instrument only the changes in the intrinsic value.
9. Changes in the value of the forward elements of forward contracts when separating the forward element and spot element of a forward contract and designating as the hedging instrument only the changes in the spot element, and changes in the value of the foreign currency basis spread of a financial instrument when excluding it from the designation of that financial instrument as the hedging instrument.

It is worth emphasising that, initially, the range of other comprehensive income included only five items. Items 6, 8, 9 were added in accordance with the development of IFRS 9. Moreover, unrealised gains or losses on the remeasurement of financial assets were split into non-reclassified OCI on equity instruments and reclassified OCI on debt instruments (item 4 and item 7, respectively).

In the literature, one can find arguments for both the predominance of CI over NI and the reverse.

Arguments for the predominance of CI are:

1. Income measured on a comprehensive basis measures firm performance better than other summary income measures because it includes all changes in the net assets of a firm during a period from nonowner sources (AAAFASC, 1997).
2. This concept is based on viewing income as a change in the wealth of the company's owners (Szychta, de la Rosa, 2012, p. 141).
3. Disaggregating earnings into components enhances the prediction of future performance (Fairfield et al., 1996, p. 337; Barth et al., 2001, p. 28).
4. The more prominent presentation of CI/OCI reduces earnings management behaviour (Cao, 2017, p. 5).
5. Investors are more likely to incorporate CI/OCI information into the performance evaluation when these elements are presented in the performance statements (Hirst Hopkins, 1998; pp. 68–69, Maines, McDaniel, 2000, p. 179).
6. Fair values (on which the OCI is based) are generally assumed to provide greater predictive value than historical cost measures because they:

    a. reflect current market conditions;

    b. capture the most informed expectations of future cash flows;

    c. impound the expectation of future costs.

Arguments for the predominance of NI are:

1. The inclusion of extraordinary and nonrecurring items impairs the ability of income to reflect the firm's long-term cash flow prospects (Black, 1993, p. 3).
2. OCI items may not be indicative of future performance as unrealised holding gains and losses reverse, while exchange rates, discount rates and growth rates fluctuate (Graham, Lin, 2017, pp.76, 88).
3. The unrealised gains and losses in OCI are out of managers' control, and thus should not be used for performance evaluation (Yen et al., 2007, p. 63).
4. Empirical studies fail to find that performance reporting of CI/OCI increases investors' attention to this information (Cahan et al., 2000, p. 1276; Chambers et al., 2007, pp. 590-591; Schaberl, Victoravich, 2015, p. 246).
5. The US firms that switched the reporting location of OCI from the statement of shareholders' equity (SSE) to the statement of comprehensive income experienced a significant reduction in value relevance of OCI compared with firms that continued to report OCI in the SSE. Investors value OCI reported in the statement of comprehensive income only when the magnitude and volatility of OCI are important (Lin et al., 2018, p. 643).
6. Reporting OCI in the statement of comprehensive income may adversely affect the value relevance of OCI because it increases volatility and finally reduces the predictive value of accounting income (Lin et al., 2018, p. 643).
7. Managers may use their discretion with respect to fair values to manipulate earnings (an agency theory perspective), which weaken the predictive ability of income. Fair value through OCI measured at Level 2 or 3 makes OCI less persistent in comparison to net income (Yao et al., 2018, p. 65).

2. Literature review

The research on comprehensive income addresses the issue of the usefulness of comprehensive income, other comprehensive income and its components. These studies focus on value relevance, predictive value and the persistence of performance metrics. Other studies address the reporting location. There is also a body of studies that aims to synthesise the attributes of comprehensive income in order to make sense of its reporting practices.

    Empirical studies provide mixed evidence on the usefulness of comprehensive income, other comprehensive income and its components. In some studies, researchers find that net income is more value relevant or has better predictive value than comprehensive income, in other studies researchers show the opposite, i.e., that comprehensive

income is more value relevant or has more predictive value than net income. There are also studies that provide evidence that both net income and comprehensive income have the same value relevance or predictive value. In these studies, the researchers focused mainly on the association between net income, comprehensive income or components of other comprehensive income and price or returns, as well as future cash flows or future earnings. Research which looks for an association between performance metrics and price or return relies on the hypothesis of market efficiency, which assumes that all available information regarding future dividends is reflected in share prices (Cauwenberge, de Beelds, 2007). Another string of research sticks to IASB's view that earnings should be useful for predicting future cash flows (Conceptual Framework for Financial Reporting, 2010, 2018), and it checks how accounting data on performance explains actual future cash flows or actual future earnings. Those studies focus mainly on the association between performance measures and future operating cash flows, future net income or future comprehensive income, as reported in the financial statements. Moreover, we can distinguish research on the value relevance of earnings measures and their predictive power conducted in mixed macroeconomic conditions, for a single country or a group of countries. Other comprehensive income has been the subject of many analyses in Continental European model counties, e.g., Italy (Incollingo, 2014; Incollingo et al., 2014, Veltri, Ferraro 2018), the Netherlands (Wang et al., 2006), Germany (Ernstberger, 2008; Pronobis, Zülch, 2010, 2011), and Greece (Tsalavoutas et al., 2012), as well as in Anglo-Saxon counties, e.g., Australia (Barth, Clinch, 1998; Banks et al,. 2017), New Zealand (Cahan et al., 2000, Kabir, Laswad, 2011, Khan et al., 2018), Canada (Kanagaretnam et al., 2009), and the USA (Cheng et al., 1993, Dhaliwal et al., 1999; Biddle, Choi, 2006, Chambers et al., 2007, Jones Smith, 2011; Schaberle, Victorvich 2015; Bratten et al., 2016; Edinger et al., 2019), and in the rest of the world, e.g., China (Wang et al., 2018) or Japan (Kubota et al., 2011), and finally for a group of countries (Isidro et al. 2006; Barton et al. 2010; Goncharov, Hodgson 2011; Mechelli, Cimini, 2014; Palea, Scagnelli 2017).

The first studies to use *as if* data were carried out in the US before and around the Statement of Financial Accounting Standards no. 130 was enforced in 1997, or in other countries before and around the change of IAS 1 in 2009. Recently, a new approach has appeared where *as reported* data are in use. As Jones and Smith (2011) emphasised, in American settings, *as reported* data studies give contrasting results to *as if* studies. Nowadays, such studies are gaining in popularity in countries where IFRS use is mandatory or permitted.

Many studies relate to the US or other Anglo-Saxon accounting systems. Cheng et al. (1993) studied the usefulness of three measures of earnings: operating income, net income and comprehensive income. The motivation for the research was the confusion regarding the definition of earnings rooted in two schools of thoughts: current operating income on the one hand and all-inclusive measure of income on the other hand with net income somewhere in between those two measures. The results show that the operating income of American firms had the highest association with residual returns, followed by net income.

A few years later, as a response to mandating the Statement of Financial Accounting Standards no. 130 in the US, D. Dhaliwal et al. (1999) examined a claim that income measured on a comprehensive basis is a better measure of performance than net income. In an association study context, they tested whether one of these two measures is more strongly associated with stock returns, the market value of equity, future operating cash flows and future income. They found no clear evidence that comprehensive income better summarises firm performance as reflected in stock returns. They also found that comprehensive income is less strongly associated with the market value of equity. Moreover, it turns out that net income better predicts future cash flows from operations and future net income than comprehensive income. More recent research that provides similar results and is related to different single countries or a group of countries include I. Goncharov and A. Hodgson (2011) for 16 European countries[1], P. Pronobis and H. Zülch (2010, 2011) for Germany, J. Barton et al. (2010) for 46 countries[2], H.M. Kabir and F. Laswad (2011) for New Zealand, A. Incollingo (2014) and A. Incollingo et al. (2014) for Italy, A. Mechelli and R. Cimini (2014) for 15 European countries, and L. Banks et al. (2018) for Australia.

Goncharov and Hodgson's (2011) results suggest that one single measure of comprehensive income does not improve information value relevance or measurement association and has a lower predictive ability; thus, net income is a better measure of performance from an investor's perspective. Pronobis and Zülch (2010, 2011) found no evidence that comprehensive income has a better predictive ability for future operating cash flows, future net income or future comprehensive income. However, some other comprehensive income components have incremental predictive power when longer than one-year periods are considered. Kabir and Laswad (2011) found that net income is more persistent than comprehensive income. Moreover, net income better explains stock returns, and there is no difference in the predictive power of net income and comprehensive income. However, other comprehensive income has the incremental ability to predict one-year-ahead operating cash flows. Barton et al. (2010) checked eight performance measures and found that comprehensive income has the lowest ability to predict operating cash flows.

As mentioned before, the results of empirical studies provide mixed evidence. There are studies that provide different findings than those so far presented.

The results of S.F. Cahan et al.'s (2000) research for New Zealand is at odds with the above studies. In their price relevance study, they found evidence that comprehensive income is a superior measure than net income. They also claim that individual items of other comprehensive income do not provide more relevant information than the aggregate comprehensive income. The research by S. Khan et al. (2018), conducted for New Zealand a few years later, again found a stronger association between aggregate comprehensive income and stock price and market returns relative to net income.

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[1] Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom.

[2] Including Poland; the sample for Poland is 41 firms and 220 firm-years.

G.C. Biddle and J.H. Choi (2006) showed that decision usefulness is enhanced with the introduction of comprehensive income for American firms. Biddle and Choi also studied the predictive ability of measures of performance: for future operating income, they found that no income measure clearly dominates the other; for future net income and future comprehensive income, they found that comprehensive income dominates net income; and for future operating cash flows, they showed that net income dominates comprehensive income. Moreover, they studied the usefulness of net income and comprehensive income for contracting purposes. Net income appears to be a better measure for decision usefulness.

K. Kanagaretnam et al. (2009) obtained similar results to Biddle and Choi (2006) in terms of value relevance for Canadian firms. Their research results suggest that one single measure of comprehensive income and separate components of other comprehensive income – available for sale and cash flow hedges components – are more strongly associated with both stock price and returns. Moreover, aggregate comprehensive income is a better predictor of future cash flows than net income. However, net income outperforms comprehensive income in predicting future net income.

Conflicting result of the usefulness of performance measures can also be found in research examining the influence of the reporting location of comprehensive income. P.D. Schaberl and L.M. Victoravich (2015) found a decline in the value relevance of other comprehensive income for American firms that were required to change their reporting location from the statement of equity to a performance statement. S. Lin et al. (2018) obtained similar results, again for American firms. They found that investors prized other comprehensive income reported in the statement of equity while investors prized other comprehensive income reported in the statement of performance only during financial crisis period when volatility and magnitude of these items increased. The results for European countries, Australia and China, are different from the above findings. Mechelli and Cimini (2014) concluded that the location of comprehensive income and total other comprehensive income of European companies does not affect their value relevance. L. Banks et al. (2018) found that items of other comprehensive income of Australian firms are less value relevant than net income, regardless of the reporting location. The reporting location does not change the value relevance measured in the association study. Y. Wang et al. (2018) found for Chinese companies that reporting other comprehensive income significantly improves its value relevance.

Value relevance and the predictive power of comprehensive income is not often a subject of study in Poland. Our research aims to fill that gap. Nonetheless, two previous studies are worth mentioning. A. Piosik (2016) researched the influence of OCI on the persistence of comprehensive income. He claims that OCI does not reduce the persistence of comprehensive income in comparison to the persistence of net income. A. Sajnóg (2016, 2017a, 2017b) studied whether comprehensive income predicts better future net income, future comprehensive income and future operating cash flows than net income. He used data from separate quarterly financial statements of 27 firms included in the WIG 30 index to predict net income and comprehensive income, and separate half-yearly financial statements of 22 electro-engineering firms to predict operating

cash flows. He found that net income is better at predicting two measures of future performance but slightly worse in predicting future operating cash flows. In our opinion, the quarterly or half-yearly data in his studies make the results unclear, as the researcher did not explain if seasonality had been removed from the data or if the analytics were modified to avoid measurement errors of comparing quarter after quarter or half-year after half-year data. Yearly financial statements and their data are a more reliable source of information as they are audited. Half-year reports are subject to a less detailed interim review than a regular yearly audit. Quarterly reports are neither reviewed nor audited. Moreover, our results, which were obtained for a bigger sample and a longer time span, using yearly reports, are contrary to Sajnóg's findings.

There are other studies on comprehensive income in Poland outside the scope of value relevance and predictive value research or contracting usefulness research. They study the form of the presentation of the OCI component in the statement of comprehensive income, the statement of financial position and notes. Some major examples of these surveys are E. Walińska and B. Bek-Gaik (2011), A. Szychta (2010, 2012), A. Szychta and D. de la Rosa (2012), B. Bek-Gaik (2012, 2013), J. Gad (2014, 2015, 2016), and P. Prewysz-Kwinto (2018). They document the diverse practice of reporting the same information under a different name and in a different form, which, in general, causes difficulties in obtaining comparable data.

In order to clearly distinguish the conflicting findings of the research, Table 1 presents the main studies on the predictive power of net income, comprehensive income and other comprehensive income. The table supports the claim that further studies on that topic are needed.

Table 1. Findings of main studies on the predictive
power of comprehensive income

Study	Country	Conclusions
Dhaliwal et al. (1999)	US	Net income better predicts future cash flow from operations and future net income than comprehensive income
Choi, Zang (2006)	US	Comprehensive income is incrementally useful in predicting subsequent period changes in net income Comprehensive income can predict subsequent period net income, over and above current period net income
Biddle and Choi (2006)	US	Comprehensive income dominates net income in predicting future net income and future comprehensive income Net income dominates comprehensive income in predicting future operating cash flows

Study	Country	Conclusions
Kanagaretnam et al. (2009)	Canada	Net income is a better indicator of future net income than aggregate comprehensive income. Aggregate comprehensive income is a better predictor of future cash flows than net income
Pronobis and Zülch (2010, 2011)	Germany	There is no evidence that comprehensive income has a superior predictive power for future firm operating performance (measured as operating cash flows, net income or comprehensive income) than net income
Jones and Smith (2011)	US	Special items included in net income are consistently positively associated with both future net income and future cash flows. In contrast, other comprehensive income predicts future net income and future cash flows for some but not all periods, and the magnitude of the relation is smaller than for special items in net income
Kabir and Laswad (2011)	New Zealand	There is a slight difference in the predictive power of net income and comprehensive income. The predictive ability of comprehensive income for one-year ahead operating cash flows and one-year ahead net income is slightly higher than that of net income. Other comprehensive income has the incremental ability to predict one-year ahead operating cash flows. The incremental ability of other comprehensive income to predict one-year-ahead net income is not statistically significant
Goncharov and Hodgson (2011)	16 European countries	When income is determined on a single comprehensive income basis, the predictive power for operating cash flows drops significantly. Components of other comprehensive income have lower predictive ability compared to net incom
Incollingo (2014)	Italy	There is a lack of association between CI and future operating cash flows. Net income and some components of other comprehensive income are positively associated with future operating cash flows
Sajnóg (2016, 2017a, 2017b)	Poland	Comprehensive income better predicts future net income, future comprehensive income and future operating cash flows compared to net income

Tab. 1 cont.

Study	Country	Conclusions
Bratten et al. (2016)	US Banks	Fair value-based other comprehensive income and its individual components predict future bank earnings both one and two years ahead
Palea (2017)	Banks from France, Germany, Italy and Spain	Comprehensive income has predictive ability for future cash flows, which is higher than net income only for greater lags of time
Graham and Lin (2018)	US	OCI-influenced expenditures are not associated with future profitability, suggesting such expenditures are not value-creating

Source: own elaboration based on the literature.

The mixed evidence shown in the literature review provides the motivation to examine whether, in fact, the Anglo-Saxon measure of financial results, which is comprehensive income, adopted by Polish companies listed on the WSE, makes it possible to predict future performance better than the net income. It is timely to provide evidence on the predictive value of comprehensive income relative to net income.

3. Sample and the area of study

We began our sample selection with firms included in the WIG index, which comprises all companies listed on the WSE Main List. We obtained data from the Bloomberg database. Much of the data on comprehensive income was not available, so we had to handpick them. We wanted to include firms that were listed on the Warsaw Stock Exchange Main Market during 2009-2017. The first annual period for which companies preparing financial statement under IAS/IFRS had to report comprehensive income was 2009, while 2017 was the last annual period for which consolidated financial statements were used. We listed firms according to their weight in the index. It turned out that the first 150 firms reported other comprehensive income. The rest of the firms very rarely reported other comprehensive income.

Moreover, our research was limited to firms for which comprehensive income was different from net income for at least four years. So, the sample comprised 601 firm-years, which was the annual data of 73 firms between 2009 and 2017. For the majority of firms, the explanatory variables came from the period 2009-2016 and the dependent variables from the period 2010-2017. Values of CFO, NI, OCI components and CI were expressed in PLN millions. The difference between CI and NI values determines OCI.

As OCI was different from zero, we analysed the difference in NI and CI distributions. Table 2 reports descriptive statistics for NI and CI expressed in PLN millions.

Even though OCI was different from zero, it turned out that values of the statistics for NI and CI were similar. Therefore, the two-sample Kolmogorov-Smirnov test was used to compare CI and NI distributions. The null hypothesis in this test is that both populations have the same distributions. The Kolmogorov-Smirnov statistic D equals 0.02995, and the p-value in this test equals 0.9503, so we fail to reject the null hypothesis.

Table 2. Descriptive statistics for NI and CI expressed in PLN millions

Variable	Minimum	1st Quartile	Mean	Median	3rd Quartile	Maximum
CI	−6,499	24.17	400.41	75.84	306.94	11,425
NI	−5,828	26.43	394.91	75.59	336.13	11,128

Source: own elaboration.

Figure 1, which shows the decile distributions of NI and CI expressed in PLN millions, indicates that not only the means but also the distributions are similar.

Figure 1. Graph of the CI and NI distributions after grouping values
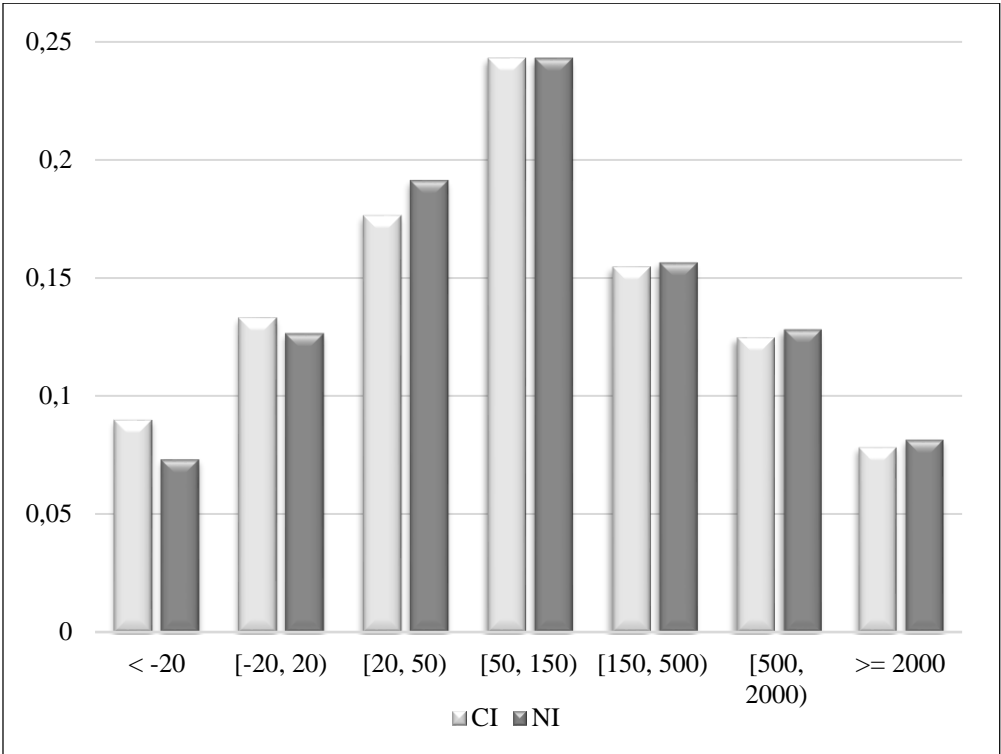
Source: own elaboration.

As it turned out, the difference between CI and NI distributions was insignificant, so there was no point testing the predictive value of NI versus CI (the approach introduced by Dhaliwal et al.[3], 1999 and Pronobis and Zülch[4], 2010, 2011, with roots in Fama and French[5], 1997). OCI, as one indicator, has no predictive power, so in the next step, we decided to analyse the structure of OCI and the predictive power of its separate components. We hand-picked items of OCI. Then we analysed only four of them i.e., actuarial gains and losses on defined benefit plans (PENS), gains and losses arising from translating the financial statements of a foreign operation (FOREX), gains and losses from investments in financial assets measured at fair value through other comprehensive income (AFS), and gains and losses in hedging instruments (HEDGE). We focused on them because they were the main items reported; other items (property, plant and equipment revalued to their fair value, and the share of associates and joint ventures in OCI) were disclosed randomly or had immaterial values. We collected and analysed the gross amounts of items of PENS, FOREX, AFS, and HEDGE. So, the whole amount of OCI calculated as CI less NI was different from the sum of these four components, as OCI also included income tax as well as rarely reported components.

As mentioned, some components of OCI might have positive values and others negative values. In order to test whether a counterbalance effect could exist and could be the explanation of the lack of difference between the NI and CI distributions and the predictive power of NI and CI, we decided to build a model following the approach adopted by Pronobis and Zülch (2010, 2011). Prior to building the models, values used in the analysis were standardised using total assets (TA) for the previous year, i.e., for the period t-1. The dependent variables were CFO for the period t+1 or NI for the period t+1. We don't present results for CI as they are the same as for NI. The explanatory variables were NI, and five components of OCI: PENS, HEDGE, AFS, FOREX, OTHERS (the difference between OCI and the sum of PENS, HEDGE, AFS, FOREX) for the period t. The variables denoting PENS, HEDGE, AFS and FOREX, were constructed in two versions. Once they were used in their standardised values reported by companies, and in the case of a lack of data, we used zero. Otherwise, we used dummy variables, which had a value of 1 when companies reported items and 0 for the lack of

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[3] Dhaliwal et al. (1999) use three variables: dividends, the market to book ratio and leverage as control variables.

[4] Pronobis and Zulch (2010, 2011) use the following variables: dividends, book to market ratio and debt to equity ratio. They explain the use of debt to equity ratio as controlling for "financial leverage which may affect future operating performance through the level of cost of capital, investment restrictions caused by covenants etc."

[5] Fama and French (1997 – unpublished paper, 2000 – published paper) use three variables to explain whether current profitability helps explain expected profitability: dividends to the book value of common equity, a dummy variable for dividend payers and nonpayers, and market to book ratio. They use explanation provided by Miller and Modigliani (1961) that dividends provide information about future earnings because firms target the dividend to the permanent component of earnings. Any variation in expected profitability missed by the dividend variable is controlled by the market value of the firm, which is the current value of all future net cash flows.

data. Moreover, four explanatory variables were added[6], i.e., the dividend paid (DIV), price to book ratio (PTB), debt to equity ratio (DTE) and CIN (the dummy variable for the relationship between CI and NI, whether it is CI>NI or vice versa). As a result of the time difference between the dependent and independent variables, the sample for the model decreased to 522 firm-years.

The two models testing the predictive value of NI adjusted for components of OCI are as follows:

Model 1

$$CFO_{t+1} = \alpha_0 + \alpha_1 NI_t + \alpha_2 PENS_t + \alpha_3 HEDGE_t + \alpha_4 AFS_t + \alpha_5 FOREX_t + \\ + \alpha_6 OTHERS_t + \alpha_7 DIV_t + \alpha_8 PTB_t + \alpha_9 DTE_t + \alpha_{10} CIN_t.$$

Model 2

$$NI_{t+1} = \alpha_0 + \alpha_1 NI_t + \alpha_2 PENS_t + \alpha_3 HEDGE_t + \alpha_4 AFS_t + \alpha_5 FOREX_t + \\ + \alpha_6 OTHERS_t + \alpha_7 DIV_t + \alpha_8 PTB_t + \alpha_9 DTE_t + \alpha_{10} CIN_t.$$

4. Results

In the sample period 2009-2017, there was a growing share of companies reporting OCI. In 2009, 57 companies out of the 73 surveyed firms reported OCI. In 2010, this number had increased to 61, and in 2011 there was another increase of three companies. In 2012, OCI was reported by 65 firms and the following year had the highest increase in the number of companies, by as many as five. In 2017, the number was 72 companies out of the 73 covered by the survey.

The number of companies which reported OCI for the studied period is shown in Table 3. There were no companies that reported all four main items of other comprehensive income, i.e., AFS, PENS, FOREX and HEDGE, in 2009 or 2010. Only one company reported four items in 2011. Since then, the number of companies reporting these components has increased. Table 3 presents the number of companies reporting four components of OCI in consecutive years. Moreover, as Table 3 indicates, each year witnessed more companies reporting three items of OCI, but on the other hand, the number of companies reporting one or two items was constant. Since 2014, the number of OCI items has been almost stable.

Of the companies in the sample, only 11 recognised all four selected OCI items in any year of the sample period. It was impossible to find any pattern they had in common – they were companies from different sectors and of different sizes.

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[6] Pronobis and Zülch (2010, 2011) indicate the reason for using these variables and call them *moderating variables*.

Table 3. Number of companies reporting four main items of OCI

Year	Number of OCI items among sample companies					Number of companies
	0	1	2	3	4	
2009	3	27	19	8	--	57
2010	4	27	21	9	--	61
2011	3	26	25	9	1	64
2012	2	28	19	12	4	65
2013	2	23	20	20	5	70
2014	--	27	18	18	8	71
2015	--	24	20	21	6	71
2016	--	21	21	20	8	70
2017	--	23	20	21	8	72

Source: own elaboration.

The most often reported item of OCI was FOREX. PENS item was rarely reported at the beginning of the sample period but gained attention from 2012 on. It is likely the result of the changes in IAS 19 regarding recognition of actuarial gains and losses in other comprehensive income. At the end of the sample period, more companies reported the HEGDE item than at the beginning, and the AFS item had a diverse trend. Details of the reporting pattern of OCI items are shown in Table 4.

Table 4. Percentage of companies reporting OCI item among sample companies

Year	OCI item			
	AFS	FOREX	HEDGE	PENS
2009	35.09.	73.68.	43.86.	3.51.
2010	34.43.	72.13.	49.18.	1.64.
2011	31.25.	76.56.	51.56.	7.81.
2012	32.31.	70.77.	47.69.	30.77.
2013	28.57.	68.57.	52.86.	54.29.
2014	26.76.	66.20.	54.93.	61.97.
2015	25.35.	64.79.	60.56.	61.97.
2016	30.00.	68.57.	60.00.	62.86.
2017	29.17.	68.06.	56.94.	65.28.

Source: own elaboration.

As OCI, along with NI, is the indicator of the benefits gained from assets, Table 5 shows what part of total assets at the beginning of the period constituted an OCI item, for subsequent years and for the whole sample.

Table 5. OCI value standardised by total assets at the beginning of the period

Sample	Minimum	1st Quartile	Mean	Median	3rd Quartile	Maximum
2009	–0.0473	–0.0007	0.0023	0.0007	0.0068	0.0602
2010	–0.0556	–0.0017	0.0014	0.0001	0.0009	0.0954
2011	–0.0298	–0.0002	0.0066	0.0011	0.0031	0.1740
2012	–0.0916	–0.0048	–0.0011	–0.0008	0.0021	0.0734
2013	–0.0628	–0.0027	–0.0010	–0.0002	0.0007	0.0509
2014	–0.0724	–0.0049	–0.0021	–0.0002	0.0020	0.0502
2015	–0.0315	–0.0029	–0.0011	–0.0001	0.0008	0.0285
2016	–0.0460	–0.0014	0.0034	0.0003	0.0038	0.0730
2017	–0.1101	–0.0043	–0.0035	–0.0001	0.0019	0.0475
Standardised OCI	–0.1101	–0.0025	0.0004	0.00003	0.0021	0.1740

Source: own elaboration.

The value of OCI seems irrelevant when it is compared to the amounts of total assets. Nevertheless, as those components had positive or negative value, it seems reasonable to investigate the statistics of the separate components of OCI, as shown in Table 6.

Table 6. Components of OCI standardised
by total assets at the beginning of the period

Standardised Variables	Minimum	1st Quartile	Mean	Median	3rd Quartile	Maximum
HEDGE	–0.0386	–0.0021	0.0007	–0.00003	0.0016	0.0589
FOREX	–0.1131	–0.0019	–0.0005	–0.00003	0.0008	0.1697
AFS	–0.0833	–0.0008	0.0012	0.00003	0.0015	0.1170
PENS	–0.0108	–0.0004	–0.0003	–0.00004	0.0001	0.0044

Source: own elaboration.

The final step of our research was to test the predictive power of the components of OCI for one-year-ahead CFO and NI. The sample used in the model was an unbalanced panel. So, we compared the pooled model and the model with fixed time effects. The results obtained are equivalent for both ways of constructing the PENS, HEDGE, AFS and FOREX variables. So, below, we display the results we obtained only from the version with standardised values reported by companies.

The model for future CFO is the model with fixed time effects. The parameters of the model with their statistics are presented in Table 7. There is no one explicit intercept for the fixed time effects model. The time-specific intercepts and their statistics are included in Table 8. The overall statistics[7] for the model are shown in Table 9. The F-statistics indicate whether all the coefficients in the model are different from zero.

Table 7. Coefficients for Model 1 explaining year ahead CFO

Variables	estimate	stderr	t-value	p-value
NI	0.1192	0.0484	2.4614	0.0142
DIV	−0.0013	0.0022	−0.5924	0.5539
PTB	0.0236	0.0033	7.2103	0.0000
DTE	−0.0093	0.0016	−5.8850	0.0000
CIN	0.0043	0.0102	0.4247	0.6713
PENS	0.0197	0.0123	1.6025	0.1097
HEDGE	0.0073	0.0105	0.6961	0.4867
AFS	−0.0089	0.0130	−0.6841	0.4942
FOREX	0.0016	0.0102	0.1578	0.8747
OTHERS	0.0084	0.0329	0.2558	0.7982

Source: own elaboration.

Table 8. The year-specific intercepts for Model 1 explaining year ahead CFO

Year	Fixed effect	stderr	t-value	p-value
2009	0.0476	0.0152	3.1305	0.0018
2010	0.0329	0.0151	2.1843	0.0294
2011	0.0453	0.0156	2.8946	0.0040
2012	0.0723	0.0139	5.2136	0.0000
2013	0.0450	0.0142	3.1639	0.0017
2014	0.0824	0.0139	5.9119	0.0000
2015	0.0545	0.0147	3.7213	0.0002
2016	0.0349	0.0154	2.2656	0.0239

Source: own elaboration.

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[7] Both models were built using the plm package in the R program. The statistics presented are the standard output of the procedure.

Table 9. The overall statistics for Model 1 explaining year-ahead CFO

Total Sum of Squares	5.5756
Residual Sum of Squares	4.3393
R-Squared	0.2217
Adj. R-Squared	0.1952
F-statistic	14.2163
p-value	< 2.22e–16

Source: own elaboration.

The p-values for the variables show the lack of predictive power of the separate components of OCI for future CFO. The analysis showed that in the model, three variables have significant predictive value: NI, PTB and DTE. PTB is closely connected with investors' expectations about future company performance based not only on information from the company's financial statements. It has a positive effect on predicting performance measures. DTE shows to what extent the enterprise is indebted and has a negative impact on future performance measures. However, the main conclusion for this research is that the values of the components of OCI do not impact future cash flows.

The model for future NI is the pooled model. The parameters of the model with their statistics are presented in Table 10, and the overall statistics for the model are presented in Table 11.

Table 10. Coefficients for Model 2 explaining year ahead NI

Variables	**estimate**	**stderr**	**t-value**	**p-value**
Intercept	0.0006	0.0071	0.0856	0.9318
NI	0.2575	0.0393	6.5474	0.0000
DIV	–0.0046	0.0017	–2.6431	0.0085
PTB	0.0256	0.0026	9.7331	0.0000
DTE	–0.0039	0.0012	–3.1971	0.0015
CIN	–0.0013	0.0070	–0.1863	0.8523
PENS	0.0385	0.3095	0.1242	0.9012
HEDGE	0.0143	0.0262	0.5439	0.5867
AFS	0.0115	0.0179	0.6434	0.5203
FOREX	0.2788	0.3137	0.8885	0.3747
OTHERS	0.0560	0.0853	0.6563	0.5119

Source: own elaboration.

Table 11. The overall statistics for Model 2 explaining year-ahead NI

Total Sum of Squares	4.4880
Residual Sum of Squares	2.9336
R-Squared	0.3464
Adj. R-Squared	0.3334
F-statistic	26.8111
p-value	$< 2.22e{-}16$

Source: own elaboration.

In this model, which explains future NI, there are four variables that are statistically significant: NI, DIV, PTB, and DTE. In this case, the components of OCI also do not impact the explanatory variable. In other words, OCI items do not influence future performance measured as CFO or NI.

Conclusions

The aim of the paper was to discuss the predictive power of CI in comparison to NI in Polish settings. As shown in the paper, the distribution of NI and CI is almost the same, so the predictive power of CI is the same as the predictive power of NI. OCI does not have predictive value for future performance. Moreover, as the analysis showed, separate components of OCI also do not explain future performance.

In our opinion, several reasons may explain the finding. First, in the analysed period, OCI is small in value, and a large standard deviation indicates large differences in its value between individual entities. Second, OCI items are transitory or result from "noisy market price movements" (Black, 2016, p.17), which means that OCI does not provide a very informative picture of the underlying changes in a firm's fundamental economic position. Third, OCI results from fair value accounting. In Poland – a country that historically belongs to the Continental European accounting model – OCI may not be fully understood by preparers and users. Moreover, it is likely that they don't regard OCI as important. These reasons are consistent with previous conclusions of Prewysz-Kwinto (2018), and A. Szychta, de la Rossa (2012). Fourth, as Prewysz-Kwinto (2018, p. 133) noticed, about 20% companies do not meet the requirements imposed by IAS 1 and do not divide OCI into OCI reclassified to the profit or loss account and OCI which are not reclassified. This means that information about OCI in Poland is not as important as in Anglo-Saxon countries. Similar findings can be found in Szychta and de la Rossa (2012, p. 141). They concluded that OCI is a new financial category, and Polish companies had to learn how to deal with it. But our finding indicates that although CI has been reported for nine years, it can still be perceived as difficult to comprehend (Hodgson and Russell, 2014 p.100–110), or OCI is inherently uninformative.

Our result indicates that the adoption of IFRS (high-quality, fair-value-oriented standards) is not fully sufficient to improve the usefulness of financial data disclosed in financial reporting understood as a tool for prediction of future performance. This should be a valuable observation for the creators of the Polish Accounting Act.

Our study is subject to limitations. Our sample is relatively small, which may influence the inferences. Moreover, the predictive value of NI and CI is only part of the story regarding the usefulness of financial reports for users. Users consider additional sources of information beyond accounting data. This research does not examine if users of financial statements actually use or ignore CI in making their decisions, or, in other words, if CI is somehow useful for them or if CI has a similar, higher or smaller predictive value than NI for users of financial reports. Besides the preparers of financial statements, users are also likely to grow accustomed to the new reporting practices (Lin et al., 2018, p. 643). There is a slight change in distributions of NI and CI in 2016. It may indicate a new trend which is the result of people becoming familiar with CI. It calls for further research in a few years.

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