ECONOMICS

WORKING

PAPERS

ECONOMICS WORKING PAPERS

Volume 2 Number 1 2018

ECONOMICS WORKING PAPERS

FINANCIAL HEALTH ASSESSMENT FROM THE ACCOUNTING PERSPECTIVE IN THE CASE OF AGRICULTURE

Nývltová, K.

Abstract

Agriculture is a very specific field. These specifics cannot be entirely covered by accounting legislation Due to this fact, some accounting items or information that are included in the financial statements may be affected and thus can be also the assessing the financial health of an enterprise affected. The main objectives of the paper are to determine problematic accounting areas in agriculture arising both from the specifics of the given field and the legislative solution of some accounting cases and to assess their impact on the financial statements. The analysis of problematic areas is followed by the application, which evaluates the impact of these areas on the values of selected entries recorded in the financial statements. For the analysis, 163 data records of 64 Czech small and medium agricultural companies was available. To achieve this analysis a paired t-test was used, including analysis of normal distribution assumptions. By using pair t-test, differences in accounting solutions of problematic areas, namely investment subsidies, the lease for the tenant, valuation of the land and the old and new accounting solution of changes in stocks were demonstrated. In all analysis, there is statistically significant difference between currently used method and the proposed method of accounting solution of problematic areas. Despite the statistically significant difference, the total difference of the values of the available data is small. The reason can be the testing of small and medium-sized businesses. The aim is to include large companies as well in the following analysis.

Key words: accounting, agriculture, financial health assessment, accounting legislation, specifics of business field

JEL classification: M4, Q1, G3

1 Introduction

Accounting information is a basic source of data for assessing financial health by means of various methods. Accounting should be conducted in such a way that the financial statements give a true and fair view of the object of accounting. A true and fair view is also embodied in the European accounting rules as well as the English and US GAAPs. A true and fair view is the basis for the right decisions of accounting information users, whether they are investors, business managers or, for example, the state. Non-compliance with the principle of true and fair view may arise not only from a targeted bias in the accounting information, but also from the specifics of sector or currently valid accounting legislation.

Since agriculture is a very specific field, Czech accounting legislation does not take a deep insight into all the problematic areas that may appear in the accounting of agricultural holdings just as of other specific field of enterprreneurhip. The specifics of each sector are then reflected in the values of financial statements entries and this way they also enter the assessment of the company's financial health. It is also necessary to consider the information provided in the supplements to the financial statements in order for the financial health assessment to be objective. Off-balance-sheet accounts or non-financial information are also a good source of information for the financial health assessment. Upon availability of this additional information, the objectivity of the assessment of the company's financial position may be increased.

The aim of this paper is to determine the problematic areas of accounting of agricultural enterprises arising from the specifics of the field or from the possible interpretation of legislation or insufficient solution by legislation, and to assess the impact of the mentioned phenomena on the entries in the financial statements. This paper evaluates statistically significant differences in selected entries that can occur when comparing the values by the current accounting solution and the proposed solution that could lead to an increase in the information capacity of the data in the financial statements.

The paper is divided into 5 chapters. The first chapter (Introduction) contains a brief introduction of the topic and the current solution. The second chapter (Literary review) describes the current state of the issues related to financial analysis, the specifics in agriculture and problematic areas arising from legislative regulations. The methods used to analyse of differences and data are described in the third chapter (Methodology). The fourth chapter deals with the results of the analysis (Results). The fifth chapter (Conclusion) summarizes the results and contribution of this article to the given topic.

2 Literature review

2.1 Financial health of business

2.1.1 Definition of financial health and financial distress of the company

Financial health of a business has been frequent term for many years. From a wide range of its definitions we would like to quote the following:

It can be defined as "*One of the synthetic criteria of special importance, as a penetration of profitability and liquidity achieved by an enterprise.*" (Kalouda 2004).

This definition is very complex and can be an obstacle by the financial analysis itself.

Another definition, for example, is given by Valach (1999): "*A business that is capable of fulfilling the meaning of its existence can be regarded as a financially sound enterprise.*"

The purpose of the existence of some companies may be the liquidation of the company.

In his work (Gurčík 2002), Gurčík defines business as prosperous if it achieved profits within three years in a row, and in the last of the years under review, the return on equity was higher than 8% (this was the limit value at which the deposited capital retained its fair value).

There it is necessary to consider the fact that under the conditions of the Slovak Republic the investment subsidies are also charged to revenues with the possibility to use the account 384 - Deferred Income. They are also included in profitability.

Considering Czech farms, return on equity is influenced by subsidies. According to Kouřilová (2010) the influence of subsidies is growing. Without these aids, no company would have achieved a positive return in 2005 and the reported return would be roughly by 11-12% lower.

It is also important to preserve the capital of the enterprise. Therefore, it is necessary not to divide the entire amount of the profit but retain a part of the profit to compensate for inflation and to reproduce the asset consumed during the accounting period.

The financial health of a company is based on the current state of the company's finances. "*A financially healthy business demonstrates sufficient profitability and adequate financial risk protection.*" The signs of financial risk are insolvency and over-indebtedness. "Undermined financial health is demonstrated as financial distress." Financial distress is a problem that can only be solved by significant changes in operating or financial activity (Grünwald 2001).

Kopta (2009) identifies troubled farms such as those at risk of long-term negative returns and negative operating cash flow resulting from fluctuations in their economic results. Here, profitability was calculated from the sum of the five-year business results.

Zdeněk (2012) considers a company to be at risk due to financial distress if the sum of the three-year results is negative or if the cash flow is negative in any of the three years.

The concept of financial distress does not have a uniform definition. For example, according to Synek (2007) the company in financially distressed is in a long run loss-making and insolvent; in can be an enterprise with serious partial problems, or a venture that is successful but too dynamically growing and therefore lacking capital. According to Valach (1999) there are two causes of financial distress, external and internal. According to Marek (2009) there are two forms - absolute when the liabilities exceed the value of assets, or relative in a situation where the enterprise is unable to meet all its liabilities.

The most frequently used definition according to Holečková (2008) reads: "Financial distress is the financial condition of an enterprise when the enterprise has significant payment difficulties that cannot be solved otherwise than by radically changing its operating or financial activities."

Besides the inconsistent definition of financial distress, there are other criteria. The most common are insolvency, over-indebtedness, bankruptcy, or takeover.

Financial distress can be a spontaneous process where the company is not really capable of further functioning without a radical change. Another reason for financial distress can also be the management's efforts to utilize creative accounting, which distorts the values in the financial statements and thus artificially creates an unfavourable situation.

2.1.2 Financial health assessment – financial analysis

Several methods are used to assess the financial health of an enterprise. Analysis of status and flow indicators, analysis of differential indicators, analysis of ratios and analysis of sets of indicators can be considered as basic.

Standard financial analysis tests the financial health status by ratios indicators of the entries in the financial statements. The basic ratios measure profitability, liquidity and financial stability (Grünwald 2001). Ratio indicators are the most numerous and most used group of indicators (Růčková 2015). These indicators are used around the world. Their use in

the GAAP is documented by, for example, Fridson & Alvarez (2011), Giroux (2003) or Peterson & Fabozzi (2006).

Ratio indicators

The whole range of ratio indicators can be divided into several groups. One way of their categorization is as follows

- Profitability indicators.

- Activity indicators.

- Indicators of indebtedness, liquidity and financial stability.

- Market Value Indicators.

- Cash flow-based indicators.

- Cost indicators.

- Indicators related to the number of workers (Zdeněk 2012)

Systems of indicators

The systems of indicators consist of sets of several indicators from different groups with mutual links, which makes it possible to include multiple aspects of a company's rating. When one value is changed, it is possible to observe the impact on other indicators.

There are two basic groups of the systems:

- Pyramid systems of indicators

- Targeted selections of indicators

Pyramid system of indicators

The idea behind the concept is a gradual disintegration of a single indicator to indicators of a higher order which can better and more accurately describe individual business operations. The disintegration is performed with the use of two main techniques – additive and multiplicative. In the additive process, the indicator is broken down to the sum or difference. The multiplicative method means that the original indicator is the product or the proportion of higher order indicators (Boháčková 2017).

DuPont disintegration of profitability indicator

This indicator breaks down the ROE (return of equity) indicator to ROA (return of assets) and to financial leverage.

ROE = profit / equity = profit / revenues * revenues / assets * assets / equity = ROA * assets / equity.

ROA can be further broken down into profitability of revenues and the indicators of asset turnover rate (Wagner 2009).

Targeted sets of selected indicators

Another method of corporate financial health valuation is to determine targeted sets of indicators. This method eliminates the disadvantage of individual indicators, which display limited explanatory power. A system of indicators offers a more detailed look at the company's economic situation, but also diminishes clarity and orientation.

Targeted sets of indicators are based on mathematical and statistical methods. These models are primarily engaged in the prediction of financial distress of a company.

The models are divided into two groups – bankruptcy and creditworthy models.

- Bankruptcy models are based on real data and try to find an answer to the question whether the company goes bankrupt by some time. They thus provide an early warning of bankruptcy.

- Creditworthy models are based on theoretical knowledge coupled with the experience of financial analysts. Their task is to assess the financial health of the company.

The kind of the model in question cannot be determined just by its function. What must be also known is the intention of the author (Růčková 2015).

Ooghe and Balcaen (2002) evaluated the portability of selected models. Among the evaluated models were Altman (1968), USA; Bilderbeek (1979), The Netherlands; Ooghe-Verbaere (1982), Belgium; Zavgren, (1985) USA; Gloubos-Grammatikos (Discriminant Analysis and Logistic Regression) (1988), Greece; Keasey-McGuinness (1990), United Kingdom; And Ooghe-Joos-De Vos (1991), Belgium. In this paper identified main issues of portability of models were:

- The age of the model, measured by the time of the financial statements used by creation of the model.

- The country of origin of the pattern, which is the nationality of the used company's financial statements.

- Definition of the failure that was used to determine the sample of failed companies.

- Types of enterprises whose annual accounts were included in the sample.

- The method on which the model's estimation is based.
- Number, complexity, and type of variables included in the model.

Balcaen a Ooghe (2014) also deal with the problems of applied statistical methods by the creation of individual models. In this analysis, 43 models from different countries of the world are evaluated. No model from the Czech Republic is included. Key issues include: the assumption of a dichotomous dependent variable, the sampling method, the assumption of stationarity and data instability, the selection of independent variables, the use of annual accounting data and the time dimension.

Altman a Narayanan (1996) or Shemetev (2012) provide an overview of classification models. However, in one of the works, Czech models are not included.

2.2   The role of accounting in financial analysis

The primary data source for financial analysis are the financial statements, which provide information to a wide range of users. They can be divided into two types: financial accounting statements and internal financial statements. Financial accounting statements are legally binding and serve primarily for external users. These statements are the basis for financial analysis as the contained information is publicly available. Internal financial statements are a source of information primarily for the enterprise itself, for its management. But this information can help make the results of financial analysis more accurate (Růčková 2015). Information about the state of and the development of the company's finance is shown in its financial statements, in some cases supplemented by an annual report (Grünwald 2001).

According to Accounting Act the accounting units have an obligation to keep their accounts in a way that their financial statements offer a true and fair view of the subject of the accounting. The view is true if the content of the financial statements corresponds to the actual condition that is shown in accordance with the accounting policies. It is fair when the accounting methods are used in a manner that leads to faithfulness.

A true and fair view is important from several points of view. The information contained in the financial statements is used by investors (even potential ones) to assess the financial position of an enterprise, the ability of its management to perform managerial functions, to perform benchmarking, or determine the company's tax obligations towards the state.

The requirement for a true and fair view is also part of both European and English law, where the GAAP (Generally Accepted Accounting Principles) accounting is used. (Financial

Reporting Council 2014). A true and fair view is provided when the recognition, measurement, presentation and disclosure of specific financial reporting aspects is made in a way that reflects economic circumstances. No IAS (International Accounting Standards) / IFRS (International Financial Reporting Standard(s)) standards may be applied under European law if this would oppose the principle that the annual accounts and consolidated accounts provide a true and fair view of the company's or group's assets, liabilities, financial position and profit or loss (Alexander a Jermakowicz 2006). The same condition is set for the UK GAAP. In case of deviation, it must be explained why the deviation occurred and what the financial impact would be provided the accounting principles were respected.

This obligation is not always respected. Its non-compliance can become evident due to deliberate misrepresentation of accounting (creative accounting, fraud) or ensue from the current state of legislation or specification that is reflected in the values of the entries in the financial statements.

The way of applying the accounting principles may even lead to a violation of the reporting capacity of the financial statements (Grünwald 2001).

2.3 Shortcomings caused the possible interpretation of legislation or insufficient solution by legislation

Even if a topic is addressed by legislation, different values in the financial statements can arise. Differences between entities, which can distort the picture of the company's assets, arise due to the choice of certain accounting method or due to the absence of obligation to create adjustments and free reserves. The choice gives an extra space for selecting a method which will ensure that the company reaches the desired values of certain items presented in financial statements and thus also for targeted manipulation with financial statements.

The main problems are as follows:

Focus on historical accounting and legislation – Valuation of assets at historical cost has its advantages and disadvantages. Benefits include conclusiveness, objectivity, verifiability, ensuring the protection and control of assets, continuity. Disadvantages include the following: not taking into account the changes in prices of particular items of assets (i.e. changes in market prices of assets, incl. land or animals), ignoring changes in the purchasing power of the monetary unit and thus distorting the outcome of the current year (Kovanicová 2004).

However, according to Argilés, Garcie-Blandon & Monllau (2011) there are no statistically significant differences in the future cash flow between historical cost and fair value measurement methods.

Importance of the column of correction – Adjustments for asset items are carried by accounting unit. The "correction" column also includes captions of the asset, which are also in the entity's direction. This column further affects the net asset value that is currently used in the financial analysis. The net asset value is also one of the criteria for mandatory audit since 2016.

Financial leasing - Leasing is a long-term form of lease, when the contract explicitly determines that after the expiry of the agreed time, the owner of the used property transfers the ownership right to the user of the leased object. The purchase price at the time of the transfer is not higher than the residual cost calculated from the input price at the straight-line depreciation without the increase in depreciation in the first year of depreciation. The tenant also assumes all responsibility for the rented property as well as the risks including those associated with the use of the asset in question. The minimum period of a finance leases is the minimum depreciation period for tangible assets under the Accounting Act.

From the questionnaire survey presented in the article by Hinke & Hrdý (2012) it is obvious that the primary problem in Czech reporting is the reporting of financial leasing on the part of the tenant. Prioritizing the legal view over content leads to a distortion of the value of the assets, which relates to both the parties involved. The leased asset is entered on the balance sheet of the lessor, who also depreciates it. Other inconsistencies arise on the liability side, where it is reported only on lease payments to the costs and in favour of liabilities.

The lessee only records assets in the off-balance-sheet accounts that are not part of the disclosed information. However, financial lease information should be described in the supplement to the financial statements, but not always.

It may therefore happen that the entity's financial lease presentation in the financial statements does not report the assets in its balance sheet though these assets may be crucial to its operation.

It is very important to respect the schedule of accrual basis in accounting by finance leases posting. These are prepayments or down payments that are posted to the lessor in "accrued revenue" or "accrued earnings" accounts. The lessee uses "deferred costs" or "deferred expenses" accounts (Gláserová a Otavová 2010).

According to International Accounting Standards (IAS 17), the principle of the prevalence of content over the form is applied. Because the requirements for recognizing an asset in the balance sheet are met, an asset acquired through a finance lease is shown in the assets of lessee, who also depreciates it. The costs then reflect the interest from the lease and the depreciation value of the asset. The lessor only reports a claim for tenancy.

The value of the finance lease is determined either as an adequate value that corresponds to the fair value after deducting subsidies and tax credit, or in the present value of the minimum lease payments, if this is lower than the valuation at an adequate value (Krupová 2001).

Differences in the presentation of a lease under Czech legislation compared to the IFRS lead to different amounts considering the balance sheet total as well as the profit. Therefore, some indicators of financial analysis are also affected. For example, profitability indicators on the lessee's part will be higher according to the Czech legislation than in the IFRS system, as profit is divided by a lower asset value. On the other hand, indebtedness indicators of the lessee will be lower if the Czech legislation is used. (Gláserová a Otavová 2010).

The same accounting rules for financial leasing presentation are also required by the US GAAP (Krupová 2001).

In January 2016, the new IFRS 16 Leasing Standard came into effect, which also changed the reporting of operating leases. The fact that the assets and liabilities from operating leases had not been recognized on the lessee's balance sheet was considered to reduce accounting information capacity. The provisions of this document shall be applied in the accounting period beginning on or after 1 January 2019. According to this standard, the lessee will charge for the recognition of the asset to which they have the right to use, as well as the liabilities related to the lease, including the operating lease. The exception will be short-term leasing (less than 12 months) and leasing to a low-value asset (Deloitte 2016).

The comparability of financial statements both in time and with other companies due to differences in adopted accounting policies and the application of generally accepted accounting principles

Accounting depreciation – A frequent cause of discrepancies between firms is an accounting depreciation in dependence on time. There are differences in depreciation methods and thus in depreciation rates, depreciation periods or approaches to the inclusion of obsolescence in depreciation rates. Other irregularities arise with the option to use depreciation of components. For example, it is possible to depreciate an air conditioner in

a new building separately because of its lower lifetime. In 2010, as part of crisis measures, the possibility of using accelerated depreciation arose; for example, a car could be depreciated in two years instead of five years.

Cernuşca (2009) presented the influence of the chosen amount of the residual value of an asset. The amount of the residual value influences the amount of the depreciation and thus on the amount of the profit.

According to the International Accounting Standards IAS 16 it is possible to use three depreciation methods. These are straight-line depreciation, accelerated depreciation and performance method. The same methods are the most used in US GAAP (Farm Financial Stardards Council 2008)

The method of classifying current and fixed assets - For assets whose purchase price does not exceed the value of CZK 10,000 and the period of use is longer than one year, the firm decides whether it will belong to inventory account or to fixed assets. If it opts for inventory, its consumption must be displayed on the balance sheet accounts. For fixed assets, the company chooses its own limit for keeping the property as tangible. This leads to considerable reduction in the comparability of different companies.

The valuation of inventories and their consumption - This policy affects both the extent to which they are recognized in the balance sheet in a given year, as well as the value of the loss in the profit and loss account. An entity may, in accordance with Czech legislation, choose between two ways of valuing inventories during picking, either the FIFO (First In, First Out) method, or the arithmetic average.

Weighted arithmetic average is frequently used and represents the lowest level of price dispersion. At the time of inflation, the FIFO method leads to the recognition of the highest profit and the overvaluation of assets. If prices fall, the effect of the FIFO valuation methods is contrary (Drábková a Kouřilová 2008).

According to both IFRS and GAAP, the LIFO (Last In, First Out method can also be used (Ampofo a Sellani 2005)). However, its use must be adjusted by national accounting legislation. The LIFO method is permitted in Brazil, Canada, Germany, Japan, Mexico, the Netherlands or the USA (Iqbal et al. 1997).

Choice of price calculation methods for owned stocks and other assets – Although many companies consistently use calculations for the valuation of inventories, the values may not always be comparable. The calculation formula chosen by each company may contain

different items. The determination of the primary product and by-product may also vary, which also affects the valuation.

The principle of prudence - Differences arise by using the possibility of forming correction items. It is important what the amount of legal reserves (the impact of worse conditions of its creation) is and if the company uses the creation of voluntary reserves. All these factors are reflected in the value of assets and income. To reduce the impact of weather risks in the form of reserves or insurance is not common. Moreover, there are also silent reserves that are not displayed in the accounting statements. The prudence principle itself may lead to a reduction in the reporting ability of the financial statements. Although it is necessary to reduce the carrying amount of the assets due to the risk of a decrease in its value, it is not possible to adjust this value upwards.

The principle of accruals - Differences in the statements of various firms follow from the concept of assigning costs and revenues to the period to which they relate. There has been a conflict between two principles, the principle of prudence and the principle of accruals. According to the principle of prudence, the company should not show a precarious profit. The company should show costs at the time of their inception because it is unclear what the financial position of the company will be in the future. (Kovanicová a Kovanic 1995)

For the reasons given above, it is very important to use the notes to the financial statements when assessing financial health. This should include a set of important facts. The purpose of the notes to the financial statements is to express, refine and supplement the information in the balance sheet and the income statement. The notes to the financial statements also contain many non-accounting data.

Besides the problematic and therefore risky areas of the given field, it is also necessary to respond to items that are most frequently used in this field. These are mostly the specifics with which an individual branch struggle.

2.4   Specifics

Agriculture, as opposed to other fields of business, is a very specific field, as it is a business into which live creatures and nature enter. Activities in these conditions are influenced by weather, seasonality that affects the variability of economic results, nature's work, or specific psychological influences. These specifics are reflected in accounting in a variety of ways. It may affect some entries in the financial statements, or lead to report items

that are not common in other fields. These specifics must be taken into account by assessing financial health and interpreting the items of financial statements.

2.4.1 Subsidy

In the balance sheet, subsidies are recorded in several ways according to their nature. Subsidies for investment are reflected in the balance sheet by reducing the value of fixed assets which have been acquired. This leads to a lower value of depreciation, which affects the profit. Subsidies for the operational purposes are used to purchase short-term assets. This subsidy is accounted as revenues. Both types are then projected on the liabilities side. At first glance, the impacts of subsidies on the balance sheet are often hidden. If subsidies are considered a foreign source, precise determination of how the entrepreneur manages his entire sources will not be possible. The value of the investment property acquired from subsidies is reduced by the amount of subsidies. The real value of the property can be seen on off-balance sheet accounts. At first sight, therefore, we do not reveal that the subsidy was used. As the use of a subsidy is charged to the income statement, the comparability of profit and loss statements is reduced, when comparing a company which receives subsidies, and a company which receives no subsidies. Sometimes it can be seen that subsidies are taken unjustly. On the piece of land for which a company received subsidies for grazing you do not see a single head of cattle throughout the year; the land is just fenced (Kouřilová et al. 2009).

Subsidies may contribute towards achieving financial balance of a company, authority or organization without specifying the purpose.

In agriculture, providing subsidies has several reasons, which include, for example, unequal natural conditions, sustainable land use, landscape preservation, inefficient resource allocation or support for sustainable agricultural system.

The fact that agriculture is an important branch in terms of landscape maintenance as well as social and economic development in rural areas has been emphasized by several authors, e.g. Majerová (2007), Hrabánková and Boháčková (2009), Střeleček et al. (2008) or Doucha and Foltýn (2008). From their perspective, such subsidies not only support the farm itself (or individuals), but also create a tool for maintaining the above-mentioned facts.

In terms of purpose, we recognize two types of subsidies, either to cover costs or to purchase fixed assets. The received subsidy will increase the value of assets (cash) on the beneficiary side and, depending on the type of subsidy, it will either increase the liabilities or reduce the assets. In the case of an operating subsidy, there is an increase in revenues and thus

the economic result. Upon receipt of the investment grant, the value of the acquired asset is reduced. If the amount of the subsidy covers the full value of the asset, the asset is held only on off-balance sheet accounts and it is not charged in balance sheet at all (Sedláček et al. 2009).

As the received amount of the subsidy is not certain until the grant is credited, it is appropriate to use the accrual account of Group 38 for the recognition of the approved operating grant instead of the receivable in Group 37 (Kouřilová et al. 2009).

The authors generally agree with the need of using a time factor when posting the subsidies. Accrual of subsidies is also suitable for operating subsidies. The accrual should be kept not only with costs but also with effects that can be spread over several years. Often mentioned is the effect from the application of soil fertilizers, when their effect is proven for up to three years (Černý et al. 2010).

The moment of reporting claim

In many cases, however, the subsidy is received in a different accounting period than the transaction on which the grant is granted.

The situation in which the subsidy is accepted in the same accounting period as the transaction for which the subsidy is granted are not very frequent. It may happen, that the subsidy is accepted in one accunting period and the transaction for which the subsidy is granted in the following accounting period. In this case, the liability for the grant provider is recognized in the current year, and in the following accounting period the subsidy is settled either in the cost or the purchase price of the fixed asset is reduced.

More often, there is a situation when the subsidy is received in the next accounting period then the transaction is executed. For operating grants, therefore, the costs to be paid out from the subsidy are charged in the current accounting period and the revenues from subsidy are charged in the following period. Since the related costs and revenues are to be charged in the same accounting period, it is appropriate, according to the interpretation of the National Accounts Board "I-14 Moment of Recognition of the Right to Receive or Return a Subsidy" the undisputable entitlement to a subsidy should be posted. The same problem also arises with investment subsidies. For these, the purchase price should be reduced by the amount of the subsidy. If a subsidy comes in the following accounting period, the entity must classify the asset at its full cost and depreciate it as well. However, there is a problem with the settlement of the subsidy in the next accounting period. Interpretation I-14 deals with the moment when

the right to receive or refund the grant is declared. An entity recognizes a receivable to the provider at the time of entitlement to the grant. The moment of financial settlement does not play a role in this case. If there is a change of the settled amount or would not have been settled at all, such a situation is accounted in the period, when that fact became certain and does not occur retrospectively. The reduction the value of the subsidy may be posted by a reduction of the receivable or a provision for this receivable. For investment grants, the change in the value of the grant will adjust the amount of the acquisition cost of the asset in the accounting period when the change occurrs (Louša et al. 2008).

The most recent opinion of the Ministry of Agriculture on operating subsidies, namely the subsidy for the welfare from the 18 January 2016, reads: "... for the payment of income tax there are similar conditions as for other claimable subsidies. This means that it is only posted when the subsidy is granted (in the year the subsidy is granted), and not during the (year) submission of the grant application." (Ministerstvo zemědělství ČR 2016). However, this opinion does not respect one of the most important principles of double-entry accounting, an accrual principle.

Although this opinion is the latest, the Ministry of Agriculture has no decisive influence on tax collection. It is therefore appropriate to keep the statement of the Minister of Finance in a letter to the President of the Agrarian Chamber of the Czech Republic in 2005 (Holeček 2016). Here it is set that the accountants responsible for the accounting are posted about the subsidy already when it is certain that they receive this subsidy and is not known only the exact amount of the subsidy. This receivable may affect the profit and therefore the tax base. Only if it is not known before the end of the tax period whether the subsidy is received at all, the receivable is charged to off balance sheet accounts or is included in the notes to the financial statements (Sobotka 2005).

According to Holeček (2016), there will be a different assessment of reasonable assurance of regular recurring annual subsidies and new grant titles. The new titles need to be done with caution. In the event of receipt of a grant on the balance sheet date, a short-term receivable on account 378 is recorded. The settlement of the operating subsidy will also take place in the current period together with the costs related to this subsidy. If the decision to grant a grant is received after the balance sheet date, but until the financial statements are prepared, income is recognized for the next period and income is recognized in the period in which the costs associated with the grant have been incurred.

In case of receiving of a subsidy on the balance sheet date, a short-term receivable on account 378 is recorded. The settlement of the operating subsidy will also take place in the current period together with the costs related to this subsidy. If the decision to grant a subsidy is received after the balance sheet date, but until the financial statements are prepared, an accrued income is recognized for the next period and revenue is recognized in the period in which the costs associated with the subsidy have been incurred.

Subsequent acquisition of investment subsidy. Entitlement in a different accounting period than the acquisition

In the case of investment subsidies, they are often provided ex post. Thus, the entity must finance the purchase of an asset from other sources. The reduction in the price of the subsidy amount should occur at the moment when the subsidy is confirmed. If there are no acquisitions and subsidies in the same accounting period, the entity calculates depreciation from the original input price.

In the following year, the entry price and depreciation will be adjusted. The depreciation of the previous accounting period must be cancelled and it must be calculated and posted in new amount (Kouřilová et al. 2009).

The biggest problem, however, occurs when the entity has no guarantee of the allocation of the subsidy and cannot charge it in the given accounting period. There are two situations here. If a financial settlement occurs or an unqualified entitlement to an allowance is established before the books are closed, the entity may still post about subsidy and included it in the financial statements. If this occurs later, the receiving of the subsidy is the accounting operation of the new accounting period, and there is no change in the previous one. Operating subsidies thus violate the principle of attributability of costs and revenues (Müllerová 2011).

If the decision on granting a subsidy is not received even before the financial statements are prepared but the granting is sufficiently certain, it is charged in the current period on the estimated active accounts and the revenues are also posted. However, if granting is not certain, the subsidy must be included in the notes to the financial statements (Holeček 2016).

The interpretation of the National Accounting Board "I-27 Subsequent Acquisition of Subsidies for Fixed Assets" deals with the solution to the investment subsidies. It addresses the situation when an entity acquired long-term assets with the intention of financing it through a subsidy, but did not posted an unqualified entitlement to the subsidy during that period. The property was classified in a full price and it began to be depreciated. If an entity does not show that it was not required to post a claim for a subsidy in the current period, it is

an error that must be corrected in the subsequent accounting period. Corrections of material accounting errors are recognized retrospectively against the equity item "Other operating result". The corresponding items of financial statements in the comparative figures of prior periods will also be adjusted. If an entity demonstrates that it could not charge the claim, the subsidy will be reported prospectively as a change in the estimate. The entity reduces the acquisition price of fixed assets and, at the same time, adjustments to the amount that would have been if it had been depreciated from the reduced purchase price from the beginning. The difference is charged to the profit or loss of the current period as a reduction in operating costs (depreciation) (Müllerová a Mejzlík 2013a).

There may be situations when the value of the received subsidy is higher than the current book value of fixed assets. The impact of such a situation shall be reported prospectively and the residual cost shall be posted to revenues of the period in which the undeniable claim arises or the subsidy has been received. If, as a result of a subsequent subsidy, the value of the property drops below the limit for inclusion in a fixed asset, it is not the reason for the asset's discard from long-term assets (Müllerová a Mejzlík 2013a).

Subsequent return of a subsidy due to a failure to fulfil obligations

A situation, when the entity has not met the conditions for obtaining a grant, so it must return the subsidy or a part of it, may occur. If the obligation to return the subsidy has become known in the same period when the transaction for which the subsidy was granted, the entity posted a liability to the grant provider and adjusts the acquisition price of the asset and depreciation value by the amount of the returned subsidy. If the obligation to return the subsidy or part of it is known in one of the following periods, it must be demonstrated when the obligation of returning the subsidy was known. The decisive moment here is not the moment of the financial compensation, but the moment when the obligation to return the subsidy became known.

The entity must demonstrate that of the obligation to return the subsidy was known after the financial statements for the period in which the subsidy was received were prepared. If the entity does not prove it, it is an error that must be corrected retrospectively against equity. Otherwise, it is posted prospectively. In both cases, the entity must adjust the acquisition price and the accumulated depreciation of the asset purchased from the subsidy in such a way that it is as if the subsidy has never been received. That is posted to profit of the year, when it became aware of the obligation to return the subsidy. (Müllerová a Mejzlík 2013b).

Holeček (2016) proposes the posting of recognition of the obligation to return the subsidy to the cost of the account 548 – "Other operating expenses" in relation to the account 346 – "Subsidies from the state budget" in the year in which the entity has learned about the obligation to return the subsidy.

Other posting options

One of the proposed methods of accounting of investment subsidies is the accounting for so-called "residual and active subsidies". According to Kouřilová, Pšenčík & Kopta (2009) it would be appropriate to use the accounting group 44 for this posting. The asset would be fully booked in the balance sheet, only the portion that was not taken from the subsidy would be depreciated and the subsidy would not be posted in the income but in another equity category. At the end of the life of an asset, the asset is discarded from the balance sheet against accumulated depreciation and cancellation of the subsidy.

Another way to charge a received investment subsidy and to depreciate the asset offers Sedláček, Kouřilová & Pšenčík (2012). By this posting method, no part of the acquired asset is taken in the profit but is transferred to the capital fund created from the subsidy. Depreciation is then carried out in a standard manner from the full acquisition price of the asset. Accumulated depreciation in the accounting groups 07 and 08 is divided into depreciation of the part of the asset not acquired from the subsidy (posted to cost) and of the part acquired from the subsidy. Thus, the value of the granted subsidy and the depreciation value of the asset are reduced. The asset is kept in the balance sheet in the current book value (gross value, correction and net value).

Operating subsidy should also be managed as a capital fund made up of subsidies, where the subsidy is kept throughout the whole period of its use. It cannot be paid out in the form of dividends because it is not created by the activities of the company. To the other component of equity it may be transferred at the moment, when it is utilized, or gradually depending on its use (Sedláček et al. 2012).

Holeček (2016) proposes the posting of operating subsidies to the profit or loss of the current period, with which it is related both in substance and in time.

That subsidies may affect the financial health assessment of a company is also demonstrated in the paper by Lososová and Zdeněk (2014). According to Trnková, Malá and Vasilenko (2012), the economic situation is different for the companies that receive subsidies and those that do not receive them.

2.4.2 Farmland accounting valuation

Farmland accounting valuation also plays an important role in agriculture. This is one of the most significant problems today.

The book value of the pieces of land usually means the historical cost that was entered into the accounting as an administrative cost of the land in the past (Valder a Ryska 2004). Under § 25 (1) of the Accounting Act, land pieces (tangible assets other than inventories) are priced at acquisition cost.

The land is evaluated at the acquisition price, which is determined by the location of the plot, not by the quality of land. This may lead to an inappropriate valuation at the time of purchase. According to the Czech legislation it is not possible to revaluate the assets upwards. It is only possible to modify the valuation downwards using adjustments. This can also lead to a distortion in the value of assets and thus to a breach of the underlying accounting requirement – to provide a "true and fair view".

A very frequent phenomenon is also a lease of land on which a farmer manages. Land rent is charged in the same way as any other rent. The leased asset is the lessor's property. The lessee will only enter the paid rentals in the costs. This may mean that the main asset used in agriculture is not included in the assets of the enterprise.

In the case of businesses operating in agriculture, it is then possible that land represents only 1% of the total value of tangible fixed assets. For individuals, this ratio is about 20% (Valder a Ryska 2004).

According to IAS 16, Property, Plant and Equipment, the initial recognition of these assets at acquisition cost is preferred. The asset can be then handled in two valuation models. When choosing a model based on acquisition cost, the asset is subsequently pried at its acquisition cost, but the price is reduced by accumulated depreciation and accumulated impairment losses. For the revaluation model, the asset is entered at fair value less the subsequent adjustments and accumulated impairment losses as of the revaluation date (Šrámková a Janoušková 2015). Valuation is carried out with such regularity that there is no significant difference between the book value and the fair value of the asset. The fair value of land is usually considered to be the market value (Valder a Ryska 2004)

The possible way of valuing small plots is suggested by Samseth, Bærung & Agnar (2001). This method can help determine the amount of compensation for expropriation, as this amount is determined by the impairment of an enterprise's assets. Therefore, it is necessary to

consider the reduction in net income which has been reduced by the decrease of acreage. Using the regression analysis and the factors of yield, acreage, prices and by specifications of two other input factors (labour and capital), it is possible to estimate the value of small parcels in Norway.

In this method of land valuation, the identifiers of its quality, such as the content of organic and inorganic substances, the possibility of erosion and others are considered. Soil fertility is affected by the way of farming on agricultural and forest land, where inappropriate farming can result in rapid water runoff and soil erosion (Krninská 2002). According to Černý, Vaněk & Kulhánek (2010) the amount of nutrients uptake by the harvested main products as well as by-products is often higher than their applied mineral and fertilizer deposit. The direct use of nutrients from fertilizers is relatively low. Nitrogen is 50% or less, for potassium to 40% and phosphorus it is often below 10%. However, nutrients are partly used even in the following years after application.

The possible effect of fertilization, whether with organic or inorganic fertilizers, would be appropriate to divide into several years when these fertilizers are being utilized.

Land valuation in Europe varies depending on several factors. These are differences in production costs, agricultural yields, geographical differences in discount rate, and the expected increase in costs and revenues. These factors should be included in land valuation in the European Union using net present value (Ustaoglu et al. 2016). These results will be integrated into the Luisa model used by the European Commission.

2.4.3   Capitalization of inventory, assets and services

The changes of Accounting Act and the implementing Decree No. 500/2002 Coll. which implements some provisions of Act No. 563/1991 Coll., On Accounting. Operating costs arising from the internal creation of inventories and fixed assets will be reported in the newly named group of accounts "58 - Change in inventory of the company´s own products and capitalization" (instead of the original posting to the group "62 - Capitalization"). For this reason, capitalization will be no longer recognized as an income but as a reduction of costs of the relevant account from the account group 58. Capitalization of inventory and assets will be reported under "C. Capitalization" in the profit or loss account and will have a negative value.

Of course, opinions on this issue are different. In both the forms, the calculation results in the same value of business outcome. By removing the overview of turnover in groups 61 and 62, and by redeploying group 58, it is rather difficult to monitor the stocks in agriculture, for

which the stocks are predominantly suitable (species, harvest time, locality, herd turnover, in-house services, etc.).

Interpretation of in-home services will have a major impact on the value of turnover in agriculture or fisheries. For example, the use of transport means for transporting the necessary material is a very common phenomenon. Until now, the costs of transport have been charged in the cost accounts and earnings have been charged as performances in revenues. According to the new version of the law, the performance of the means of transport reduces the value of costs, i.e. total consumption. This distorts the value of costs and revenues and hence the overall view of the subject of accounting.

This posting procedure can also be viewed as a violation of the ban on mutual settlement of costs and revenues, which is forbidden under § 7, section (6) of the Accounting Act.

From a tax point of view, it is more difficult to understand. The tax-effective costs were offset by the revenues that were thus achieved by the real increase in the value of the asset item, then the item of property was then activated in the balance sheet. Similarly, the increase in self-managed stocks.

2.4.4   Changes in internally produced inventories

So far, the change in inventories produced internally has been posted as an income in accounting group "61 - Change in inventory of the company´s own products". The amendment, however, introduces a new method of accounting which is performed through the appropriate account in the new cost accounting group "58 – Change in inventory of the company´s own products and capitalization". An accrual in unfinished production process, semi-finished products, finished products and young as well as other animals and their groups will be thus credited to this account, a decline in these stocks to its debit. In the profit and loss accounts, these cases will be reported under "B. Change in inventory of the company´s own products ".

This step will lead to a lower value of the turnover. As with capitalization, the company's performance will not be on the revenue accounts, but will lead to a reduction in the total cost, i.e. consumption. The effect on a true and fair image is therefore the same.

3 Methodology

The need for the most objective data for further use and processing finds its support in numerous problem areas, as has been shown in the previous section. These spheres then determine the need for a specific research focus. This part of the paper presents the main and partial goals, research questions and applied methodological procedures, as well as the methods that were used during the process of the paper elaboration. In the course of this work, research objectives were specified which are measurable, achievable and realistic.

3.1   Aims of the paper

The main aim

The main aim of the paper is to determine the problematic accounting areas of agricultural enterprises arising from the specifics of the field or from the possible interpretation of legislation or insufficient solution by legislation, and assess the impact of specifics of agriculture and of legislative change in posting of changes in inventories produced internally on the values of some entries of financial statements.

The partial objectives

The partial objectives of the paper are as follows:

1. To determine the specifics of the selected branch
2. To represent an overview of problematic items.
3. To assess their expression in the financial statements

3.2   Determination of hypothesis

In this paper, the following hypothesis, which were formulated according to the above-mentioned objectives, are tested.

Research questions:

- Which areas of agricultural accounting can be considered as specific and problematic for reporting?

- Have this specific impact on the values of some entries of financial statements?

- Did the changes in legislation affect the values reported in the financial statements?

3.3   The sources of data

The data for analyses in the field of agriculture were drawn from several sources. The sources are as follows:

- Albertina CZ Gold Edition database.

- The data set of the Department of Accounting and Finance, which includes balance sheets, income and loss statements, statements of harvest and sowing as well as its own questionnaire since 1996.

- The Ministry of Agriculture of the Czech Republic.

3.4   Material

163 data records of 64 small and medium Czech agricultural companies targeting livestock production from 2011 to 2015 are used for analysis. The data include balance sheets, profit and loss statements, harvest and sowing reports, and a questionnaire. This data is collected by the Department of Accounting and Finance of the University of South Bohemia in České Budějovice. In Table 1, there are descriptive statistics of sample data.

Table 1 Descriptive statistics of sample data

Variable	N of valid data records	Diameter	Median	Minimum	Maximum	St. deviation
Total assets	163	139282,5	109814,0	15502,00	622209,0	117134,1
Equity	163	88741,0	59873,0	6485,00	560665,0	92876,6
Total assets with grant	163	140161,1	110242,0	15593,00	622209,0	118245,1
Equity with grant	163	89619,6	62852,0	6580,00	560665,0	93874,8
Total assets (for leasing)	20	155112,2	140306,5	61860,00	373180,0	69396,5
Total assets with leasing	20	156057,6	142015,5	62021,60	374071,0	69603,7
Fixed assets	20	111755,2	105308,0	36910,00	237904,0	46660,8
Long-term liabilities	20	13736,6	9778,0	1,00	56286,0	14971,1
Services	20	10297,8	9894,0	3991,00	19277,0	4440,8
Fixed assets with leasing	20	112700,6	106661,5	37071,60	238795,0	46828,4
Long-term liabilities with leasing	20	14682,1	9795,5	1407,00	58534,0	14996,3
Services with leasing	20	9352,3	9074,0	3648,50	18665,0	4573,6
Total assets (for land valuation)	25	163476,8	120246,0	22400,00	622209,0	136541,7
Equity (for land valuation)	25	99860,6	69614,0	9656,00	560665,0	112735,3
Land	25	18447,1	15603,0	1582,00	66055,0	14672,6
Total assets – market price	25	175825,2	127859,9	24062,51	687308,1	147661,3
Equity – market price	25	112209,0	71257,4	11318,51	625764,1	124610,0
Land – market price	25	30737,7	25157,4	2601,64	102281,1	24110,8
Operating costs	91	43938,7	37922,0	12704,00	126488,0	23148,2
Operating revenues	91	48420,3	42430,0	13864,00	130692,0	24392,3
Operating costs new	91	41219,5	34636,0	10854,00	119585,0	22429,0
Operating revenues new	91	45701,1	38327,0	12460,00	123789,0	23692,3

Source: Own processing in Statistica Cz 12

For the analysis of subsidy's impact all data recods are used. For other analysis, data records with a nonzero value of a key inidcator are used. For leasing, there is 20 data records, for land valuation 25 and for operating costs and revenues 91.

The basic data set contained accounting data according to Czech accounting regulations. This data was adjusted for the need for analysis. For subsidy analysis, the value of assets and equity was adjusted by the value of the grant. For land valuation analysis, the book value and the market value of the land were available. The value of assets, land and equity was adjusted by the difference between these two values. In the case of leasing, the value of the asset, fixed assets and long-term liabilities were increased and the value of the services was decresased by the value of the lease. In the case of an analysis of changes in the posting of changes in internally produced inventory and in capitalization, the value of operating costs and revenues was adjusted by the value of these operations. For analysis, therefore, the actual and adjusted values were always compared.

3.5   Software equipment

The Statistica 12 CZ statistic program from StatSoft and the Microsoft Office Excel 2010 spreadsheet will be used to process the application part.

3.6   Used methods

The first group of analyses, which is included in the application part, will be devoted to demonstrating a statistically significant difference between selected items of the financial statements using the current accounting solution and another possible solution that could lead to an increase in the reporting capacity of the financial statements. To demonstrate the statistical differences, a pair t-test was used, as in Callao, Jarne a Laínez (2007).

Pair t-test

The pair t-test is used to compare the averages of two selections that contain the pair data. Here the values of selected financial statement items will be analysed using two different accounting methods.

The form of test statistics is:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{s_{\bar{x}_1} - s_{\bar{x}_2}}, \tag{1}$$

where, in the numerator, is the difference in the averages and in the denominator a mean error of the average difference.

The materiality level for this test will be α = 0.05. Therefore, if the p-value is lower than the value chosen by us, the zero hypothesis that the averages of the two selections do not differ, is rejected (Lepš a Šmilauer 2016).

To test the data normality, which is a prerequisite for the use of the t-test analysis, the used histogram was supplemented by a Shapiro-Wilk test of the distribution normality.

Histogram a Shapiro-Wilk test

On a histogram, it is possible to determine at a glance whether the used dataset displays a normal distribution. In addition, the histogram is complemented by the Shapiro-Wilk test, testing the zero hypothesis that data has a normal distribution. Therefore, if the p-value is lower than the value chosen by us, the zero hypothesis is rejected. The results of this test are displayed at the bottom of the histogram (Hendl 2012).

Logarithmic data transformation

In the case of the demonstration of the data abnormal distribution, a logarithmic transformation of the data will be used, which will take the following form:

$$X' = \log X.$$

The precondition for this transformation is that the data does not contain any negative numbers (Lepš a Šmilauer 2016).

4   Results

The first difference in financial analysis indicators due to the choice of different limits for the inclusion of the animal in the fixed assets will demonstrate. The difference between the selected items of financial statements was tested on the different methods of accounting for investment subsidies and finance leases and on the methods of valuation of agricultural land. Furthermore, the difference in the value of costs and revenues caused by the change in the accounting for changes in the inventory of production and activation was tested.

4.1   Differences of indicators of financial analysis resulting from the different classification of the animal

Differences resulting from the inclusion of an animal in fixed assets and on the other hand to inventories arise not only in the economic outturn but also in the financial analysis indicators.

The following example was conducted in one of the earlier works and it may show differences resulting from differing inclusion in the inventory and fixed assets, which are not

related to the difference in income. For example, we can consider a cow with the value of CZK 18 366. The company will buy 100 pieces of these animals. In the classification of the animal in one case in the stocks and in the second on account of tangible assets. The results are summarized in Table 2.

Differences in the classification of the animal will arise on the side of long-term and short-term assets and the following financial analysis indicators:

- Net working capital = current assets – current liabilities

- The turnover rate of fixed assets = sales/ fixed assets

- The turnover rate of inventory = sales/ inventory

- Inventory's turnover time = 360/ The turnover rate of inventory

- Current liquidity = current assets/ current liabilities

- Quick liquidity = (current assets - inventory)/ current liabilities

Table 2 Differences in indicators of financial analysis

indicator	The value of indicator in the enterprise with cows in fixed assets	The value of indicator in the enterprise with cows in inventory
Net working capital	6 130 thousand CZK	7 967 thousand CZK
The turnover rate of fixed assets	0.5470 (number of trips per year)	0.6519 (number of trips per year)
The turnover rate of inventory	1.9179 (number of trips per year)	1.21 (number of trips per year)
Inventory's turnover time	187.705 days	297.451 days
Current liquidity	7.81	9.85
Quick liquidity	4.32	4.32

Source: (Dvořáková 2014b)

The company, which ranks animals in fixed assets, has different indicators of financial analysis compared with a company that has this animal in inventory. It has a better result at the turnover rate of fixed assets, as well as the inventory's turnover time. But the company achieves worse results at conventional indicators of liquidity and net working capital. If the company needs to have a higher ratio of net working capital and general liquidity it is favourable for them to lead the animals to the inventory account (Dvořáková 2014a).

4.2 Investment subsidies

Under current conditions, accounting of investment subsidies leads to a lower asset value as the amount of the subsidy reduces the value of the acquired asset. This fact will be tested according to the accounting method proposed by Sedláček, Kouřilová and Pšenčík (2012).

According to this method, the asset is shown on the balance sheet at its full value. The value of the subsidy is also posted in the value of equity in the Subsidy Fund. This fund decreases with the depreciation of the asset. It is depreciated from the full portion, and the write-off value of the subsidized portion is not charged as a cost to the 551 account, but decreases the value of the fund from the subsidy. The asset and equity values by the current and proposed accounting method were tested in the analysis.

The value of assets and equity by the proposed accounting method was calculated as the value of these items by current accounting method increased by the value of the investment subsidy in the given year. Depreciation was not considered in the following years. The part t-test analysis was performed. For this test, it is first necessary to test the normality of the data, which was performed using the histogram and the Shapiro-Wilk's test. In Fig. 1, the results of the data normality test are shown for assets accounted by the current accounting method, for the assets by the proposed accounting method, for equity by the current accounting method, for equity by the proposed method of accounting.

**Fig. 1** Result of the normality test (investment subsidy) – not a normal distribution
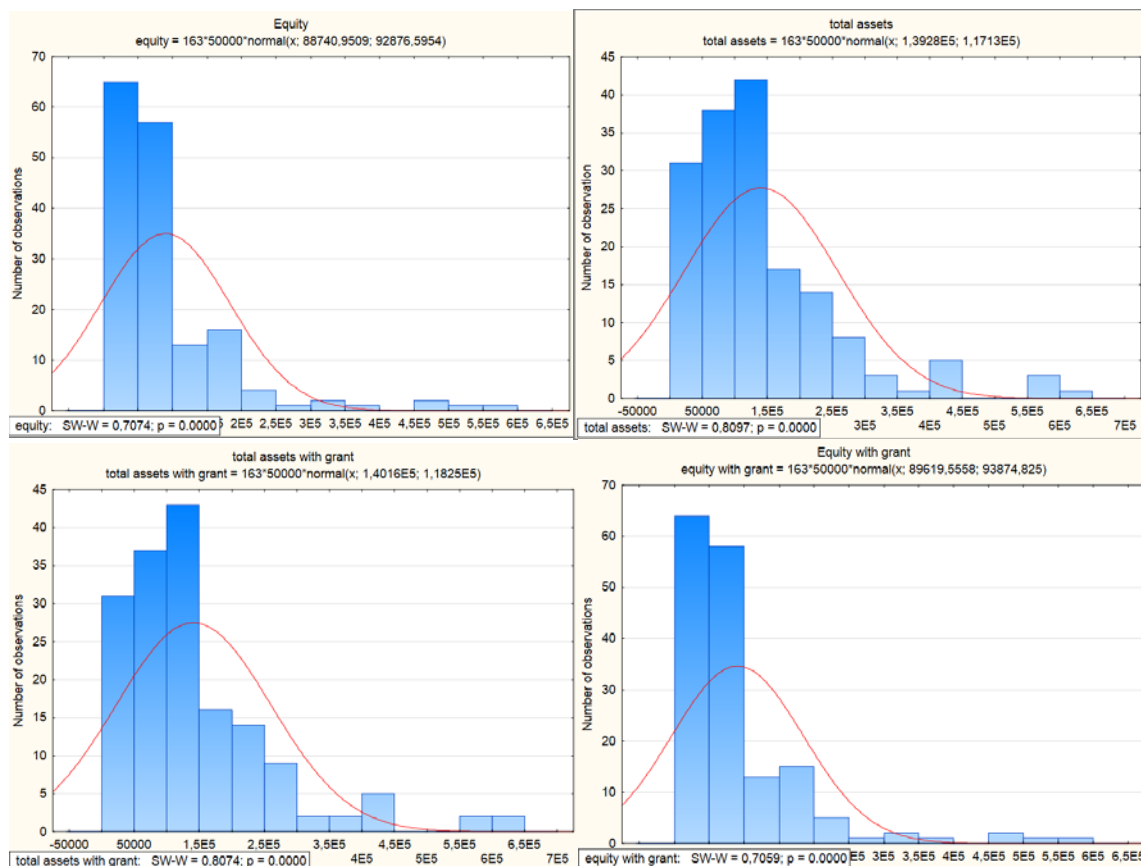
Source: Own processing in Statistica Cz 12

From the histograms, it can be seen at first glance that the data do not match the normal distribution, as confirmed by the p-value of the Shapiro-Wilk's test. This value for all four variables is higher than 0.05, meaning that the data distribution is not normal.

Thus, the next step was the transformation of data that would lead to a normal distribution. Logarithmic data transformation has been choosen. The Shapiro-Wilk's test was re-performed on the transformed data. According to this test, the data already display a normal distribution (Fig. 2), so it is possible to continue with the pair t-test.

Fig. 2 Result of the normality test (investment subsidy) – a normal distribution
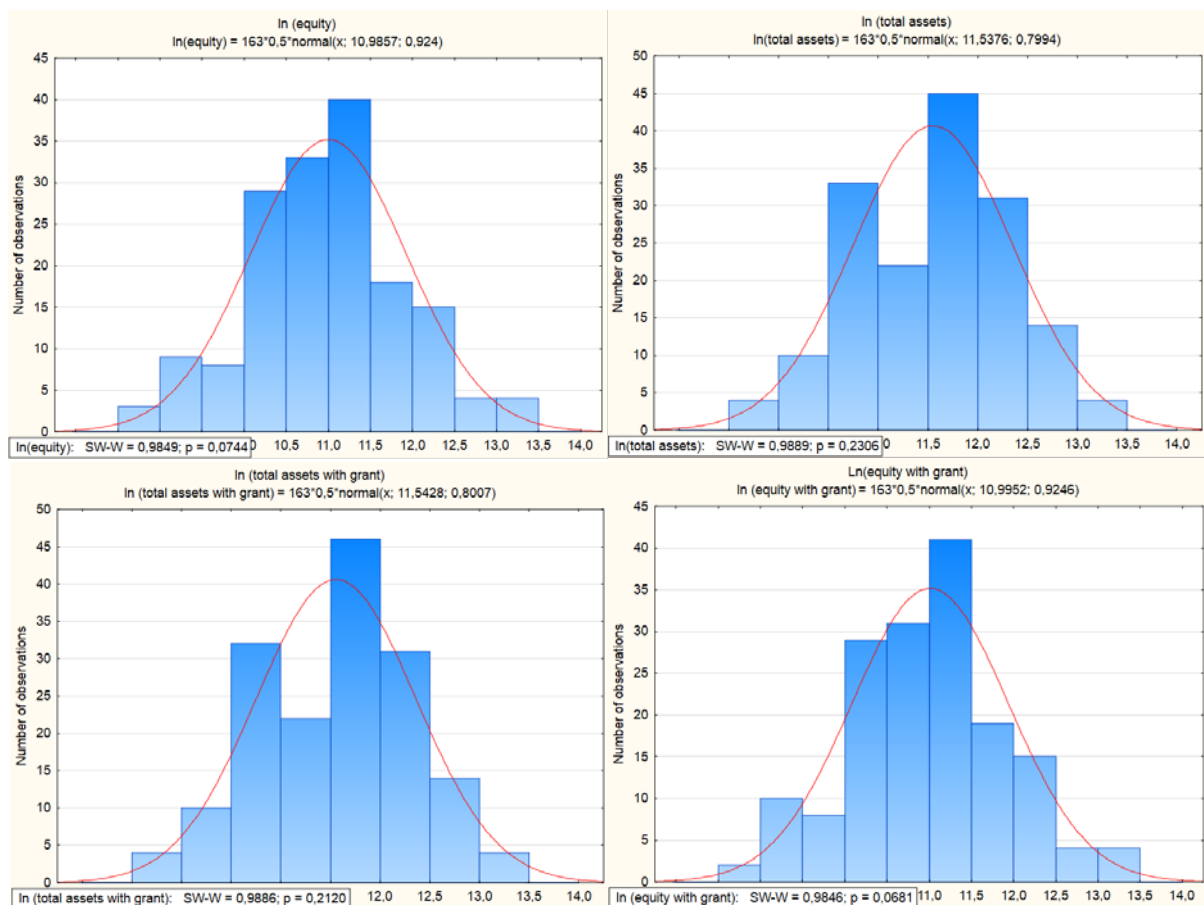
Source: Own processing in Statistica Cz 12

Once the preconditions required for the t-test were met, a pair t-test of the compliance of averages was performed. If the p-value of this test is less than 0.05, the hypothesis of identical averages of the compared datasets is disproved. In Table 3, the results for indicators ln (total assets) and ln (total assets with grant) are shown. In Table 4, the results for indicators Ln (equity) and ln (equity with grant) are shown.

Table 3 Results of the t-test for asset's value – investment subsidy

Variable	t-test for dependent samples Marked differences are significant at the surface p < 0.05000									
	Average	St. deviation	N	Difference	St.dev.of differ.	t	df	p	Confidence interval. -95.000%	Confidence interval. +95,000%
ln(total assets)	11.53758	0.799391								
ln (total assets with grant)	11.54279	0.800672	163	-0.005214	0.013847	-4.80726	162	0.000003	-0.007356	-0.003072

Source: Own processing in Statistica Cz 12

Table 4 Results of the t-test for equity's value – investment subsidy

| Variable	t-test for dependent samples Marked differences are significant at the surface p < 0.05000									
	Average	St. deviation	N	Difference	St.dev.of differ.	t	df	p	Confidence interval. -95.000%	confidence interval. +95.000%
ln(equity)	10.98571	0.923961								
ln (equity with grant)	10.99521	0.924603	163	-0.009499	0.026190	-4.63079	162	0.000007	-0.013550	-0.005449

Source: Own processing in Statistica Cz 12

The t-test showed statistically significant differences between the values of asset and equity averages in accounting of subsidies under the current Czech legislation, and if the assets acquired due to investment subsidy were included in the total amount in the balance sheet and the amount of the subsidy would be transferred to the subsidy fund.

4.3 Land valuation

Land is currently valued at acquisition price which does not further change in the accounting. The land is thus recorded at its historical value, which may not correspond to its real value after some time, as the value is affected by many factors (fertility, locality ...). Assets may be revaluated only downwards with respect to the precautionary principle, whereas upward revaluation is not possible under Czech legislation. In the analysis, the value of assets, land and equity determined by the current valuation method will be compared with the market price valuation found in individual enterprises in the framework of the questionnaire survey. Part t-test analysis was performed. For this test, it is first necessary to test the normality of the data, which was performed using the histogram and Shapiro-Wilk's test. In Fig. 3, the results of these data normality tests are shown.

Fig. 3 Result of the normality test (land valuation) – not a normal distribution
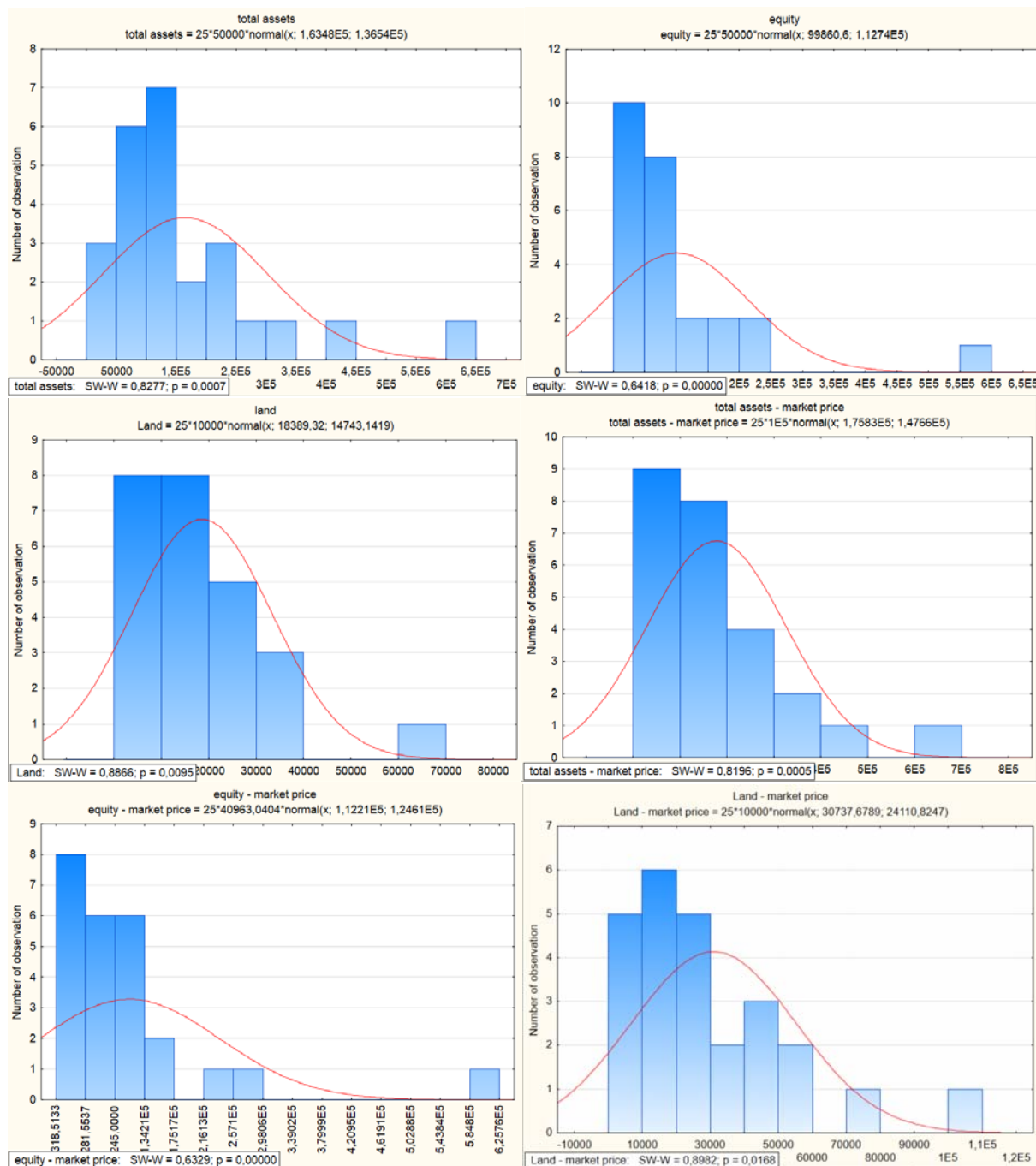
<div align="right">Source: Own processing in Statistica Cz</div>

From the histogram, it can be seen at first glance that the data do not match a normal distribution, as confirmed by the p-value of Shapiro-Wilk's test. So, the procedure was the same as in the previous case. Once the data is transformed, it is possible to continue with the pair t-test, the data has a normal distribution (Fig. 4).

Fig. 4 Result of the normality test (land valuation) – a normal distribution
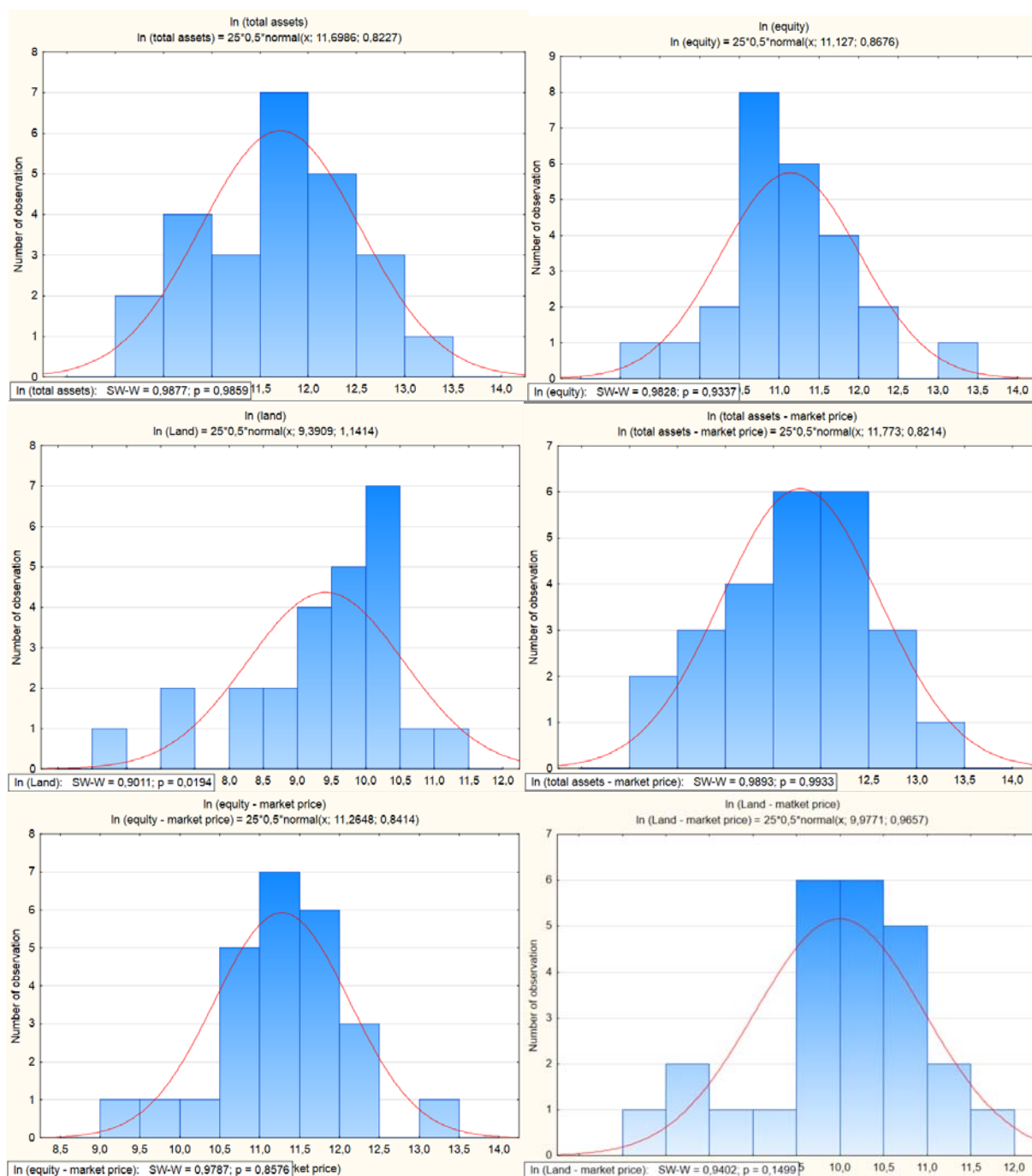
Source: Own processing in Statistica Cz

Once the preconditions required for the t-test were met, a paired t-test of the compliance of averages was performed. If the p-value of this analysis is less than 0.05, there is a statistical significant difference.

Table 5 Results of the t-test for total assets - land valuation

Variable	t-test for dependent samples Marked differences are significant at the surface p < 0.05000									
	Average	St. deviation	N	Difference	St.dev.of differ.	t	df	p	Confidence interval. -95.000%	confidence interval. +95.000%
ln (total assets)	11.69861	0.822662								
ln (total assets - market price)	11.77298	0.821384	25	-0.074367	0.051219	-7.25970	24	0.000000	-0.095510	-0.053225

Source: own processing in program Statistica Cz 12

Table 6 Results of the t-test for equity - land valuation

Variable	t-test for dependent samples Marked differences are significant at the surface p < 0.05000									
	Average	St. deviation	N	Difference	St.dev.of differ.	t	df	p	Confidence interval. -95.000%	confidence interval. +95.000%
ln (equity)	11.12700	0.867564								
ln (equity - market price)	11.26484	0.841400	25	-0.137838	0.112509	-6.12565	24	0.000003	-0.184279	-0.091396

Source: own processing in program Statistica Cz 12

Table 7 Results of the t-test for land - land valuation

| Variable	t-test for dependent samples Marked differences are significant at the surface p < 0.05000									
	Average	St. deviation	N	Difference	St.dev.of differ.	t	df	p	Confidence interval. -95.000%	confidence interval. +95.000%
ln (Land)	9.390892	1.141446								
ln (Land - market price)	9.977111	0.965708	25	-0.586220	0.408222	-7.18015	24	0.000000	-0.754726	-0.417714

Source: own processing in program Statistica Cz 12

The T-test showed statistically significant differences between the values of assets, equity and land values averages in the case of accounting under current legislation and in the case of land valuation at market price.

4.4   Financial leasing - tenant

At present, leasing instalments are charged to the costs in account 518 as opposed to the short-term liability. Upon payment, the value of the liability is reduced. Under the international accounting standards, the asset is held on the lessee's account, the value is depreciated, and a liability created due to instalments is recorded on the liabilities side.

Different values will thus be reported both in the value of the leased asset and in the amount of liabilities i.e., the foreign capital. In the analysis, a pair of t-test was performed evaluating the differences between these entries values in the financial statements in the accounting for finance leases according to Czech accounting legislation and IFRS. The procedure was the same as in the previous case. At first, the normality test was performed.

Fig. 5 Result of the normality test (financial leasing) – not a normal distribution
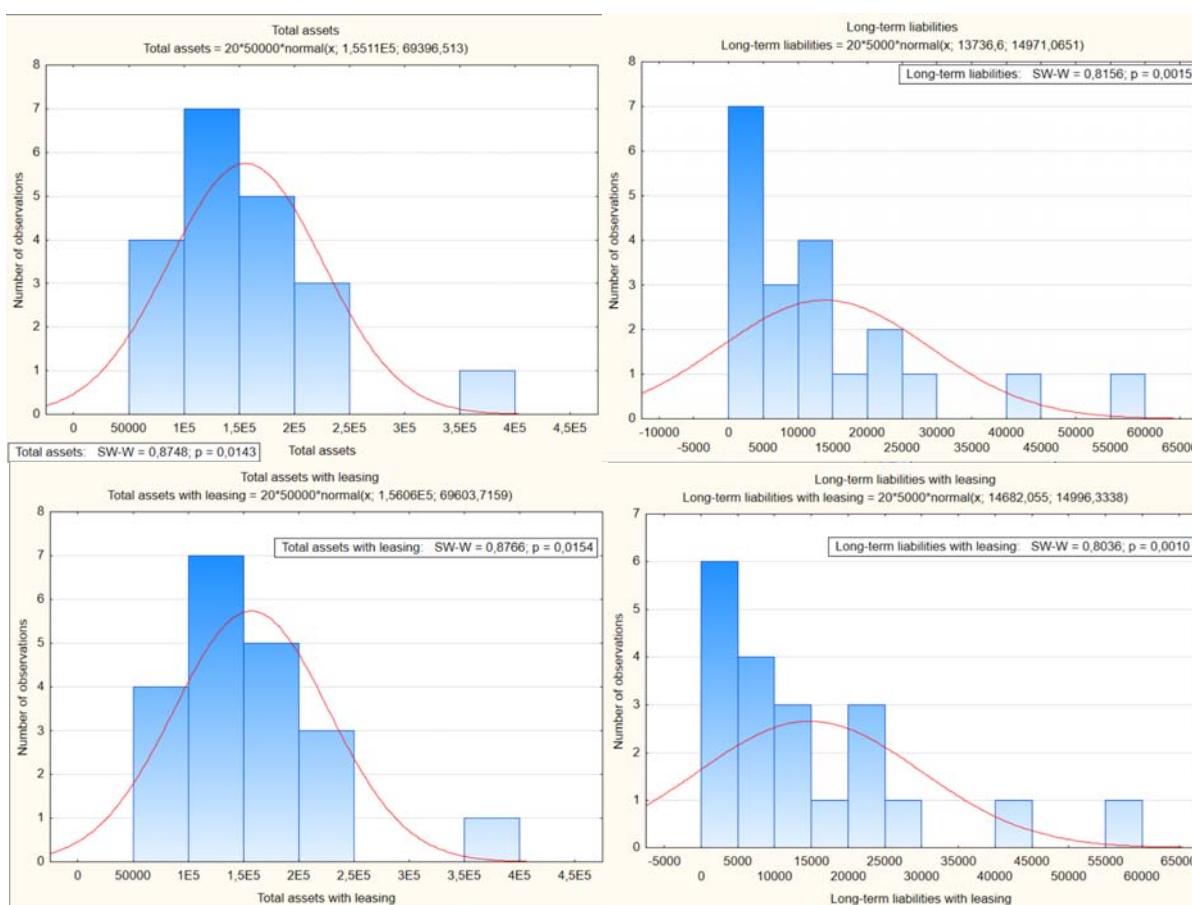
Source: own processing in program Statistica Cz 12

According to Shapiro-Wilk's test, the data of the variables total assets and long-term liabilities show not a normal distribution (Fig. 5).

According to Shapiro-Wilk's test, the data in the variable long-term assets and services show a normal distribution (Fig. 6). For the fixed assets and services, the t-test was realised without transformation.

Fig. 6 Result of the normality test (financial leasing) – a normal distribution
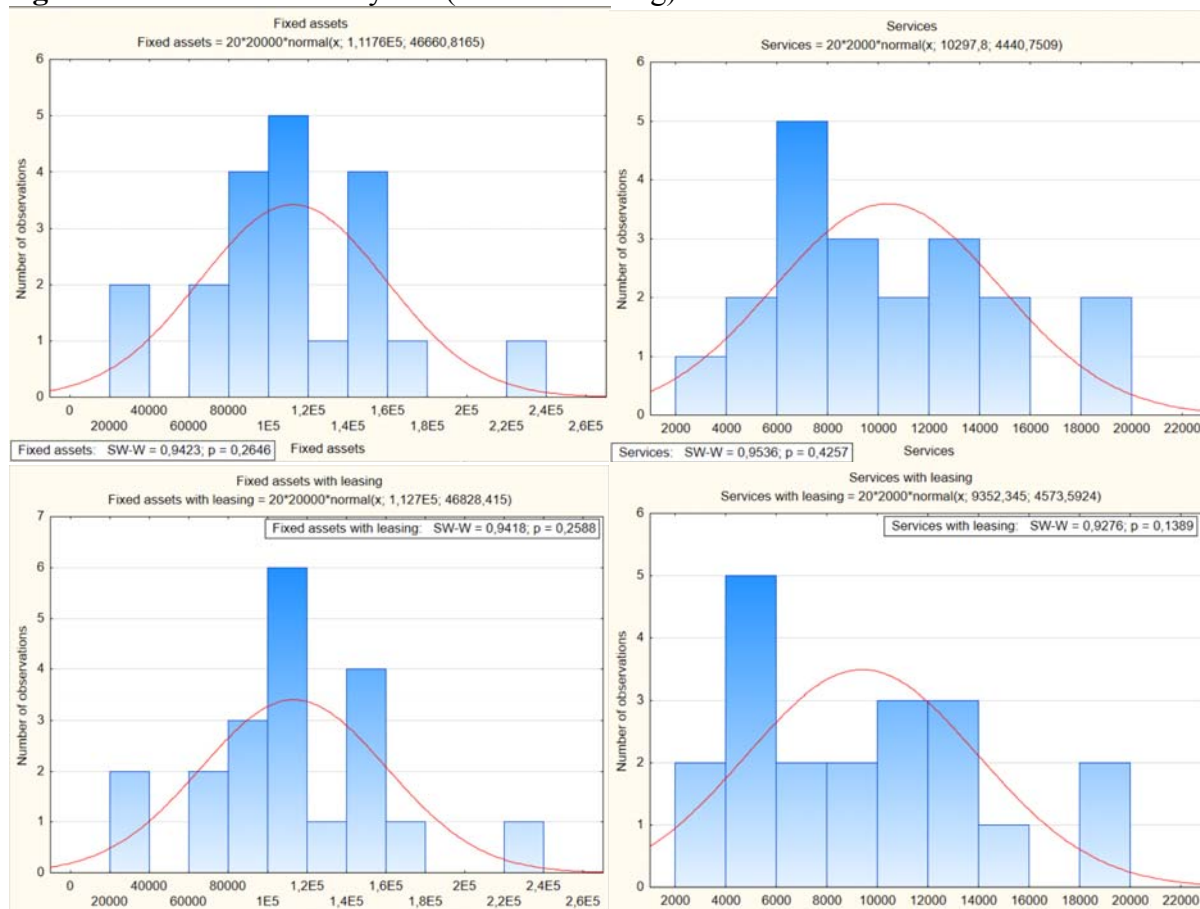
Source: own processing in program Statistica Cz 12

In Tables 8 and 9 the results for indicators assets and services are shown.

Table 8 Results of the t-test for fixed assets - financial leasing

Variable	t-test for dependent samples Marked differences are significant at the surface p < 0.05000									
	Average	St. deviation	N	Difference	St.dev.of differ.	t	df	p	Confidence interval. -95.000%	confidence interval. +95.000%
Fixed assets	111755.2	46660.82								
Fixed assets with leasing	112700.6	46828.42	20	-945.455	916.7933	-4.61195	19	0.000190	-1374.53	-516.383

Source: own processing in program Statistica Cz 12

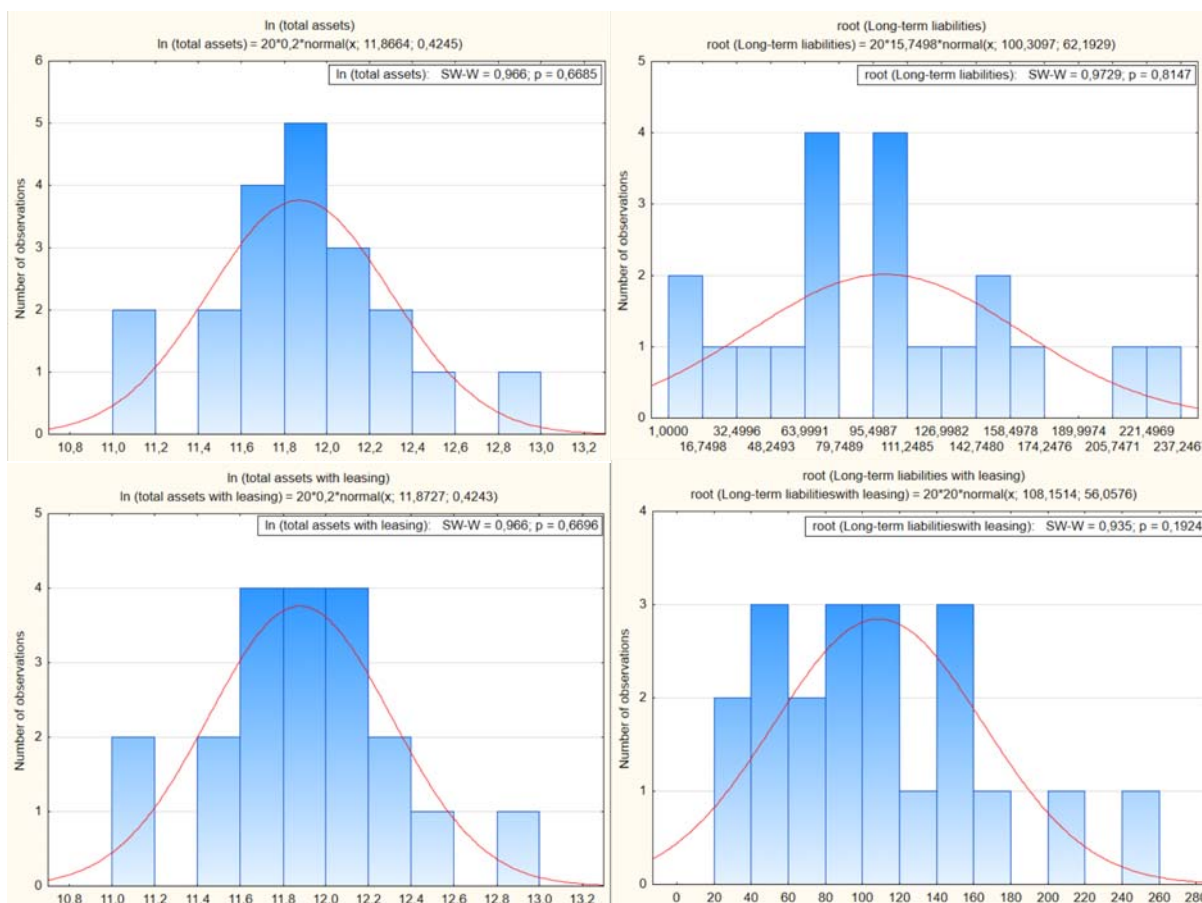**Table 9** Results of the t-test for services - financial leasing

Variable	t-test for dependent samples Marked differences are significant at the surface p < 0.05000									
	Average	St. deviation	N	Difference	St.dev.of differ.	t	df	p	Confidence interval. -95.000%	confidence interval. +95.000%
Services	10297.80	4440.751								
Services with leasing	9352.35	4573.592	20	945.4550	916.7933	4.611949	19	0.000190	516.3825	1374.527

Source: own processing in program Statistica Cz 12

For both indicators, the statistical difference between the values at current accounting and the proposed accounting method was demonstrated with a p-value of 0.00019.

For the variable assets, it was necessary to perform a logarithmic data transformation, for long-term liabilities the root transformation, so that the distribution of data is normal. The normality of the data was again tested using Shapiro-Wilk's test (Fig. 7)

Fig. 7 Result of the normality test for transformed variables (financial leasing) – a normal distribution

Source: own processing in program Statistica Cz 12

Transformed data were followed by t-tests. The results of these tests are shown in Tables 10 - 11.

Table 10 Results of the t-test for total assets- financial leasing

Variable	t-test for dependent samples Marked differences are significant at the surface p < 0.05000									
	Average	St. deviation	N	Difference	St.dev.of differ.	t	df	p	Confidence interval. -95.000%	confidence interval. +95.000%
ln (total assets)	11.86640	0.424498								
ln (total assets with leasing)	11.87269	0.424307	20	-0.006293	0.005599	-5.02710	19	0.000075	-0.008914	-0.003673

Source: own processing in program Statistica Cz 12

Table 11 Results of the t-test for long-term liabilities - financial leasing

Variable	t-test for dependent samples Marked differences are significant at the surface p < 0.05000									
	Average	St. deviation	N	Difference	St.dev.of differ.	t	df	p	Confidence interval. -95.000%	confidence interval. +95.000%
root (Long-term liabilities)	100.3097	62.19290								
root (Long-term liabilities with leasing)	108.1514	56.05755	20	-7.84168	13.37466	-2.62205	19	0.016776	-14.1012	-1.58215

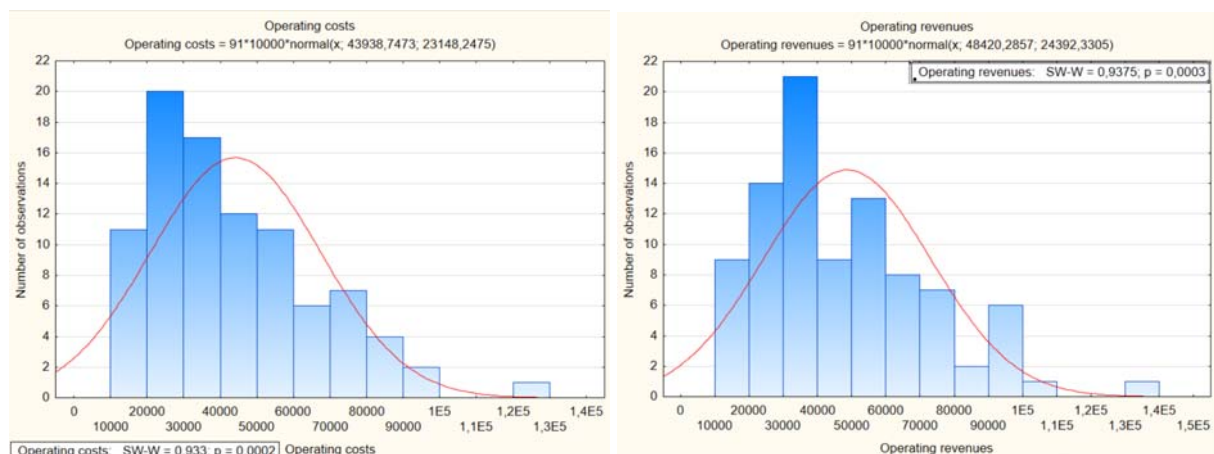Source: own processing in program Statistica Cz 12

For all tests, a statistically significant difference in values was demonstrated between the current and proposed lease accounting method. This leads to the incompatibility of the financial statements of companies posting under IFRS standards and under Czech legislation.

Based on the above analysis, the current accounting method leads to distortions in the values of services, long-term assets, current assets and long-term.

4.5 The change in posting of changes of internally produced inventory and in capitalization

Since January 2016, there has been a change in the accounting method applied to the change in inventories of an enterprise's own production and activation. Previously, these operations were charged to revenues in Group 61, now they are charged to Group 58. T-test analysis was performed. Since, according to Shapiro-Wilk's test, the original data does not have a normal distribution (Fig. 8), it was necessary to perform a logarithmic transformation. The results of Shapiro-Wilk's test for the transformed data are in Fig. 9.
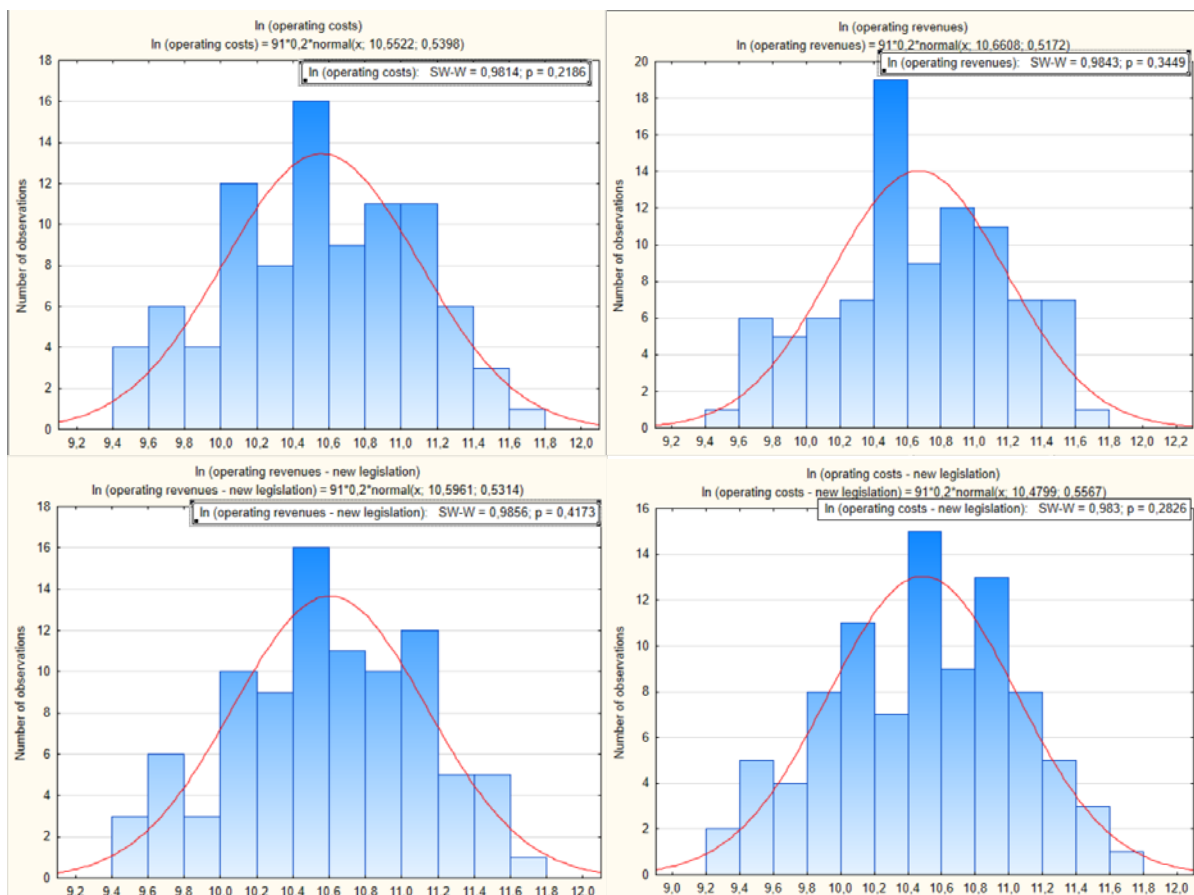
Fig. 8 Result of the normality test for transformed variables (internally produced inventory and in capitalization) – not a normal distribution
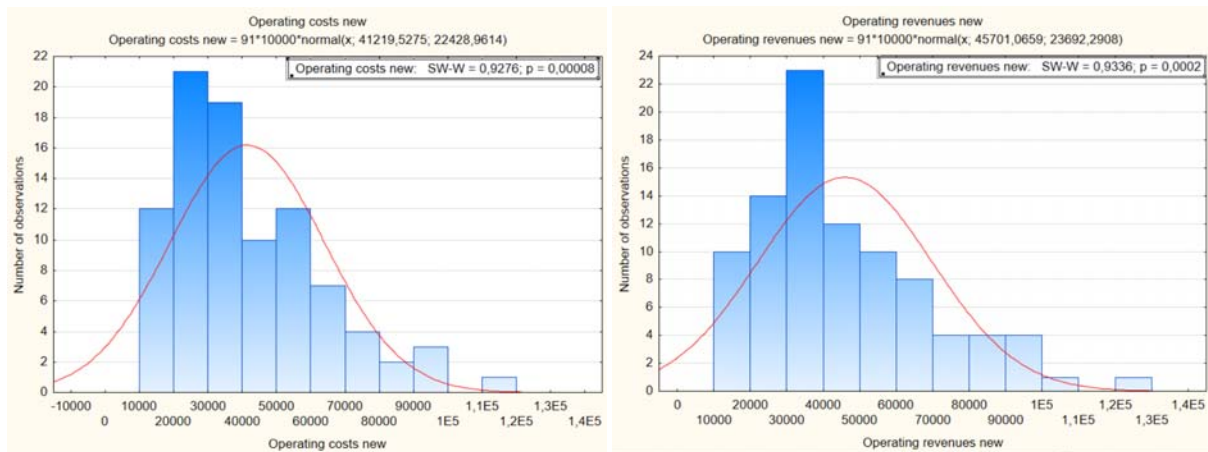
Source: own processing in program Statistica Cz 12

Fig. 9 Result of the normality test for transformed variables (internally produced inventory and in capitalization) – a normal distribution

Source: own processing in program Statistica Cz 12

The t-test evaluated the difference between the mean values of the individual variables was performed on the transformed data. The results of this test are shown in tables 12 and 13.

Table 12 Results of the t-test for operating costs – internally produced inventory and in capitalization

Variable	t-test for dependent samples Marked differences are significant at the surface p < 0.05000									
	Average	St. deviation	N	Difference	St.dev.of differ.	t	df	p	Confidence interval. -95.000%	confidence interval. +95.000%
ln (operating costs)	10.55221	0.539798								
ln (operating costs - new legislation)	10.47988	0.556663	91	0.072334	0.056969	12.11235	90	0.000000	0.060470	0.084199

Source: own processing in program Statistica Cz 12

Table 13 Results of the t-test for operating revenues – internally produced inventory and in capitalization

Variable	t-test for dependent samples Marked differences are significant at the surface p < 0.05000									
	Average	St. deviation	N	Difference	St.dev.of differ.	t	df	p	Confidence interval. -95.000%	confidence interval. +95.000%
ln (operating revenues)	10.66084	0.517246								
ln (operating revenues - new legislation)	10.59612	0.531440	91	0.064717	0.052037	11.86379	90	0.000000	0.053879	0.075554

Source: own processing in program Statistica Cz 12

Both tests proved that the new accounting method affects the value of operating costs and returns (p-value <0.05).

5 Conclusion

Accounting of agricultural enterprises includes several problematic areas that are reflected in the financial statements and thus affect the financial health assessment of the enterprise. Although the basic principle of accounting systems (Czech, English, American and European) is to provide a true and fair view of the accounting subject, it may be violated. This violation may be conscious (targeted), but may also arise due to the specifics or consequences of valid legislation, which can be interpreted in different ways, or which does not address the issue of interest in a proper way. The main problematic areas arising from legislation include:

- Focus on historical accounting, where the value of assets and liabilities may be distorted. The purchasing power of the monetary unit is not taken into account, which may lead to a distortion of the economic result.

- Finance leases, as the specific object of financial leases remains in the lessor's assets, not the lessee's asset, though the lessee uses the asset and consumes the economic benefits of this asset. By this method of charging, there is also a lower value of the lessee's obligations. In the international accounting standards, an asset is held in the lessee's account where it is also depreciated and the liability is fully shown as the

amount of lease payments. For all T-tests, a statistically significant difference in values was demonstrated between the current and proposed lease accounting method for all tested variables (for total assets with p-value 0.000075, for long-term liabilities with p-value 0.017, for services and fixed assets with the p-value 0.00019). This leads to the incompatibility of the financial statements of companies posting under IFRS standards and under Czech legislation. A similar study was made by Callao, Jarne a Laínez (2007), which came to the same conclusion: there is a statistically significant difference between IFRS values and Spanish accounting legislation

- Creation of adjustments and reserves, because these entries are fully determined by the entity as to the amounts and the period of their creation. This should be in accordance with the precautionary principle.

- Accounting depreciation, for which the entity chooses not only the depreciation method but also the depreciation period and the possible residual value. It affects the amount of the economic result in individual years.

- The importance of the adjustment column, as the creation of adjustments and allowances that are displayed in this column is the responsibility of the entity.

- Choice of the method of calculating the company´s own stocks and other assets, as this method plays an important role in agriculture. In addition to the calculation formula, the entity also specifies the major product and the by-product. This may lead to significant differences in the valuation of the same asset in different businesses.

Despite the statistically significant difference, the total difference of the values of the available data is not too great, crucial. The reason can be the testing of small and medium-sized businesses. The aim is to include large companies as well in the following analysis, because the difference may be more pronounced there**.**

Besides the problematic and therefore risky areas of the branch, it is also necessary to respond to the items that are dealt with most frequently. These are usually the specifics pertaining to the branch and they are reflected in the accounting in a variety of ways. E.g., some items in the financial statements may be affected, or the entries may differ from items that are common in other fields. This specificity must be taken into account when assessing financial health and interpreting the items of financial statements.

Considering the most important specific accounting items in agriculture, we can mention the subsidies, the valuation of animals from the enterprise´s own breeding, the possibility of

choosing a limit for the inclusion of an animal in the long-term property, the valuation of land, or the damage and losses.

At present, investment subsidies significantly reduce the amount of the asset at which the asset is then kept on record. The grant value is not even shown on the liability side. This distorts the value of the fixed assets, total assets and liabilities. Statistical difference in the value of the assets and the equity was proved by the t-test, where the values of these items were tested under the current accounting method and, in the case of charging the object of financial lease, at the full amount in assets (p-value 0.00003) and the subsidy charged to the Subsidy Fund on the liability (p-value 0.00007) side.

For the valuation of in-company bred animals, calculations are used which allow for the choice of the calculation formula as well as the main product and by-product. It may lead to inconsistent amounts of valuation of the same asset in different enterprises. Another specific feature is the possibility of setting an enterprise´s own limit for the inclusion of animals into the fixed assets. Thus, an animal of the same characteristics may be recorded as a fixed asset in one enterprise and in the stock in another. This affects the amount of current and fixed assets and thus the amount of some financial analysis indicators. In a case study of a company, differences in selected indicators of the financial analysis were demonstrated showing the consequences when an animal was recorded in inventory and in the fixed assets. This test was conducted in one of the earlier works. The differences occurred in the value of net working capital (CZK 6,130 x 7,967 thousand), stock turnover rate (1.92 x 1.21 turns per year), inventory turnover (188 x 298 days) and current liquidity (7.81 X 9.85). An enterprise that assigns animals to tangible fixed assets has different financial performance indicators compared to an enterprise with livestock stocks. It has a better result in the turnover rate of fixed assets and thus also in the period needed for the turnover of the fixed assets. However, the indicators of normal liquidity and net working capital display worse results

In accounting, land is currently kept on record at the acquisition cost, which often represents an administrative price entered into the accounts in the past. This value does not consider the quality or soil fertility. The impossibility to revaluate assets upwards leads to a distortion of the value of the company's assets. The analysis showed a statistical difference in the values of land, assets and equity reached by current accounting solutions, and by market price valuation on the other hand (with the p-value less than 0.000005).

The above-mentioned specifics affect the amounts of some entries in the financial statements that are further used for assessing the financial health of an enterprise. This may

lead to a distortion of the outcome of this assessment. The most frequently affected are the values of assets, both long-term and current, or the amount of the economic result.

Changes in the legislation also have a further impact on the values reported in the financial statements. From 1 January 2016, amendments to Act No. 563/1991 Coll., On Accounting, entered into force, as well as the Implementing Decree No. 500/2002 Coll., which implements some provisions of Act No. 563/1991 Coll., On Accounting, as amended, for accounting entities that are entrepreneurs using the system of double-entry accounting. The new method of recording the changes in inventories of the company´s own production and activation in Group 58 (as opposed to the original accounting for income) does not reflect the amount of the economic result but will affect the amount of turnover. Different posting of these accounting items results in different operating and revenue costs. Therefore, these items will not be comparable over time with the p-value less than 0.000001. The new amendments have also removed the category of extraordinary costs and revenues. These items will be moved to the operating category. This will make the financial statements incomparable over time, and this kind of result-relevant items will be more hidden among other, more common items. Another novelty is the categorization of accounting units as micro, small, medium and large units. Different disclosure requirements are set for each category. As regards the micro and small entities, a very limited amount of information will be currently available for financial analysis.

Some changes in the amendments to Accounting Act and the Implementing Decree lead to distorsion of values of items of financial statements. Some changes result in incomparability of financial statements both in time and between enterprises.

It is necessary to to take these facts into account and, in the case of a comparison of the financial statements in time, to adjust the affected items.

The accounting of above mentioned facts accordint to Czech legislation can lead to distorsion of true and fair wiev of financial accounting object. The distorsion in financial statements is further reflected in financial analysis and financial health assessment.

6 References

ALEXANDER, David a Eva JERMAKOWICZ, 2006. A true and fair view of the principles/rules debate. *Abacus* [online]. **42**(2), 132–164. ISSN 1467-6281. Dostupné z: doi:10.1111/j.1467-6281.2006.00195.x

ALTMAN, Edward a Paul NARAYANAN, 1996. Business Failure Classification Models: An International Survey. *Working Paper Series*.

AMPOFO, Akwasi A. a Robert J. SELLANI, 2005. Examining the differences between United States Generally Accepted Accounting Principles (U.S. GAAP) and International Accounting Standards (IAS): implications for the harmonization of accounting standards. *Accounting Forum* [online]. **29**(2), 219–231. ISSN 0155-9982. Dostupné z: doi:10.1016/j.accfor.2004.11.002

ANON., nedatováno. Zákon č. 586/1992 Sb, o daních z příjmů (úplné znění). *Podnikatel.cz* [online] [vid. 2017-03-16]. Dostupné z: http://www.podnikatel.cz/zakony/zakon-c-586-1992-sb-o-danich-z-prijmu/uplne/

ARGILÉS, Josep M., Josep GARCIA-BLANDON a Teresa MONLLAU, 2011. Fair value versus historical cost-based valuation for biological assets: predictability of financial information. *Revista de Contabilidad* [online]. **14**(2), 87–113. ISSN 1138-4891. Dostupné z: doi:10.1016/S1138-4891(11)70029-2

BALCAEN, Sofie a OOGHE, 2014. 35 years of studies on business failure: an overview of the classical statistical methodologies and their relate. *Vlerick Leuven Gent Working Paper Series* [online]. (15) [vid. 2017-04-06]. Dostupné z: http://s3.amazonaws.com/academia.edu.documents/43365762/vlgms-wp-2004-15.pdf?AWSAccessKeyId=AKIAIWOWYYGZ2Y53UL3A&Expires=1491462879&Signature=kcFstCSFTplMJ07A8SH9RDqfkxw%3D&response-content-disposition=inline%3B%20filename%3D35_years_of_studies_on_business_failure.pdf

CALLAO, Susana, José I. JARNE a José A. LAÍNEZ, 2007. Adoption of IFRS in Spain: Effect on the comparability and relevance of financial reporting. *Journal of International Accounting, Auditing and Taxation* [online]. **16**(2), 148–178. ISSN 10619518. Dostupné z: doi:10.1016/j.intaccaudtax.2007.06.002

CERNUŞCA, L., 2009. Methods, Techniques and Practice of Creative Accounting for Depreciation. *PROCEDEE, TEHNICI ŞI PRACTICI ALE CONTABILITĂŢII CREATIVE PRIVIND AMORTIZĂRILE*. **11**(3), 1–8. ISSN 14531410.

ČERNÝ, Jindřich, Václav VANĚK a Martin KULHÁNEK, 2010. Vliv hnojení na výnos a úrodnost půdy. *Zemědělec* [online]. **18**(28) [vid. 2017-04-19]. Dostupné z: http://zemedelec.cz/vliv-hnojeni-na-vynos-a-urodnost-pudy/

DELOITTE, 2016. *Leases - A guide to IFRS 16*. 2016. B.m.: The Creative Studo at Deloitte, London.

DOUCHA, Tomáš a I. FOLTÝN, 2008. Czech agriculture after the accession to the European Union-impacts on the development of its multifunctionality. *Agricultural Economics*. **54**(4), 150. ISSN 1805-9295.

DRÁBKOVÁ, Zita a Jindřiška KOUŘILOVÁ, 2008. Finanční zdraví podniku ve světle praktického využití kreativního účetnictví v podmínkách ČR. In: *Pedagogická konference*: *Pedagogická konference*. Praha: Vysoká škola ekonomická v Praze, s. 30–36.

DVOŘÁKOVÁ, Kristýna, 2014a. Problems in accounting of livestock. In: *Agrarian Perspectivex XXIII. The Comunity-led Rural Development*: *Proceedings of the 23th International Scientific Conference Agrarian Perspectives*. s. 56–63. ISBN 978-80-213-2545-6.

DVOŘÁKOVÁ, Kristýna, 2014b. *Účtování o hospodářských zvířatech, vazba na reálnou situaci*. B.m. diplomová práce. Jihočeská univerzita v Českých Budějovicích.

FARM FINANCIAL STARDARDS COUNCIL, 2008. *Management Accounting Guidelines For Agriculture Producers*. 2008.

FINANCIAL REPORTING COUNCIL, 2014. *True and fair* [online]. 2014. B.m.: Financial Reporting Council, London. [vid. 2017-04-18]. Dostupné z: https://frc.org.uk/Our-Work/Publications/Accounting-and-Reporting-Policy/True-and-Fair-June-2014.pdf

FRIDSON, Martin S. a Fernando ALVAREZ, 2011. *Financial statement analysis: a practitioner's guide*. 4th ed. Hoboken, N.J: Wiley. Wiley finance, 597. ISBN 978-0-470-63560-5.

GIROUX, Gary A., 2003. *Core concepts of financial analysis: a user approach*. Hoboken, N.J: Wiley. ISBN 978-0-471-46712-0.

GLÁSEROVÁ, J. a M. OTAVOVÁ, 2010. Komparace finančního leasingu dle aktuální české právní úpravy a IAS/IFRS včetně daňových aspektů. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*. **LVIII**(3), 55–66.

GRÜNWALD, Rolf, 2001. *Analýza finanční důvěryhodnosti podniku: Testujeme finanční důvěryhodnost svého obchodního partnera či klienta podle jeho účetních výkazů*. Praha: Ekopress. ISBN 80-86119-47-5.

GURČÍK, L., 2002. Gindex – metóda predikcie finančného stavu pol'nohospodárskych podnikov. *Agricultural Economics*. **48**(8), 373–378. ISSN 1805-9295.

HENDL, Jan, 2012. *Přehled statistických metod: analýza a metaanalýza dat*. Praha: Portál. ISBN 978-80-262-0200-4.

HINKE, Jana a Milan HRDÝ, 2012. Vypovídací schopnosti výkazů finančního účetnictví u malých a středních podniků v ČR a jejich možná zlepšení s využitím dotazníkového šetření. *Vysoká škola ekonomická v Praze* [online]. [vid. 2017-03-16]. Dostupné z: https://www.vse.cz/polek/download.php?lang=cz&jnl=cfuc&pdf=323.pdf

HOLEČEK, Bohumír, 2016. *K účtování provozních zemědělských dotací* [online]. 2016. B.m.: Krajské informační středisko pro rozvoj zemědělství a venkova Olomouckého kraje. Dostupné z: http://www.kis-olomoucky.cz/documents_art/2625.pdf

HOLEČKOVÁ, Jaroslava, 2008. *Finanční analýza firmy*. B.m.: ASPI. ISBN 978-80-7357-392-8.

HRABÁNKOVÁ, Magdalena a Ivana BOHÁČKOVÁ, 2009. Conditions of sustainable development in the Czech Republic in compliance with the recommendation of the European Commission. *Agricultural Economics*. **55**, 156–160. ISSN 1805-9295.

IQBAL, M. Zafar, Trini U. MELCHER a Amin A. ELMALLAH, 1997. *International accounting: a global perspective*. Cincinnati, Ohio: South-Western College Pub. ISBN 978-0-538-83739-2.

KALOUDA, František, 2004. *Základy firemních financí*. Brno: Masarykova univerzita. ISBN 978-80-210-3584-3.

KOPTA, D., 2009. Possibilities of financial health indicators used for prediction of future development of agricultural enterprises. *Agricultural Economics (Zemědělská ekonomika)*. **55**(3), 111–125. ISSN 1805-9295.

KOUŘILOVÁ, Jindřiška, 2010. *Multifunkční ekologické a konvenční zemědělství se zřetelem na podhorské a horské oblasti: část II. 2010. 161 s*. B.m.: Jihočeská univerzita, Zemědělská fakulta. ISBN 978-80-7204-683-6.

KOUŘILOVÁ, Jindřiška, Jiří PŠENČÍK a Daniel KOPTA, 2009. *Dotace v zemědělství z hlediska komplexního pohledu a přihlédnutím k ekologickému zemědělství*. Brno: Akademické nakladetelství CERM, s.r.o. Brno. ISBN 978-80-7204-637-9.

KOVANICOVÁ, Dana, 2004. *Jak porozumět světovým, evropským, českým účetním výkazům*. B.m.: BOVA POLYGON. ISBN 978-80-7273-095-7.

KOVANICOVÁ, Dana a Pavel KOVANIC, 1995. *Poklady skryté v účetnictví, Díl 1: Jak porozumět účetním výkazům*. B.m.: Polygon. ISBN 80-85967-06-5.

KRNINSKÁ, Růžena, 2002. *Řízení lidských zdrojů v dimenzi třetího tisíciletí*. Nitra: Slovenská poľnohospodárska univerzita. ISBN 978-80-8069-105-9.

KRUPOVÁ, Lenka, 2001. *Kreativní účetnictví: Zneužívání účetnictví - možnosti a meze*. Praha: Komora auditorů České republiky.

LEPŠ, Jan a Petr ŠMILAUER, 2016. *Biostatistika* [online] [vid. 2017-03-09]. Dostupné z: http://www.medvik.cz/link/MED00189490

LOSOSOVÁ, J. a R. ZDENĚK, 2014. Key Factors Affecting the Profitability of Farms in the Czech Republic. *Agris On-Line Papers in Economics & Informatics*. **6**(1), 21–36. ISSN 18041930.

LOUŠA, František, Antonín VALDER, Ladislav MEJZLÍK a Libuše MÜLLEROVÁ, 2008. *Interpretace Národní účetní rady I - 14 Okamžik vykázání nároku na přijetí nebo vrácení dotace* [online]. 2008. Dostupné z: http://www.nur.cz/media/interpretace/I_14.pdf

MAJEROVÁ, Věra, 2007. Social factors influencing the differences between developed and less developed regions. *Agricultural Economics*. **53**(11), 513. ISSN 1805-9295.

MAREK, Petr, 2009. *Studijní průvodce financemi podniku*. B.m.: Ekopress. ISBN 978-80-86929-49-1.

MINISTERSTVO ZEMĚDĚLSTVÍ ČR, 2016. *Informace pro žadatele z PRV - DŽPZ.* jaro 2016. B.m.: Ministerstvo zemědělství ČR.

MÜLLEROVÁ, L., 2011. Dotace v účetnictví. *Daňový expert.* (5).

MÜLLEROVÁ, Libuše a Ladislav MEJZLÍK, 2013a. *Interpretace Národní účetní rady I - 27 Následné získání dotace na dlouhodobý majetek* [online]. 2013. B.m.: Národní účetní rada. Dostupné z: http://www.nur.cz/media/interpretace/I_27.pdf

MÜLLEROVÁ, Libuše a Ladislav MEJZLÍK, 2013b. *Interpretace Národní účetní rady I - 28 Následné vrácení dotace na dlouhodobý majetek* [online]. 2013. Dostupné z: http://www.nur.cz/media/interpretace/I_28.pdf

OOGHE, Hubert a Sofie BALCAEN, 2002. Are failure prediction models transferable from one country to another? An empirical study using Belgian financial statements [online]. [vid. 2017-04-06]. Dostupné z: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.118.6436&rep=rep1&type=pdf

PETERSON, Pamela a Frank J. FABOZZI, 2006. *Analysis of financial statements.* 2nd ed. Hoboken, N.J: Wiley. The Frank J. Fabozzi series. ISBN 978-0-471-71964-9.

RŮČKOVÁ, Petra, 2015. *Finanční analýza – 5. aktualizované vydání: metody, ukazatele, využití v praxi.* B.m.: Grada Publishing a.s. ISBN 978-80-247-5534-2.

SAMSETH, K., S. BÆRUG a A. HEGRENES, 2001. The use of farm accounting and regression analyses in determining a value on small parcels of landed property. In: *PACIOLI 8: Innovations in the FADN, Rackeve (Hungary), 5-8 Nov 2000*: *Report / Agricultural Economics Research Inst. (Netherlands)* [online]. B.m.: Agricultural Economics Research Inst. [vid. 2017-04-13]. Dostupné z: http://agris.fao.org/agris-search/search.do?recordID=NL2001003444

SEDLÁČEK, Jaroslav, J. HÝBLOVÁ a J. JABLONKA, 2009. Dotace, daňová a účetní analýza. *Periodica Academia.* (2), 132–137.

SEDLÁČEK, Jaroslav, Jindřiška KOUŘILOVÁ a Jiří PŠENČÍK, 2012. Models of the realistic reporting of subsidies in the farm accounting. *Agricultural Economics.* **58**(1), 34–40. ISSN 1805-9295.

SHEMETEV, Alexander, 2012. *Complex financial analysis and bankruptcy prognosis and also financial management-marketing manual for self-tuition book.* B.m.: Alexander A Shemetev. ISBN 978-5-904560-19-5.

SOBOTKA, Bohuslav, 2005. *Zdanění nenárokových dotací daní z příjmů [Odpověď J. Velebovi, prezidentu Agrární komory Čr ze dne 28. 10. 2005] [online] Č.j.: 05/99 543/2005-152.* [online]. 2005. [vid. 2017-10-03]. Dostupné z: http://www.agrovenkov.cz/default.asp?ids=1691&ch=180&typ=1&val=41939

STŘELEČEK, František, Jana LOSOSOVÁ a Radek ZDENĚK, 2008. Economic results of agricultural holdings in less favoured areas. *Agricultural Economics-Zemedelska ekonomika.* **54**(11), 510–520. ISSN 1805-9295.

SYNEK, Miloslav, 2007. *Manažerská ekonomika - 4. aktualizované a rozšířené vydání*. B.m.: Grada Publishing a.s. ISBN 978-80-247-1992-4.

ŠRÁMKOVÁ, Alice a Martina JANOUŠKOVÁ, 2015. *Mezinárodní standardy účetního výkaznictví: praktické aplikace*. Praha: Institut certifikace účetních. ISBN 978-80-86716-99-2.

TRNKOVÁ, G., Z. MALÁ a A. VASILENKO, 2012. Analysis of the Effects of Subsidies on the Economic Behavior of Agricultural Businesses Focusing on Animal Production. *Agris On-Line Papers in Economics & Informatics*. **4**, 115–126. ISSN 18041930.

USTAOGLU, E., C. PERPIÑA CASTILLO, C. JACOBS-CRISIONI a C. LAVALLE, 2016. Economic evaluation of agricultural land to assess land use changes. *Land Use Policy* [online]. **56**, 125–146. ISSN 0264-8377. Dostupné z: doi:10.1016/j.landusepol.2016.04.020

VALACH, Josef, 1999. *Finanční řízení podniku*. B.m.: Ekopress. ISBN 80-86119-21-1.

VALDER, Antonín a Jaromír RYSKA, 2004. Krize účetního hodnocení zemědělské půdy. In: *Agrární perspektivy XIII. Trvale udržitelný rozvoj agrárního sektoru – výzvy a rizika* [online]. Praha: Česká zemědělská univerzita v Praze Provozně ekonomická fakulta. ISBN 80-213-1190-8.   Dostupné z: http://www.agris.cz/Content/files/main_files/61/139144/valder.pdf

ZDENĚK, Radek, 2012. *Predikce finanční tísně*. České Budějovice. disertační práce. Jihočeská univerzita v Českých Budějovicích.

Contents of article