

The economic nature of deferred income and the accuracy of the assessment of financial condition ratios

Ekonomiczny charakter przychodów przyszłych okresów a rzetelność oceny wskaźników kondycji finansowej

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Abstract

Purpose: Deferred income is one of the elements that may affect the accuracy of financial analysis. In many countries, it is recognized as a liability. The purpose of this article is to assess whether the economic nature of deferred income items is closer to equity or liabilities and to evaluate how their different treatment affects the accuracy of the assessment of the entity's financial condition. The research hypothesis assumes that certain categories of deferred income are, by their economic nature, closer to equity than to liabilities, and their different treatment significantly affects the accuracy of the assessment of the entity's financial condition.



Methodology/approach: The research methodology includes a critical analysis of the literature data and legal acts, the induction method, the descriptive method, and statistical methods.



Findings: The analysis showed that the economic character of deferred income varies; some items of deferred income can be classified as liabilities while the others are equity-type. The latter constitute a considerable share in the balance sheets of some entities. It has been found that treating them as equity while calculating financial ratios significantly affected their values.

Research limitations/implications: There are no grounds to reject the hypothesis. The study indicates the necessity to analyze the financial condition using modified financial ratios.

Originality/value: The study broadens the discussion of the economic nature of deferred income and improves the methodology and accuracy of the entity's financial analysis.

Keywords: financial analysis; accruals; deferred income; healthcare entities.

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Streszczenie

Cel: Jednym z elementów, które mogą wpływać na rzetelność analizy finansowej, są przychody przyszłych okresów. W wielu krajach są one wykazywane jako zobowiązania. Celem artykułu jest ocena, czy ekonomiczny charakter przychodów przyszłych okresów jest bliższy kapitałowi własnemu czy zobowiązaniom oraz ocena, jak różne ich traktowanie wpływa na rzetelność oceny sytuacji finansowej jednostki. Badaniu poddano następującą hipotezę: pewne kategorie przychodów przyszłych okresów są charakterem ekonomicznym bliższe kapitałowi własnemu niż zobowiązaniom, a odmienne ich traktowanie istotnie wpływa na rzetelność oceny kondycji finansowej jednostki.

Metodyka/podejście badawcze: Metodyka badań obejmuje krytyczną analizę literatury i aktów prawnych, metody indukcji i opisową oraz metody statystyczne.

Wyniki: Analiza wykazała, że charakter ekonomiczny odroczonego przychodu jest zróżnicowany. Niektóre z nich można traktować jak zobowiązania, inne zaś mają charakter kapitału własnego. Te ostatnie stanowią znaczny udział w bilansach niektórych jednostek. Stwierdzono, że traktowanie ich jak składniki kapitału własnego, przy obliczaniu wskaźników finansowych, znacząco wpłynęło na ich wartości.

Ograniczenia/implikacje badawcze: Nie ma podstaw do odrzucenia badanej hipotezy. Badanie wskazuje na konieczność analizy kondycji finansowej przy zastosowaniu zmodyfikowanych wskaźników finansowych.

Oryginalność/wartość: Badanie rozszerza dyskusję o ekonomicznej naturze przychodów przyszłych okresów i udoskonala metodykę oraz rzetelność analizy finansowej jednostek gospodarczych.

Słowa kluczowe: analiza finansowa, rozliczenia międzyokresowe, przychody przyszłych okresów, podmioty lecznicze.

Introduction

Deferred income is a specific accounting category. According to the accounting principles applied in many countries (including Poland), it is recognized and reported as a liability. This paper attempts to analyze the economic nature of deferred income items and to identify some of them as closer to equity than to liabilities. Subsequently, the significance of treating these specific deferred income items as equity for the accuracy of assessing the entity's financial condition is examined. The accuracy of financial analysis is crucial to make the right decisions about business entities. It is also essential for economic research in which financial ratios are used as a research tool – incorrect construction of those ratios leads the researcher to results which reliability is fundamentally uncertain. There are numerous articles that use various financial ratios without mentioning whether (and how) the specifics of deferred income were taken into consideration (e.g., Watkins, 2000; Bem et al., 2014; Lee, 2015). This confirms the importance of the presented study.

The purpose of this article is to assess whether the economic nature of deferred income items is closer to equity or liabilities, and to evaluate how their different treatment affects the accuracy of assessing an entity's financial condition.

The proposed hypothesis is as follows: certain categories of deferred income are, by their economic nature, closer to equity than to liabilities, and their differ-

ent treatment significantly affects the accuracy of the assessment of the entity's financial condition.

The research methods used in the study include a critical analysis of the literature data and legal acts, the induction method, the descriptive method, and statistical methods. The review of the literature and legal acts aimed to analyze the accounting and economic nature of deferred income and its importance from a financial analysis perspective. It was followed by a review of related empirical studies. The empirical research, which was conducted on a sample of medical units from the Lodz region, aimed to find whether treating deferred income as equity instead of liability significantly affects the values of financial ratios.

As a contribution to new knowledge, the authors:

- conducted a thorough analysis of the difference between the accounting and economic nature of deferred income, resulting in the conclusion that treating certain types of deferred income as equity in a financial analysis should not be a matter of choice, but a necessity; the types of deferred income were identified;
- studied the research problem identified by Lainez and Callao (2000) and Pereira et al. (2015) on a sample of entities from different accounting systems and different branches than covered by those studies; our research results are in line with previous findings.

1. The specifics of deferred income – the accounting vs. economic approach

According to the Accounting Act in Poland (Accounting Act, 1994, Appendix 1), one of the items reported as “liabilities and provisions for liabilities” in the balance sheet is “accruals” (see Table 1).

Table 1. Balance sheet structure according to the Polish accounting rules

Assets	Equity and liabilities
A. Fixed assets	A. Equity
B. Current assets	B. Liabilities and provisions for liabilities
C. Called-up share capital	I. Provisions for liabilities
D. Own shares (stocks)	II. Long-term liabilities
	III. Short-term liabilities
	IV. Accruals
	1. Negative goodwill
	2. Other accruals
	– long-term
	– short-term
Total assets	Total equity and liabilities

Source: Ustawa o rachunkowości z dnia 29 września 1994,
Dz. U. 2018, poz. 395 [Accounting Act of 29 September 1994].

As Table 1 shows, the “accruals” item consists of “negative goodwill” and “other accruals”. A part of the other accruals is deferred income. This structure of the balance sheet is an effect of implementing the 4th Directive (1978). The 4th Directive allowed national law to show deferred income as a separate item of the liabilities in the balance sheet. Deferred income is indicated in the Polish Accounting Act and is defined in the literature data (4th Directive, 1978, Art. 9). Moreover, the 4th Directive stated that income receivable before the balance sheet date, but relating to a subsequent financial year, must be shown under the “Accruals and deferred income” item (4th Directive, 1978, Art. 21). According to the Polish Accounting Act, deferred income is recognized in accordance with the principle of prudence. The regulations indicate the following items as examples of deferred income (Accounting Act, 1994, Art. 41):

- amounts equivalent to the consideration received or receivable from counterparties in business transactions for any services to be rendered by the reporting entity in future reporting periods;
- cash received to finance the acquisition or construction of property, plant, and equipment, including construction in progress, and development costs unless it is recognized in equity under separate regulations. The provisions also recognize as deferred income any property, plant, and equipment, construction in progress, and intangible assets received free of charge, including in the form of a gift. Amounts recognized as deferred income, in this case, increase other operating income on a time proportion basis, in parallel with depreciation or amortization charges recognized for property, plant, and equipment or development costs financed from those sources;
- negative goodwill referred to particular provisions.

According to Gmytrasiewicz and Karmańska (2006, p. 56), deferred income is a type of liability that prevents contractors’ potential claims. They are subject to certain conditions regarding the future. Jerzemowska et al. (2008, p. 89) presented an approach whereby deferred income is an obligation to perform arranged services (as the payment for these services had been received from the contractors beforehand).

The catalog of deferred income included in the Accounting Act is not closed, and it can be extended with the following examples (Godlewska, Fołta, 2015, p. 324; Sawicki et al., 2004, p. 327; Majewska, 2011, p. 577; Łukaszewicz, 2008, p. 69):

- amounts increasing the value of receivables and claims until payment, or make a write-down, e.g., interest for late payment of amounts due,
- due penalties and compensations,
- surplus of the contribution over the book value,
- canceled loans taken from special purpose funds to purchase or construct fixed assets, e.g., the State Fund for the Rehabilitation of the Disabled, the Labor Fund,
- revenues realized under long-term contracts, e.g., from construction and construction-assembly services,
- liabilities classified as canceled until the bank recognizes them as completed,

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- the purchase of bonds for an amount lower than the nominal value,
 - grants and subsidies for the construction of fixed assets and intangible assets, as well as for research and development,
 - additional amounts that increase the value of the claim (e.g., due to deficits and damages),
 - prepayments for services, prepayments (confirmed by an invoice) that will be made/delivered in subsequent reporting periods,
 - invoices issued in advance for services that will be provided in subsequent reporting periods (e.g., for one-year service/advertising or subscription to magazines),
 - fees in advance for a financial guarantee.

There are doubts in the literature data concerning the question of where some deferred income items should be shown in the balance sheet structure.

According to Pfaff (2017, p. 567), all the transactions entered as the deferred income in the books of account are shown in the accruals item of the balance sheet. Gmytrasiewicz and Karmańska (2006, p. 58) claim that amounts equivalent to the consideration received or receivable from counterparties in business transactions for any services to be rendered by the reporting entity in future reporting periods should be shown in the item of “payments received on account of orders” as a part of liabilities. However, they also state that due to the specific regulation of the accountancy law, they should be shown in a separate item of accruals that includes deferred income.

Pokojska (2018) presents an approach that such items should be shown in the “payments received on account of orders,” although they are treated as deferred income. As a consequence, the “other accruals” item in the balance sheet does not include “payments received on account of orders”, as Trzpióła (2018). Meanwhile, Świdorska and Więclaw (2016, p. 355) stated that entities may decide which item (“payments received on account of orders” or “other accruals”) should be used to show such transactions.

Despite the discrepancies, the above-mentioned authors agree that deferred income should be reported as liabilities, which is in line with the common accounting approach in Poland. However, the related economic literature reveals some doubts about this approach, especially considering the economic nature of certain types of deferred income.

It is easy to show that certain deferred income items will cause an obligation to pay in the future and, therefore, they are rightly treated as liabilities. However, there are certain deferred income items of a different economic nature: the probability that one day they will become a typical liability is very low. A good example is grants for the purchase of fixed assets, which, after receiving, are settled in time and reported in the subsequent periods as deferred income among liability items. From a legal perspective, such a grant does indeed remain a liability until the conditions set out in the contract between the donor and recipient of the grant are fully met. Yet, the economic perspective needs to evaluate the probability that the money received as a grant will have to be returned in the future

(i.e., the probability of negative cash flow in the future). Since neither party has an interest in breaching the terms of the contract, then the risk that these funds will have to be returned is very low. There are data confirming that many enterprises in Poland use various types of grants and subsidies, and reported cases of returning the money are rare (Tomaszkiewicz, 2014).

In this case, the settlement and reporting of deferred income as liabilities results from accounting principles, but its economic nature is closer to equity rather than to liabilities. This approach is consistent with Walińska, who also distinguished two groups of accruals: deferred income as liabilities and deferred income as equity (Walińska, 2014, pp. 315–316). Additionally, she presents other examples of this issue: there is no revenue in the case of receiving payments from pre-payments because the service has not been performed. Revenue will occur only in subsequent periods. On the other hand, cash as the asset of the company's balance sheet increases, so this advance payment should also be recognized as deferred income. When the company performs the service, deferred income will become the revenue of this future period. If the company fails to comply with the contract, deferred income will become a liability to the counterparty (Walińska, 2016, pp. 511–512). This is an example of deferred income that is closer by economic character to liability than to equity. It shows the heterogeneity of deferred income and means that the equity/liability character of specific items of deferred income should be analyzed individually.

It should be noted that the term “equity” is also not entirely unequivocal, and the character of particular components of this capital is the subject of discussion, as Frenzel (2016) points out. The simple inclusion of selected deferred income items in equity is also not obvious; therefore, we propose creating an additional position in the balance sheet, between equity and liabilities, for such items and called, e.g., “quasi-equity” or “semi-equity”. Some other items of liabilities can be identified that would, in our opinion, also fit such a category. More examples are given by Damodaran (2015, pp. 287–290), who indicates such items as convertible debt, preferred stock, and option link bonds. He argues that their economic nature is intermediate between equity and liabilities, and he uses the term “hybrid security”.

Since certain categories of deferred income can be treated as equity, we believe they should be excluded from liabilities and included in equity when calculating financial ratios that contain liabilities and/or equity in their formulas. Thus, it is necessary to verify these formulas, and it is presented in the next part of the article. Additionally, the influence of deferred income on the profitability ratios should be analyzed. To verify this, we use the term “equity-type deferred income” (ETDI), which we understand as those categories of deferred income that are closer by their economic nature to equity than to liability. To identify such ETDI items, we analyzed the specific items of deferred income and the probability that they would become a due liability. The analysis shows that the following items should be treated as equity in financial analysis:

- grants/subsidies,
- donations,

- canceled loans taken in special purpose funds for the purchase or construction of fixed assets, e.g., in the State Fund for the Rehabilitation of the Disabled, in the Labor Fund,
- amounts that increase the value of receivables and claims until payment or make a write-down, e.g., interest for late payment of amounts due,
- due penalties and compensations,
- additional amounts that increase the value of the claim (e.g., due to deficits and damages),
- negative goodwill referred to particular provisions,
- the purchase of bonds for an amount lower than the nominal value,
- surplus of the contribution over the book value,
- liabilities classified as canceled until the bank recognizes them as completed,
- fees in advance for a financial guarantee.

2. Deferred income in financial ratios – literature review

Deferred income is an element of accruals. The problem of how to treat accruals while calculating the financial ratios is shown differently in the literature. Some calculate it without indicating how the accruals should be treated (e.g., Pike et al., 2018); (Wieczorek-Kosmala, 2013). Others treat all accruals as liabilities without analyzing their economic nature (e.g., Moore, 2015); (Asquith, 2016). Only few authors see the need to analyze the economic nature of accruals from the financial analysis perspective (e.g., Vernimmen et al., 2014; Damodaran, 2001).

A common recommendation in the Polish literature data is that before starting an assessment of financial condition, a balance sheet that was prepared based on the Accounting Act should be converted into an analytical balance sheet. The balance sheet from the Accounting Act shows liabilities containing four main items, where the fourth item is accruals (see Table 1). The analytical balance sheet shows these liabilities reduced only to two items: long-term and short-term liabilities. With this transformation, it is more or less directly indicated that accruals should be treated as other liabilities (Jerzemowska, 2018, pp. 94–95); (Bławat et al., 2017, p. 57); (Kołosowska et al., 2018, pp. 85-86). As a consequence, all accruals are a component of total liabilities in the liabilities to assets ratio reported by, e.g., Jerzemowska (2018, p. 181), Walczak (2007, pp. 371–372) or Kołosowska et al. (2018, p. 88), and neither the equity nor long-term capital is increased by any accruals in fixed assets coverage ratios, e.g., Bławat et al. (2017, pp. 60–61); Walczak (2007, p. 353); Kołosowska et al. (2018, p. 92).

There are also authors who discuss the analysis of financial condition based on reports prepared in accordance with IFRS, where liabilities are also treated “as a whole”, together with accruals (specifically with items defined as “deferred tax liabilities” and “received grants”) (Pomykalska, Pomykalski, 2017, pp. 118–119).

It shows that the problem concerns not only specifically Polish reporting standards, but also those resulting from IFRS.

We did not come across any suggestion that any deferred income items should be excluded from liabilities and added to the equity in any financial ratio formula in the Polish economic literature. However, we found works by foreign researchers who discuss the importance of deferred income, mainly concerning grants received by enterprises. Stadler and Nobes (2018) identified the grant-related accounting policy choice: a firm can either show the grant as deferred income or net it against the asset. The options proved to be roughly equally popular overall. We also found that many firms do not disclose sufficient information related to those grants. International differences and poor disclosure are detrimental to international comparisons, so our conclusion is that the policy choice should be removed from the accounting standard.

Prakash and Sinha (2013) analyzed the importance of deferred revenues in forecasting enterprises' future financial performance. They stated that revenue deferrals, when combined with significant indirect costs and/or immediate expensing of investment expenditures, exacerbate the mismatch in the timing of revenue and expense recognition. As a result of the increased mismatch, small changes in the deferred revenue liability can have a disproportionately large impact on future profitability, and they can make current margins poor predictors of future margins.

Baker et al. (2020) undertook similar research, but their conclusions were different. They analyzed deferred revenues resulting from collecting cash from customers before delivering the goods or service. They examined whether financial analysts should consider changes in those deferred revenues as useful information when evaluating a firm's future profitability, and they found that it is indeed a good predictive tool. Prakash and Sinha and Baker et al. focused on profit forecasting rather than analyzing current financial ratios. Nevertheless, they emphasize the importance of deferred income when analyzing a company's finances.

Lainez and Callao (2000) more directly refer to the problem that is analyzed in this paper. They examined whether diversity in accounting principles between various countries has significant consequences for interpreting financial reporting at an international level and, therefore, for the decisions that may be taken based on the conclusions drawn from analyzing such information. Based on a sample of large listed Spanish companies, the empirical study showed that accounting diversity can be considered a significant barrier for the international comparability of financial reporting. One of the items presented differently in various accounting systems was capital subsidies, which may be recognized as a reduction in the value of the assets or as deferred revenue. Applying the two alternative options resulted in significantly different values of three out of seven analyzed ratios, i.e., the indebtedness ratio, the solvency ratio, and the ROA ratio, measured using ordinary income.

Pereira et al. (2015) also discussed a subject close to this research. They report on the change in bookkeeping rules in Portugal, which was implemented in 2010. While previously government grants related to assets were treated as liabilities during the asset's economic life (and the deferral account was in use), new rules make it necessary to report them as an item of equity capital. They analyzed whether the accounting for government grants impact equity capital and, consequently, the financial ratios of Portuguese companies in the agricultural sector. They found a positive variation in equity capital (an increase of nearly 4.5%). Consequently, it caused an increase of 4.7% in the financial autonomy ratio, and it also had a positive impact on the solvency ratio, with an average variation greater than 11%. The research showed that the new bookkeeping rules had important implications in the values of some financial ratios of Portuguese companies.

The studies by Lainez and Callao and Pereira et al. show that different treatment of deferred income resulting from grants (subsidies) related to assets primarily affects financial ratios related to the structure of the balance sheet, which is also the subject of this study.

As far as profitability ratios are concerned, they may include profit reported at various levels of the income statement. Some authors (e.g., Walczak, 2007, pp. 357–358) present only the formulas with the net profit. However, it should be noted that any analysis limited to such indicators will be incomplete and insufficient. Some pay attention to the significance of the profitability analysis at the level of basic operating activity, i.e., before taxation and financial income and costs, or even before adding “other operating revenues” (which include revenues from grants) and deducting “other operating costs” (e.g., Palepu et al., 1997, pp. 7–8); (Jerzemowska, 2018, pp. 299–300); (Bławat et al., 2017, pp. 132–133); (Kołosowska et al., 2018, p. 125); (Lainez, Callao, 2000). Grants are items that are quite closely related to the equity-type deferred income reported in the balance sheet. Therefore, the significance of these different approaches to profitability assessment is also included in this paper.

We have already studied the importance of accruals for the accuracy of assessing the financial condition, but only concerning the liquidity ratios. The conclusions were that the accruals presented in the liabilities of healthcare entities constitute their significant share, and the way of including these accruals in liquidity ratios formulas affects the correctness of the assessment of the financial liquidity of healthcare entities (Zimny, Witczak, 2018).

3. Research results

3.1. The scope of research

The empirical study covers healthcare entities from the Lodz region. We decided to examine the healthcare entities with the largest revenues since smaller units use simplifications in financial statements. The source for the financial reports was

the National Court Register in Lodz. Of the fifteen reports that were requested, nine were obtained for 2016 and three for 2015 (for the lack of more recent ones); the next three reports were unavailable at the time of the study. Abbreviations of the names of the healthcare entities are used in the study, especially in the charts. Full names of the entities, with the locations and the abbreviations, are as follows: Wojewódzkie Wielospecjalistyczne Centrum Onkologii i Traumatologii im. M. Kopernika, Łódź, “Kopernik”; Samodzielny Publiczny Zakład Opieki Zdrowotnej Uniwersytecki Szpital Kliniczny im. Wojskowej Akademii Medycznej Uniwersytetu Medycznego w Łodzi – Centralny Szpital Weteranów, Łódź, “WAM”; Samodzielny Publiczny Zakład Opieki Zdrowotnej Uniwersytecki Szpital Kliniczny Nr 1 im. Norberta Barlickiego Uniwersytetu Medycznego w Łodzi, Łódź, „Barlicki”; Szpital Biegańskiego, Łódź, “Biegański”; Szpital Wojewódzki im. Prymasa Kardynała Stefana Wyszyńskiego w Sieradzu, Sieradz, “Wyszyński”; Szpital Wojewódzki im. Jana Pawła II, Bełchatów, “JPII”; Wojewódzki Specjalistyczny Szpital im. M. Pirogowa w Łodzi, Łódź, “Pirogow”; Wojewódzki Szpital Specjalistyczny im. Marii Skłodowskiej Curie w Zgierzu, Zgierz, “MSC”; Wojewódzki Zespół Zakładów Opieki Zdrowotnej Centrum Leczenia Chorób Płuc i Rehabilitacji w Łodzi, Łódź, “Płucny”; Miejskie Centrum Medyczne im. dr Karola Jonschera w Łodzi, Łódź, “Jonscher”; Samodzielny Szpital Wojewódzki im. Mikołaja Kopernika, Piotrków Trybunalski, “Piotrków”; Tomaszowskie Centrum Zdrowia Sp. z o.o., Tomaszów Mazowiecki, “Tomaszów”.

The study's main data source included balance sheets, income statements, and the notes on the accounts.

While analyzing the financial statements, we identified deferred income items, recognized as ETDI, other than indicated in the review of the literature and legal acts. These deferred income items derive from the reclassification of the values previously recognized as parts of equity. It broadens the list of deferred income items that should be treated as equity in financial analysis.

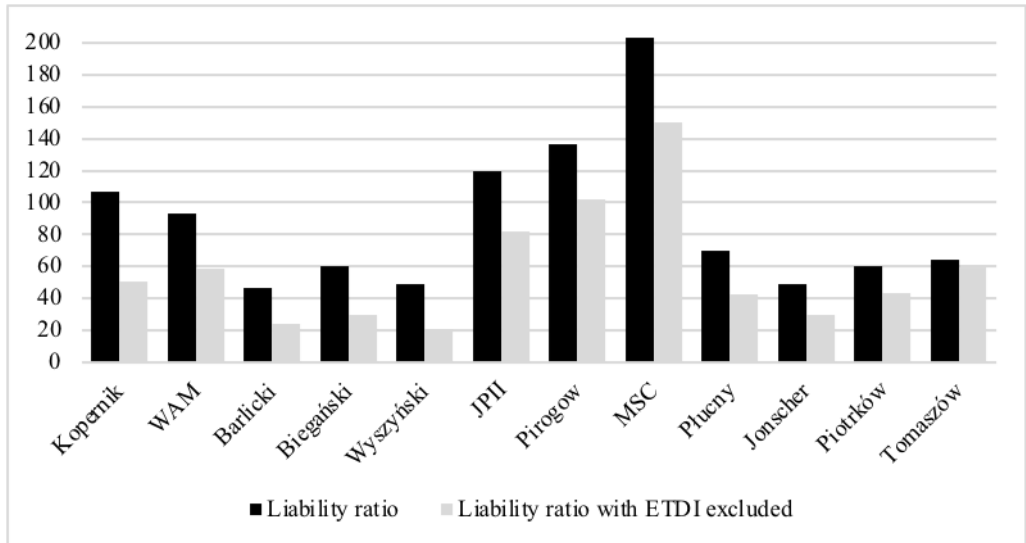
As the subject of the study is the importance of deferred income for the accuracy of the financial condition analysis and not a study of the financial condition itself, we did not carry out a complex assessment of the hospitals' condition or study the changes in the ratio values over time.

3.2. ETDI and balance sheet structure ratios

The group of ratios that make it possible to examine the balance sheet structure includes liability ratios, among others. The classic and most common liability ratio is calculated as the relation of total liabilities to total assets. In the case of the Polish balance sheet pattern (see Table 1), “total liabilities” include debt (e.g., bank loans, bonds, leasing, factoring), settlement liabilities (e.g., trade or fiscal ones), provisions for liabilities, and accruals, including ETDI. We believe that

ETDI should be excluded from the sum of liabilities because the probability that in the future, it will constitute a real liability to be covered with cash is low. The results of examining these ratios are presented in Chart 1.

Chart 1. Liability ratio for 12 examined entities
– classical formula and the formula with ETDI excluded (data in %)

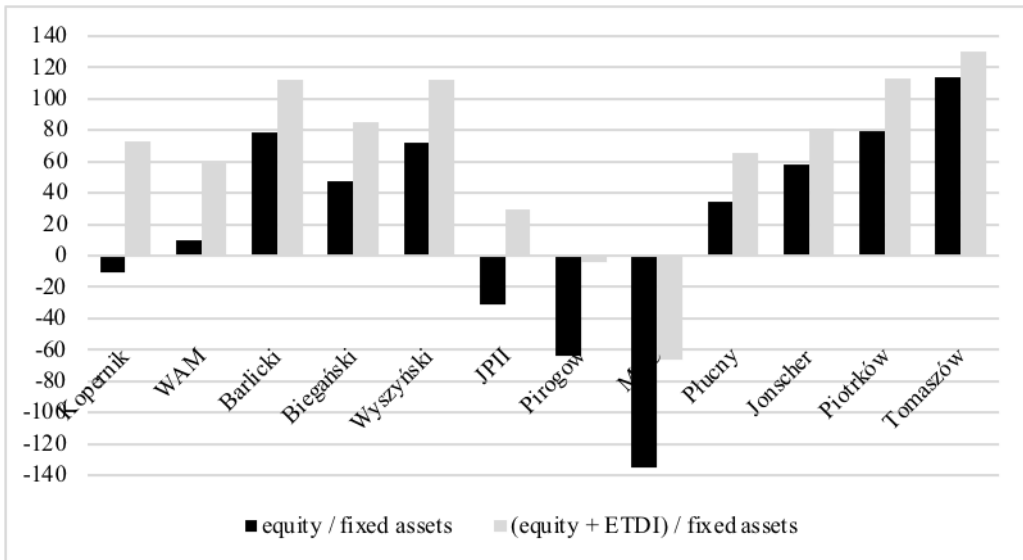


Source: healthcare entities' financial statements and own calculations.

For twelve entities, the difference between the classic liability ratios and the ratios calculated with ETDI excluded was significant, as shown in Chart 1. These differences range from 5 (Tomaszów) to 57 (Kopernik) percentage points. It also means that the ratio of ETDI to assets value ranges from 5% to 57%, which is a significant share. These differences are considerable compared to the liability ratio itself, which is considered high when it reaches values higher than, e.g., 70–80%. In two cases (Kopernik and JPPI), excluding ETDI from the sum of liabilities results in a reduction of the ratio value from over 100% to below 100%, which is assessed diametrically differently in financial condition analysis. Therefore, it was concluded that the way of recognizing ETDI in the liability ratios is significant for the accuracy of the entity's liability burden assessment.

The ratios that make it possible to examine the balance sheet structure also include two ratios of fixed assets coverage. The first is the coverage of these assets with equity (relation of equity value to fixed assets value). There are recommendations that the coverage should be of at least 50%. In the classic formula of the ratio, the value of equity taken directly from the balance sheet is used. We believe that it should be enlarged with the ETDI value. The results of the research of this ratio in both variants are presented in Chart 2.

Chart 2. Fixed assets coverage by equity ratio for the 12 entities – classical formula and the formula with ETDI included (data in %)



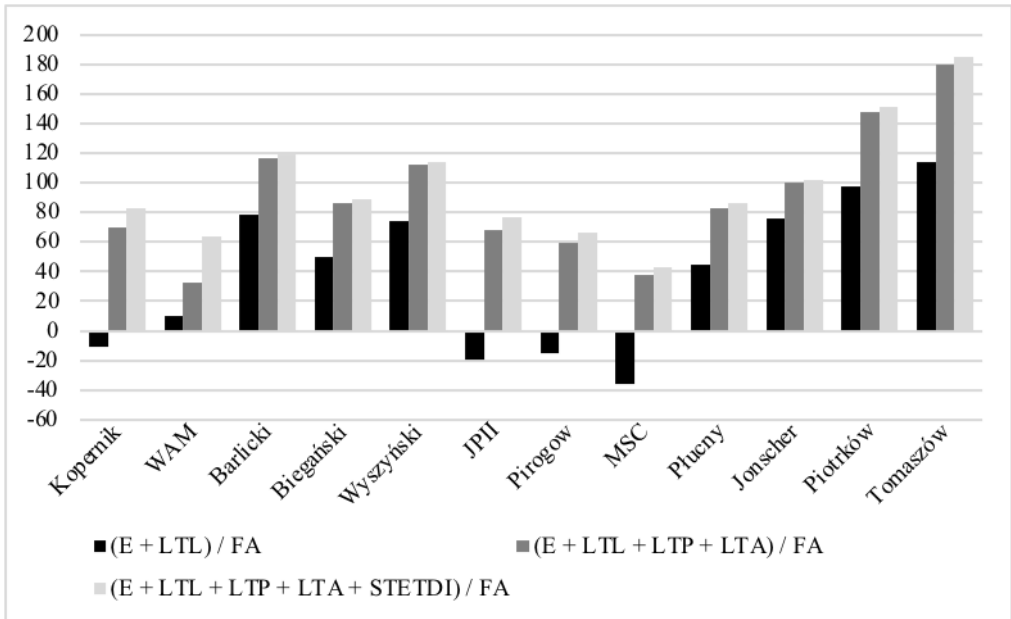
Source: healthcare entities' financial statements and own calculations.

As the study indicated, the ratio in the classic version is lower than 50% for seven of the twelve entities. Treating ETDI as equity improves the ratio values, and a ratio higher than 50% is shown in nine out of the twelve entities. For two entities, the negative ratio becomes positive, which significantly affects the conclusions from the assessment of their financial condition.

The second ratio of fixed assets coverage is the coverage of these assets with long-term capital, which is understood as equity capital enlarged with the long-term liabilities (the value of equity and long-term liabilities related to the value of fixed assets).

In this case, at least 100% coverage of fixed assets is usually expected. To calculate the long-term capital value, long-term liabilities, shown as item B.II of the Polish balance sheet pattern (see Table 1), is usually used because the name of this item is exactly “long-term liabilities”. It is the simplest possible version of the ratio. We strongly believe that it is the wrong approach. As mentioned in Section 2, some authors point out that long-term provisions for liabilities (part of item B.I) and long-term accruals (part of item B.IV) should also be included in long-term capital, which we consider correct. Furthermore, a third approach is proposed, according to which, in addition to the categories listed in the second approach, short-term ETDI should be included in the long-term capital, as it is more similar to equity than to liabilities. The results of the research of this ratio in all three variants are presented in Chart 3.

Chart 3. Fixed assets coverage by long-term capital for the 12 examined entities – classical formula and corrected formulas (data in %)



Designations: E – equity; LTL – long-term liabilities; LTP – long term provisions for liabilities; LTA – long term accruals; STETDI – short term equity-type deferred income; FA – fixed assets.

Source: healthcare entities' financial statements and own calculations.

In the simplest version of the ratio, only one entity (Tomaszów) shows sufficient (at least 100%) coverage of fixed assets with long-term capital. For the third version of the ratio (in our opinion, the most appropriate), five out of the twelve entities have at least 100% coverage of fixed assets. The differences in value between the first and the third versions are significant in all cases. It is also worth emphasizing that the second version of the ratio gives very similar results to the third version. This is because the vast majority of ETDI shown by the entities is long-term deferred income. However, this observation cannot be generalized, as there may be many entities with a high short-term ETDI share in their balance sheet structures.

Summing up, our conclusion is that the way ETDI is recognized in the fixed asset coverage ratios is significant for the accuracy of the entity's fixed assets coverage assessment.

3.3. ETDI and the turnover ratios

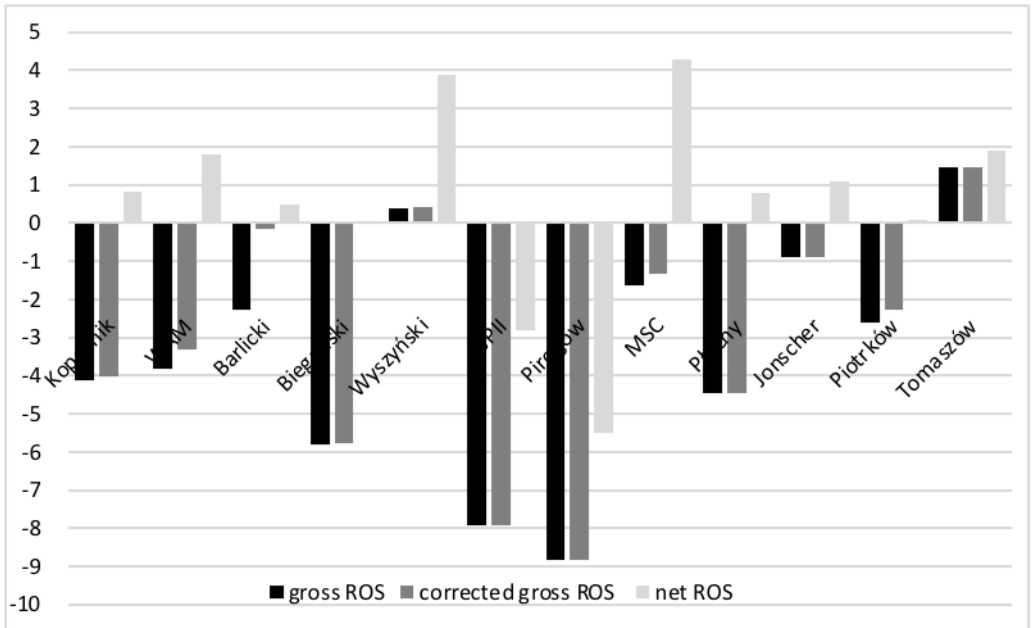
In the case of a set of ratios defined as turnover ratios, the most frequently used formulas were analyzed in the study. These formulas contain selected assets (e.g., total assets, current assets, inventories, receivables) or liabilities (mainly trade liabilities) and positions from income statements (sales revenue or purchase costs or production costs). The authors have found that there is no need to correct any of these categories with ETDI value. Therefore, the conclusion is that the existence of ETDI in the entity does not affect the accuracy of assessing the turnover ratios.

3.4. EDTI and the profitability ratios

The assessment of the profitability using ratio formulas with the net profit in the numerator is particularly widespread, at least in the Polish literature. As mentioned in Section 2, however, more scrupulous authors point out that the net profit consists not only of essential, regular, and repeatable revenues and costs, but also revenues and expenses not strictly related to the basic activity, or that are unusual or one-offs (e.g., related to the sale of fixed assets, losses due to accident events, investments on the capital market, or grants and donations received). We recommend assessing profitability by omitting these types of economic events. It boils down to analyzing earnings shown at a higher level of the income statement. In the Polish pattern of this report, it is “earnings from sales” (position C or F, depending on the pattern variant of the statement). This approach to the profitability assessment makes it possible to analyze the potential to generate earnings from the main area of activity, omitting events outside this area. For healthcare entities, events that should be omitted include grants and donations, which are not income resulting from their operations, yet they may have a significant impact on the net profit. Revenues from grants and donations are usually accrued as deferred income and settled over time, so they are closely related to the value of ETDI reported in the balance sheet.

We have focused primarily on the sales profitability ratio (return on sales – ROS). Its classic formula is the relation of net profit to sales revenues.

As noted before, ETDI proved to have a considerable share in the balance sheets of the examined entities and a significant impact on the accuracy of the assessment of liquidity ratios, liability ratios, and asset coverage ratios. Moreover, it was also found that the ETDI of these entities mostly derives strictly from grants and donations they received. Therefore, it was expected that revenues from grants would also significantly impact the accuracy of the profitability assessment of these entities. However, the results of the study showed that this is not the case (see Chart 4).

Chart 4. Profitability of the twelve entities – 3 variants of the formula (data in %)

Designations: gross ROS = profit (loss) from sales / sales; corrected gross ROS = (profit (loss) from sales + grant revenues) / sales; net ROS = net profit / sales.

Source: healthcare entities' financial statements and own calculations.

As the study showed, the net profitability (return on sales – ROS) significantly differs from the profitability of the main operating activity. However, contrary to the authors' expectations, it occurred that revenues from grants are not the main reason for this difference because the profitability of the main operating activity adjusted for grant revenues is not much different from the profitability before this adjustment. We believe that the reason for such results is that grants received by healthcare entities (mainly to buy fixed assets) are being accrued for long periods and only a small part of these amounts is allocated to each year, resulting in relatively small values shown as grant revenues for each year. The confirmation of this supposition may be the ETDI structure shown in the balance sheets – the vast majority of these values are long-term items.

There may also be a second reason: part of the ETDI results not from grants, but from donations, which in the income statement may be presented in the position "other operating income – other" (meaning: other operating income, not classified specifically as profit from sales of fixed assets, grant revenues, and so on), which showed significant values in the examined entities. It is these values that can cause such a considerable difference between the profitability of the main activity and net profitability. Finally, some errors in assigning revenues from grants to the right positions of the income statement cannot be ruled out, so their

value can be underestimated in favor of the said “other operating income – other” item. However, the additional information of the financial statements of these entities provides too little data to determine it more accurately.

Therefore, we concluded that the results of the research are not sufficient to state whether the occurrence of ETDI is significant for the accuracy of the profitability analysis of the entity.

Conclusions

Deferred income is part of the accruals in the Polish balance sheet, and it is shown as an element of liabilities. However, the economic nature of deferred income varies. There are some items of deferred income that can be undoubtedly classified as liabilities, and there are some whose economic character is distinctly different. In our opinion, certain items reported as deferred income are equity-type deferred income because the probability that it will constitute a real liability to be covered with cash in the future is low. We have also identified those types of deferred income in the study.

There is a lack of unambiguous rules in the literature how to recognize accruals when calculating ratios to assess a financial condition. There are discrepancies in recommendations regarding the recognition of deferred income in financial analyses in the literature.

We found that the share of equity-type deferred income (ETDI) in healthcare entities' balance sheet structures is considerable. The study showed that excluding ETDI from liabilities and adding it to the equity while calculating liability ratios and fixed assets coverage ratios significantly changed the values of these ratios. Therefore, it has been concluded that there are no grounds to reject the hypothesis tested in this study. Thus, we claim that certain categories of deferred income are, by their economic nature, closer to equity than to liabilities, and their different treatment significantly affects the accuracy of the assessment of the entity's financial condition. These results are in line with Lainez and Callao (2000) and Pereira et al. (2015).

As a result, we believe that excluding ETDI from liabilities and adding it to the equity when calculating ratios that contain liabilities and/or equity in their formulas ensures the accuracy of the assessment of financial condition. Such an approach avoids unjustified underestimation of the financial condition of the examined units. This conclusion refers especially to liability ratios and fixed assets coverage ratios, but it can be generalized to all ratios containing these aforementioned components in formulas.

Subsequently, we state that the existence of ETDI in an entity does not affect the accuracy of assessing the turnover ratios of this entity. As for the profitability ratios, the results of the study were ambiguous. The results of the study are important, mainly in the scope of the ratios related to balance sheet structure.

The study indicates the necessity to analyze the financial condition using modified financial ratios, as presented in this paper. It provides recommendations for researchers and financial analysts on the appropriate treatment of deferred income when calculating financial ratios. It is crucial for the accuracy of these calculations and, consequently, for the correct conclusions from research or for making correct business decisions.

The empirical part of the study covered only healthcare entities. However, the problem of the economic nature of deferred income is similar in various types of business, and therefore, we believe that the conclusions are valid for entities of other branches. To confirm that belief, future research based on the proposed approach could be conducted on entities from other branches. A more thorough study should be conducted concerning the importance and significance of deferred income in relation to “other operating income” reported in the income statement.

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