

# Impact of Owner-Occupied Property Valuation by Historical Cost on Fixed Assets Value at Bankruptcy Risk

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## Abstract

**Purpose:** The purpose of this article is to present the findings of the author's own studies on the influence of owner-occupied property valuation by historical cost on fixed assets value of entities at risk of bankruptcy.

**Methodology:** As part of the implementation of the study, objective desk research was carried out. Empirical research was carried out on a group of 100 companies on which the courts had declared bankruptcy. The study sample constituted 14% of all bankruptcy cases in 2011 and was a significant representation of the national phenomenon.

**Findings:** The findings indicated that historical cost values of owner-occupied properties in most cases are significantly lower than estimated fair value when business activities continuation is threatened. The historical cost valuation also does not provide useful information about the market value of property, plant and equipment of entities at risk of bankruptcy that do not possess real estate.

**Research limitations/implications:** Information about market value of fixed assets of entities at risk of bankruptcy is essential in making the decision to begin bankruptcy proceedings and estimating the ability to repay debts to creditors.

**Originality/value:** The results are a part of the author's own study concerning assets valuation when business activities continuation is threatened. The results emphasize the role of fair value estimation of property, plant and equipment when an entity is at risk of bankruptcy.

**Keywords:** historical cost, real estate, valuation, bankruptcy, fixed assets

**JEL:** G33, M41, K22, G32

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## Introduction

In accordance with IFRS, *“the objective of general purpose financial reporting is to provide financial information about the reporting entity that is useful to existing and potential investors, lenders and other creditors in making decisions about providing resources to the entity”* (IFRS, The Conceptual Framework for Financial Reporting, §OB2). One of the key accounting principles demands valuation of assets and liabilities to be done in such a way as to allow the financial statement to exhibit a true and reliable financial situation of an entity. Reliable valuation of assets and presentation of their value in the financial statements is also treated as one of the most important issues related to the economic activity of an enterprise. Many scientists recognize valuation as an essential and dominant accounting function. This acknowledgment is quite noticeable in the definitions of accounting (Micherda, 2009).

Scientists and accounting practitioners constantly discuss categories that ought to serve as the fundamental base in defining valuation. Today, two main options have been drawn up: historical cost and fair value (Gierusz, 2011). The grounds for using either valuation method pertain to entities where business activities continuation is not threatened. There is also a research trend that focuses on the proper measurement of assets value among companies where business activities continuation is threatened or there is a risk of bankruptcy (e.g. Newton, 2010; Altman and Hotchkiss, 2006). Despite substantial doubt about an entity’s ability to continue as a going concern, entities continue to do business and financial statement users make economic decisions. For example, entrepreneurs make decisions about future business possibilities, business partners make decisions whether or not to continue cooperation and ways of financing and law courts decide about grounds to declare bankruptcy. Therefore, the search for the best valuation categories to be used on the balance sheet of entities at risk of bankruptcy is justified. Deliberations in this study are based on the belief that a financial statement, if it is to be a useful source of information, ought to be of help in the decision making process, even when business activities continuation is threatened. Balance sheet valuation with bankruptcy risk should provide information about the value of assets that can be obtained during forced sales. Research results indicated that in the case of insolvency, tangible assets are particularly important due to their selling value (Bauer, 2013). Owner-occupied properties are part of this assets group.

According to IFRS, as well as the Polish Accounting Act, a valuation category used with property, plant and equipment and its presentation in a financial statement, when business activities continuation is threatened, is a valuation based on the possible

selling price, but no higher than the historical cost. Riahi-Belkaoui (2004, p. 213) stated “the going-concern postulate justifies the valuation of assets on a non-liquidation basis and provides the basis for depreciation accounting”. Thus, a bankruptcy threat justifies liquidation worth valuation. To Gos and Hońko (2013), the inability to continue business activities predetermines an extremely cautious valuation that does not exceed the net sale price. An issue arises on whether this postulate is justifiable in the case of owner-occupied property valuation. Research suggests that real estate value using historical cost can be greatly understated in relation to fair value (e.g. Rodríguez Pérez et al., 2011). Research shows that in practice, fair value is rarely used (Kędzior, 2013), and according to the Polish Accounting Act, cannot be used in property, plant and equipment valuation. Consequently in Poland, owner-occupied properties are evaluated with the historical cost. The inability to revalue when in bankruptcy risk can skew information about an entity’s worth.

This issue is significant because real estate value in the total assets of entities accounts for a major part. According to research conducted in the USA, real estate accounts for 25 to 40 percent of the total assets of a major corporation (Rodriguez and Sirmans, 1996). Studies conducted among Spanish insurance companies (Rodríguez Pérez et al., 2011) also showed that real estate accounts for a major part of total assets. Owner-occupied properties are also of great value with entities that are at risk of insolvency. For entities analyzed for the purpose of this study, owner-occupied property value in the total assets of the balance sheet is 35% for entities that possessed real estate. The value of an asset during bankruptcy proceedings can be crucial to covering the costs of the bankruptcy proceedings. According to the Doing Business report, the cost of the proceedings in Poland, recorded as a percentage of the value of the debtor’s estate, is 15%. The calculated share of owner-occupied property in the total assets confirms that the total yield from their sale would be sufficient to cover the costs of the bankruptcy proceedings. Therefore, the value of owner-occupied property may be regarded as essential for companies at risk of bankruptcy.

Based on this, research into financial statements of entities at risk of bankruptcy with a focus on owner-occupied property is justified. Moreover in times of globalization, research into entity insolvency has international significance.

The purpose of this study is to gain answers to the following two questions:

1. Does historical cost valuation of owner-occupied property lead to understating its value in balance sheets of entities at risk of bankruptcy in comparison to estimated fair value?

2. In the case of entities at risk of bankruptcy that do not possess real estate, is valuation by historical cost similar to the estimated fair value of fixed assets during a forced sale?

These questions have generally come from the literature review and the author's previous studies of financial statements of entities at risk of bankruptcy.

## Literature review of historical cost vs. Fair value of fixed assets

### Discussion on the appropriate valuation method in accounting

In accounting, valuation pertains to assigning monetary amounts to specific objects or economic events (Hendriksen and van Breda, 2002). Discussions on the appropriate valuation methods have been going on among theorists and practitioners for many years. Research shows that one ideal valuation does not exist for all phases of business operations, economic conditions and financial statement users. Currently, two approaches have been well developed: cost model and fair value model. Both approaches have advantages and disadvantages. Neither method automatically ensures the credibility of information contained in financial statements (see among others: Wójtowicz, 2009; Kurek, 2014).

According to Dobija (1999, p. 37): "historical cost valuation is not a goal in itself. In fact, the aim is correct information about the value of assets, preferably showing the state of affairs for any recipient (especially external), who on the basis of this information can make decisions". One of the most important advantages of historical cost is the credibility of results and the ease with which they can be checked based on reference documents. This eliminates or minimizes subjective evaluations and appraisals and in turn facilitates measurement of results and audits. Historical cost valuation ensures the understanding of achieved results by the users of this information. It is characterised by the continuity of methods used, low cost of information acquisition and ease of standardization, all being stated in legal regulations (Gierusz, 2011). Historical cost assumes stability in monetary units. Therefore, valuation by historical cost is useless during periods of high inflation since an entity's assets are underestimated and financial results are overestimated (McNair et al., 1998; Holmes et al., 2005). For creditors, an undisputable advantage of valuation by historical cost is that the value of assets should not be lower than the value presented in the balance sheet. The focus on the past valuation by historical cost is a disadvantage for the investors. This group of financial statement users needs information that will enable risk estimates of future cash flow. Investors need a valuation category that will bring the presented values

closer to their market value (Gierusz, 2011). Globalisation and the development of international capital markets has increased investors' needs for information and caused them to question the usefulness of information coming from financial statements prepared according to historical cost accounting (Ristea and Jianu, 2010).

Valuation by historical cost is put against fair value, which is perceived as one of the most controversial valuation categories. In accordance with IFRS, fair value is "the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date" (IFRS 13, §9). As Vehmanen (2007, p. 150) states, "from a measurement theoretical point of view, fair value accounting has much to recommend it, provided that the concept of measurement is properly understood". Valuation by fair value is directed prospectively and is far better than valuation by historical cost to demonstrate the ability to generate future income. It is a valuation that brings balance sheet values closer to market values. It fulfils the current entity value measurement expectations of investors.

However, valuation by fair value is not free from faults. The way in which it can be used and its spectrum in a financial statement generate many controversies. These have grown during the bankruptcy of Enron (Krumwiede, 2008) and the recent world economic crisis (e.g. André et al., 2009; Véron, 2008). Fair value has not been accepted by accountants for a long time, due to its subjective estimation of future cash flows. Audit of fair value can also be of great difficulty and fair value is rather rarely used in practice. The reason for this could be the reluctance to share information, which could in turn be used by competitors (Kędzior, 2013). The disadvantage of fair value is measurement difficulties if an active market does not exist (Gierusz, 2011). Undoubtedly, perfecting the assumptions and techniques of fair value is justified since it can be one of the main stimulators in the development of global accounting (Kędzior, 2013b).

Both valuation models are used in practice. The flaw in the current mixed-attribute accounting model, as stated by Krumwiede (2008), is that investors and analysts have problems when comparing the financial condition of entities even within the same area of business.

### **Empirical studies concerning valuation by historical cost and fair value of fixed assets**

Striving to determine which valuation category provides reliable information to accounting information users also pertains to fixed assets. Discussion and research into a credible valuation of tangible fixed assets is not a new occurrence. The analysis

of issues concerns supplementing traditional historical cost accounting by “forward accounting” (Kohler, 1963), which draws attention to a debate about valuation of fixed assets that has been going on for several decades. The grounds for using valuation of fixed assets by historical cost during high inflation is negated in the literature. The reason is that depreciation in a period of inflation is inadequate for replacement of fixed assets (Holmes et al., 2005).

Empirical studies concerning valuation by historical cost and fair value of fixed assets refer to the whole group of assets or its sub-groups. For example, Quagli and Avallone (2010) conducted research on 73 real estate companies in Finland, France, Germany, Greece, Italy, Spain and Sweden. They performed analyses to check if the choice between cost or fair value for investment property under IAS 40 aimed at typical motives defined by accounting choice theory. These include reducing agency costs (contractual efficiency reasons), mitigating information asymmetries, as standard setters claim, or allowing managerial opportunism. Their findings confirmed that information asymmetry, contractual efficiency and managerial opportunism explain the fair value choice.

From the studies conducted by Gassen and Schwedler (2010), it can be concluded that in reference to property, plant and equipment, fair value acquired in the active market is ranked only slightly higher than valuation by historical cost, as stated by surveyed stock market investors and investment advisors. Estimated fair value was regarded as worse than valuation by historical cost.

Rodríguez Pérez et al. (2011) conducted a study on a group of companies insured in Spain, which replaced valuation by historical cost with fair value. For the purpose of the study, the companies had been divided based on asset group. The largest changes occurred in the averages of fixed assets where their values almost doubled. The changes were probably caused by an update of valuations of owner-occupied properties.

An analysis of consolidated financial statements of Warsaw Stock Exchange Index 20 (WIG20) companies in Poland for 2006 conducted by Kabalski (2008) showed that none of these entities used an overestimation model to value property, plant and equipment. Kabalski noted that using the cost modal to appraise property, plant and equipment did not make the balance sheet information useless, if appropriate (economic) depreciation was applied. He noted that all examined companies used a linear depreciation method. Moreover, he questioned the use of the cost model to appraise owner-occupied property, especially in Poland, where real estate prices change frequently.

## Balance sheet valuation vs. Selling value of owner-occupied property in enterprises facing bankruptcy

### Owner-occupied property valuation in accordance with IFRS

Globalization and development of capital markets are important factors that influence the theory and practice of accounting, as well as the desire to unify financial statements on a global scale (Bauer and Toborek-Mazur, 2014). As Grabinski et al. stated (2014, p. 282): “the introduction of IFRS in Poland posed a major challenge for companies. (...) However, this process is beneficial for businesses”. IAS/IFRS should require high-quality, transparent and comparable information in financial statements and other financial reporting.

In accordance with Alexander (2007, p. 77) “it is no more than a statement of the obvious to point out that the use of various measurement bases under IAS has grown up over the years on a piecemeal basis”. Individual IFRS/IAS regulate methods of asset valuation of an enterprise, among those where the loss of the ability to continue business is forecasted, as well as those threatened with insolvency.

Owner-occupied property of an enterprise is assessed according to IAS 16:

“The objective of this Standard is to prescribe the accounting treatment for property, plant and equipment so that users of the financial statements can discern information about an entity’s investment in its property, plant and equipment and the changes in such investment. The principal issues in accounting for property, plant and equipment are the recognition of the assets, the determination of their carrying amounts and the depreciation charges and impairment losses to be recognised in relation to them” (IAS 16, §1).

Initially, owner-occupied property that qualifies for recognition as an asset shall be measured at its cost (IAS 16, §15). After first recognition, the standards allow the use of two models to evaluate property, plant and equipment, including owner-occupied property. The first model is the cost model, based on which owner-occupied property shall be carried at its cost less any accumulated depreciation and any accumulated impairment losses (IAS 16, §30). An alternative valuation method is the revaluation model, based on which owner-occupied property “shall be carried at a revaluated amount, being its fair value at the date of revaluation less any subsequent accumulated depreciation and subsequent accumulated impairment losses” (IAS 16, §31).

If the going concern assumption is not appropriate and the sale of owner-occupied property is highly probable, the valuation should be made in accordance with IFRS 5

at the lower of its carrying amount or its fair value less the costs to sell. In particular, the IFRS 5 requires assets that meet the criteria to be classified as held for sale to be presented separately in the statement of financial position. Applying regulations of this standard means that in a situation where business continuation is threatened, revaluation of owner-occupied property to match the market value is impossible if it is higher than valuation at cost.

### **Owner-occupied property valuation in accordance with the Polish Accounting Act**

According to the Polish Accounting Act, owner-occupied properties are entered into accounting books based on initial value, which is the purchase price or the production cost. Valuation based on purchase price is applied towards owner-occupied properties acquired through a purchase. In the case of in-house construction, the valuation parameter is the cost of production. These values are current at the time of entry into accounting books, but must be updated for balance sheet purposes. The enterprises that draw up financial statements in accordance with the Act, assuming that they will continue to operate, should make the balance sheet valuation of owner-occupied properties used in their business activity in accordance with Art. 28: “at the acquisition price or manufacturing cost, or adjusted value (after revaluation of property, plant and equipment), less depreciation or amortisation charges and impairment losses.” Revaluation was done only as the result of a Financial Minister ordinance (the latest in 1995). This means that an enterprise that draws up a financial statement in accordance with the Polish Accounting Act cannot revalue owner-occupied property to market value, even if it was justified and documented with an appraisal from a property appraiser.

If the going concern assumption is not appropriate, then the enterprise should value its assets in accordance with the Art. 29: “the undertaking’s assets are measured at net realisable selling prices no higher than their acquisition prices or manufacturing costs, less any accumulated depreciation or amortisation charges as well as impairment losses recognised so far.” Since the model of revaluation of property, plant and equipment to fair value is not allowed by the Polish accounting standards, owner-occupied property in enterprises that prepare their balance sheet following the Act assess this part of their assets according to the cost model.

### **Selling value of owner-occupied property in enterprises facing bankruptcy**

The balance sheet is not the only source of information about the assets value of an enterprise that is at risk of bankruptcy. Information coming from financial accounting,

additional analyses and estimations are at the disposal of the debtor. To initiate the bankruptcy procedure, it is necessary to submit to the court various documents required by national regulations. As concluded from a study by Smith and Strömberg (2004) in most of the researched countries, the laws oblige the debtor to submit information on the value of assets upon initiating the bankruptcy proceedings, such as lists of estate assets, claims and sometimes financial statements or preliminary valuation of its assets.

In Poland, in accordance to the Bankruptcy and Reorganization Law, the information about property value is derived from the balance sheet and from the list of items of property, along with the estimated valuation of assets that the debtor has filed with the petition to declare bankruptcy, and then from the value estimate of property made by an interim court supervisor (if appointed). Polish regulations do not clearly state the method to carry out an estimated valuation of assets. This value is called “selling value”; however under certain circumstances, it can be considered close to fair value. According to the study of documentation from bankruptcy proceedings, debtors submit appraisals as an estimated valuation of real estate, as prepared by a property appraiser. In practice, they are not prepared for the purpose of starting a bankruptcy procedure, but during regular operations of an enterprise before the risk of bankruptcy arises. Interim court supervisors respect these valuations but revise them to apply under conditions of a forced sale (Bauer, 2013). The purpose of this study is not the analysis of regulations of bankruptcy proceedings, but the impact of valuation of owner-occupied property by historical cost on the value of fixed assets of enterprises at risk of bankruptcy. However, it is important to note that Polish regulations are not a unique solution to this matter. As Newton (2010) stated, courts in the USA during bankruptcy proceedings also take into consideration the fair value, which as in Poland varies from the market value due to the impact of a forced sale.

## Hypotheses development

The previously discussed theoretical issues and empirical studies show that the use of valuation by historical cost can have an influence on the difference between market value and balance sheet value of specific assets presented in the financial statement of an enterprise facing bankruptcy. In the case of owner-occupied properties, their specificity as an economic good can cause their value at historical cost to be significantly lower than their market value. Smith and Strömber (2004) clearly stated that one of the roles of a bankruptcy is reduction of the information asymmetry between the debtor and creditors concerning the value of assets. Even if the bankruptcy

procedure is not initiated, the declaration of bankruptcy risk should be based on the market value of an entire enterprise or the value of its individual assets. Regulations in accounting also influence the valuation of assets of enterprises at risk of bankruptcy.

The Polish Accounting Act does not permit upward revaluation of property, plant and equipment to meet the fair value, whereas being at risk of bankruptcy requires measurement of value at net realisable selling prices no higher than their acquisition prices or manufacturing costs; therefore, the estimated disposal value should be lower than the balance sheet value. IFRS 5 also requires the appraisal of owner-occupied property intended for sale at an amount lower than its balance sheet value, less the costs leading to sale. Thus the following hypothesis has been drawn:

H1: Estimated fair value of owner-occupied property in tangible fixed assets, where continuation of business activities is threatened, is significantly lower than values at historical cost.

Historical value is displayed in the balance sheet of an enterprise facing bankruptcy, while estimated fair value is in the estimated appraisal of an interim court supervisor.

As is apparent from the prior studies presented, it is not clearly stated which valuation category best illustrates the value of property, plant and equipment in a credible way. A study conducted in Spain by Rodríguez-Pérez et al. (2011) indicated differences between the results acquired with the cost model and fair value. The reason for the differences is owner-occupied property in tangible fixed assets. Based on research conducted in Poland, Kabalski (2008) also proved that if the cost model is applied properly to evaluate property, plant and equipment, it may not prove to be appropriate only with enterprises that possess owner-occupied properties.

A study conducted in Germany by Szczesny and Valentinic (2013) on a group of companies from the SME sector confirmed that economic incentives influence the decision to write off assets and the magnitude of asset write-offs. The practices of Polish companies show that they generally apply the maximum depreciation rates permitted by tax regulations also for reporting purposes. This approach to depreciation may result in the value of property, plant and equipment presented in the balance sheet being lower than their market value.

On the other hand, if regulations concerning the recognition of assets in the balance sheet when threatened with the loss of ability to continue business activities were

applied correctly, then the estimated selling value of property, plant and equipment should not be lower than the balance sheet value.

Based on previous studies conducted in Poland, it can be observed that, at risk of bankruptcy, greater number of fixed assets valuations have inflated balance sheet values in reference to estimated values, while there are also cases where estimated values are much higher than balance sheet values. This situation has not been fully diagnosed, but it could be that the studied enterprises possess owner-occupied properties (Bauer, 2013).

A second hypothesis has therefore been drawn:

H2: Values at historical cost of property, plant and equipment among enterprises facing bankruptcy, which do not possess real estate, do not differ significantly from estimated fair value.

It was decided to verify the two stated hypotheses on a sample group of enterprises facing bankruptcy in Poland. This was for the reason that Polish regulations in accounting do not permit balance sheet valuation of property, plant and equipment where business activities continuation is threatened to be higher than valuation by historical cost. Documents pertaining to assets of enterprises, which had their bankruptcy risk confirmed by appropriate Commercial Court rulings, were used as the main research material.

## Research procedure

### Sample selection

This research is a part of the author's own study concerning assets valuation when business activities continuation is threatened. The research involved documents relating to the balance sheet and estimated valuation of assets in 100 cases in which bankruptcy was declared in 2011. The sample size corresponded to 14% of all bankruptcy cases. The accumulated research sample was an essential representative of the phenomenon countrywide. The research material was obtained from 4 district courts conducting bankruptcy proceedings in Poland. These included the courts in Tarnów (3 cases), Warsaw (22 cases), Katowice (26 cases) and Krakow (49 cases). A stratified selection of the research sample was applied in accordance with legal forms of enterprises insolvent during the research period. In the researched sample, according to legal

forms, there were 70 limited liability companies, 13 individuals engaged in economic activities, 7 joint-stock companies, 4 registered partnerships and 6 other forms of economic activity (limited partnerships, cooperatives). Such participation of enterprises, according to legal forms, is similar to the share of the total bankruptcies declared in 2011 (Coface Report, 2012).

Only one enterprise from the sample group drew up financial statements according to IFRS; the others used the Polish Accounting Act. The enterprise that prepared its financial statements according to IFRS did not possess owner-occupied property. Therefore, the sample group contains cases which, in accordance to applicable Polish accounting regulations, employed the cost model to value owner-occupied property.

Not all of the sample cases had full documentation about the balance sheet value and the estimated value of property, plant and equipment. In 7 cases, the balance sheet was not submitted to the court; in 26 cases, an interim court supervisor was not appointed. The estimated valuation prepared by the debtor was not complete in all cases. In the sample group, 22 enterprises that faced bankruptcy possessed owner-occupied properties.

### **Results relating to hypothesis 1**

To verify hypothesis 1, a comparison of absolute estimated and balance sheet values of owner-occupied properties (OOP) was made. Values estimated by the debtor and interim court supervisor (ICS) were chosen for initial comparisons. The results are presented in Table 1.

In the sample group, the debtor estimated the value of owner-occupied property lower than or the same as the balance sheet value only in two cases; in 14 cases, it was estimated higher than the balance sheet value. This means that estimates performed by the debtor confirmed the hypothesis by almost 88%. During bankruptcy proceedings, the court considers an estimated valuation made by an interim court supervisor as more credible. Documentation from bankruptcy cases indicated that valuation made by the debtor was correct, but did not take into account forced sale, using only the market value when continuation of business activities was not threatened (Bauer, 2013). Furthermore, results from research conducted by Altman and Hotchkiss (2006) pointed to the existence of economical incentives that encourage the debtor to present higher than rational asset values.

**Table 1.** Comparison of estimated fair value and historical cost value of owner-occupied property (number of cases)

Value	Estimated value of OOP in comparison to balance sheet as determined by debtor	Estimated value of OOP in comparison to balance sheet as determined by ICS	Estimated value of OOP as determined by ICS in comparison to value determined by debtor
– lower	– 1	– 3	– 8
– same	– 1	– 1	– 4
– higher	– 14	– 9	– 0
– no data	– 6	– 9	– 10

Source: author's study.

Research suggested that debtors have a more optimistic approach to valuation, more often than interim court supervisors, and report values higher than the balance sheet values. The analyzed documentation contained references of the interim court supervisors in which they confirmed the debtors' valuations to be correct market valuations, but in which forced sale had not been taken into account. Therefore for the purpose of further analysis, the estimated valuations of the interim court supervisors were used. The results of initial research confirm hypothesis 1 in 9 out of 13 cases, with all the necessary documentation for analysis being available (i.e. 69%).

Table 2 presents basic features of relative difference between estimated fair value and value by historical cost.

**Table 2.** Basic features of relative difference between estimated fair value and value by historical cost (by percentage)

Minimum [%]	Maximum [%]	Average value [%]	Standard deviation [%]
-100	362	62	119

Source: author's study.

Average value of the relative difference between estimated fair value and value by historical cost is 62%, while the standard deviation is 119%, which is a very high value.

Estimated fair value was lower than historical cost value in only three cases. In the first specified case, the relative difference between valuation at historical cost and estimated fair value is high at 25%, representing a warehouse and a cellar in a separate building

and not a free standing building. In the second case, what constitutes as real estate is built-up land with production buildings. The difference between balance sheet valuation and estimated valuation is 2%. The case documentation does not explain the reason for this difference. In the third case, there was a difference because real estate was included in the balance sheet. Based on a court order, this real estate was returned to the original owner, a company that made a contribution in kind. The court considered it ineffective. Therefore, this case can be excluded from the analysis of the impact owner-occupied property valuation has on the value of property, plant and equipment, where continuation of business activities is threatened.

In cases where the estimated value was higher than the balance sheet value, for the benefit of this analysis, relative differences between these values were calculated and presented in percentage terms. The average difference was 108%. There was a great dispersion of results from 2% to 362%.

Research results confirmed that, in most cases, balance sheet values of owner-occupied property valued by historical cost are lower than their fair value, even at forced sale. Properties of different natures (land, buildings, garages, right of perpetual usufruct to land) in the sample group may be the reason for the large dispersion of results.

In addition, the difference in estimated valuation and balance sheet valuation in comparison to the bankruptcy estate was measured and Table 3 presents the main results.

**Table 3.** Difference between estimated fair value and value by historical cost in comparison to estimated value of bankruptcy estate (by percentage)

Minimum [%]	Maximum [%]	Average value [%]	Standard deviation [%]
1	761	135	254

Source: own study.

The average difference between estimated fair value and value by historical cost in comparison to the bankruptcy estate is 135%, while the value of standard deviation is 254%. This testifies to the very high variability of analyzed differences.

In the research sample, this difference was lower than the average value of bankruptcy proceedings in relation to the bankruptcy estate (15%) in just one case. In the remaining cases, this difference was significantly higher than the average cost of the bankruptcy proceeding in relation to property value.

Research results confirmed that, in most cases, the difference between the estimated fair value and historical cost value is positive and significant when executing bankruptcy proceedings. Hypothesis 1 was thus positively verified.

## Results relating to hypothesis 2

To prove hypothesis 2, a comparison of absolute estimated and balance sheet values of property, plant and equipment (PPE) among enterprises facing bankruptcy, which did not possess real estate (78 cases) was made. For the purpose of initial comparison, values estimated by the debtor and interim court supervisor were chosen. The results are presented in Table 4.

**Table 4.** Comparison of estimated fair value and value by historical cost of property, plant and equipment (PPE) among enterprises that did not possess owner-occupied properties (number of cases)

Value	Estimated value of PPE in comparison to balance sheet value determined by	Estimated value of PPE in comparison to balance sheet value determined by ICS	Estimated value of PPE determined by ICS in comparison to value determined by debtor
– lower	– 22	– 31	– 37
– same	– 12	– 5	– 12
– higher	– 31	– 21	– 3
– no data	– 13	– 21	– 26

Source: own study.

As with owner-occupied properties, so with property, plant and equipment. Debtors more often than interim court supervisors estimate fair value higher than value at historical cost. An estimated valuation made by an interim court supervisor was used for further comparisons.

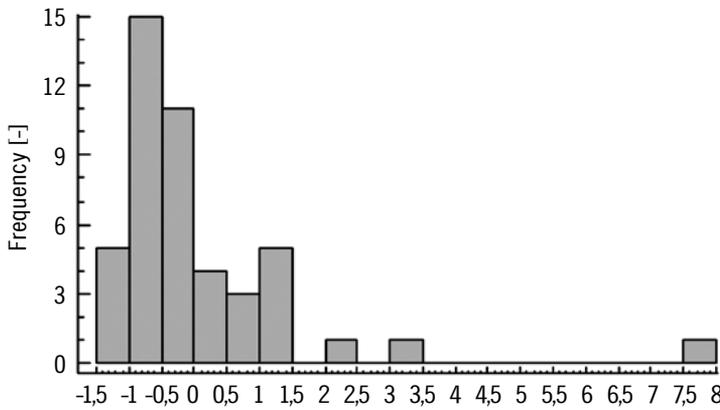
To establish the amount of influence valuation at historical cost had on the value of property, plant and equipment as shown on the balance sheet of an enterprise facing bankruptcy, relative difference between estimated values and balance sheet values was measured during the first phase of the analysis and presented in percentage terms.

In 11 cases, despite having complete data, specifying the relative difference between estimated values and balance sheet values was not possible as the balance sheet values came out to zero. In 6 of those cases, the balance sheet value was zero, and fixed asset

values were at estimated selling price. Since in 11% of the analyzed cases the balance sheet values were zero, property, plant and equipment at selling values were also essential information during analysis. Such a situation provided proof of the practice of understating balance sheet values in relation to estimated fair values.

The results of estimated value for property, plant and equipment in comparison to balance sheet value determined by interim court supervisors varied greatly and ranged from – 100% up to even 761% (Figure 1).

**Figure 1.** Estimated value of property, plant and equipment in comparison to balance sheet value determined by interim court supervisors



Source: author’s study.

The average estimated value of property, plant and equipment in comparison to balance sheet value determined by interim court supervisors in 46 cases was merely 5% (Table 5).

**Table 5.** Estimated value of property, plant and equipment in comparison to balance sheet value determined by interim court supervisors

Minimum [%]	Maximum [%]	Average value [%]	Standard deviation [%]
-100	761	5	148

Source: own study.

In 31 cases where the relative difference between estimated and balance sheet value, expressed in percentage terms, was negative, the average difference was 65%. In 15 cases where the difference was positive, it was 148%.

In 20 cases where the estimated value of property, plant and equipment was lower than the balance sheet value (also with the balance sheet value equal to zero), a comparison between differences in estimated and balance sheet valuations of property, plant and equipment in relation to total assets at bankruptcy was made. In the entire sample group, there were 21 cases in which the estimated value of property, plant and equipment was higher than the balance sheet value; in one case the interim court supervisor did not estimate the bankruptcy estate. The average ratio was 18%, which was 3% more than the average cost of bankruptcy proceedings, according to a "Doing Business" report. There was a large dispersion of results between 1% to 60%.

Research results pointed to a large diversity of results. In most cases, valuation by historical cost was significantly understated in relation to estimated fair value (an analysis could be made in 54% of the cases). Additionally in 35% of the cases, estimated fair value was higher than value at historical cost. This difference in comparison to estimated total value of assets at bankruptcy was significant when considering covering the costs of bankruptcy proceedings. There were no differences between valuation at historical cost and estimated fair value in only 9% of the cases. Therefore, hypothesis 2 was negatively verified. Valuation at historical cost did not provide useful information about market value of property, plant and equipment when the continuation of business activities was threatened.

## Conclusions, limitations and further research

There are many reasons why real estate appraisals are prepared, and there are many methods by which they are prepared (Pagourtzi, 2003). In accounting, a leading approach to real estate appraisal is based on incurred expenditures. Valuation at historical cost does not take into account market conditions and the unique features of buildings, which can have an influence on their value as economic goods. This problem can grow in importance when continuation of business activities is threatened and the only concern is appraisal of assets. The appraisal will be a deciding factor in initiating bankruptcy proceedings and information about the ability to repay outstanding debt.

The balance sheet is not the only source of information about assets of an entity facing bankruptcy. Not only during bankruptcy proceedings but to verify the need to initiate them, additional estimates and analyses are required. The financial statement is widely utilized to forecast bankruptcy; therefore it should be regarded as a document that could be used to assess the possibility of a threat to the continuation of business

activities (Wędzki, 2013). The question of whether a balance sheet provides useful information about the value of assets of an enterprise remains when the risk of bankruptcy is great. This question was the main focus of this study.

The importance for enterprises to adapt to the expectations of the market is emphasized in relevant literature and research (e.g. Baran, 2005). In practice, meeting the needs of market participants may mean that firms in the global economy must also meet the changing demands in the scope of information contained in financial statements. On the other hand, still developing accounting rules become a challenge for the average entrepreneur's abilities (Świetla, 2013). Different postulates about changes to financial statements can be found in the literature. There is a need to develop them into prospective accounting, based on fair value and *ex ante* accounting, based on plan and optimisation oriented probabilistic character (Gmytrasiewicz, 2009). Besides postulates to make changes to valuation in accounting of entities that continue business activities, there is an increasing trend concerning the valuation and reporting by entities at risk of bankruptcy. For the purpose of bankruptcy proceedings, the courts use valuations of assets at a forced sale (Newton, 2010; Bauer, 2013). This develops because regulations in the field of accounting marginalize the need for information by entities that have lost their ability to continue business activities (Walińska and Jędrzejewski, 2009).

Empirical studies indicated that in most cases, values at historical cost of owner-occupied property are significantly lower than their estimated fair value. At the same time, valuation at historical cost does not provide useful information about market values of property, plant and equipment of enterprises facing bankruptcy that do not possess real estate. The results support the idea of the use of estimates that bring closer the value of assets to valuation at market prices, adjusted for forced sale caused by bankruptcy proceedings, is justified.

Future research should compare estimated fair value to amounts gained from the sale of real estate during bankruptcy proceedings. Moreover, analyses should be conducted on the influence of a transaction forced by bankruptcy proceedings over the fair value of owner-occupied property.

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