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About some difficulties with interpreting and measuring corporate performance

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Abstract

Corporate performance constitutes one of the most important issues of both theory and practice in many areas of economics. The paper deals with the problem of multiplexity of corporate performance and the diversity of ways in which the term is interpreted in the literature. It also attempts to formulate a versatile definition, while organising the discrepancies in this area. Therefore, the way corporate performance is understood in the theory and practice of industrial economics was compared with the approach applied in corporate finance.

The difficulties in defining corporate performance unambiguously result in a number of problems with measuring it and, as a result with conducting a fully objective and reliable evaluation of an economic entity. These problems also result from the imperfections of financial ratios as instruments used for measuring and characterising corporate performance. The study presents the idea of financial ratios and their main classification systems, as well as features the most important limitations of their application.

Keywords: corporate performace, industrial organisation, corporate finance, financial ratios

JEL: G30, L25

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1. Introduction

Corporate performance is one of the most common subjects of interest and analyses in many various fields of economics. However, when studying the literature from the area of corporate finance, financial management or industrial economics, it can be inferred that the term has not been clearly and unambiguously defined. This conclusion is based on significant discrepancies concerning the way the term is interpreted by different authors in theory, as well as in practice. The aim of the paper is therefore to analyse the different interpretations of the 'corporate performance' term, to expose the observed similarities and discrepancies and also, as a result, to attempt to work out a compromise solution when formulating a universal definition of the term in question.

Another common issue in the area of finance and economics – often crucial for theory and (or) practice – is the problem of corporate performance measurement and evaluation. Performing this measurement and then using it to appropriately evaluate an economic entity often causes a number of problems, one of which is the absence of an unambiguous definition of corporate performance in the literature. A different interpretation of the term in the theory of industrial organisation and corporate finance proves that there is no complete conformity about the content and range of corporate performance.

However, independently from the way of defining corporate performance, the main source of information about financial condition of an entity, particularly for an external user, is usually the content of the financial report. On the one hand, the profusion of information conveyed by corporate financial reports is a rich source of knowledge about enterprises. On the other hand, however, it may also procure certain problems with selecting the most important or relevant occurrences and make their comparison more difficult. Solving this kind of problems to some extent can be facilitated with the application of financial ratios, which – when referring to corporate evaluation – are supposed to be defined as the result of comparing at least two quantitative economic features. The result is expressed in one figure (Westwick 1988, p. 2). The connection – usually in the form of a quotient – of two essentially interdependent financial values, i.e. parameters mutually connected on the cause-result basis, makes it possible to directly compare different enterprises, as well as makes it easier to comparatively evaluate one firm across different periods.

Although the use of financial ratios enables the relativisation of financial occurrences, which in turn facilitates corporate evaluation, it is not free from disadvantages. The most important of them – according to the author – will be discussed in this paper. Another aim of the study is to expose certain defects of financial ratios used for characterising corporate performance and – as a consequence – to show, that their application may lead to a highly imperfect measurement and evaluation of financial condition. The reasoning, however, is not aiming at discouraging from applying financial ratios. Being aware of their limitations may prove helpful in avoiding many simplifications and errors related to effectiveness and solvency evaluation.

2. Interpreting the 'corporate performance' term on the grounds of industrial organisation theory

The starting point for considering corporate performance is the theory of industrial organisation. Along with the progress of knowledge, as well as social and economic development, many

specific disciplines (also called applied sciences) have appeared and are still growing in the economic sciences. One of them is the industrial economics or industrial organisation, which aims at researching production system and strategies of entities operating within this system. The discipline comprises a number of research streams concentrating on corporate strategies, performance results, production structures and government intervention (Rainelli 1996, p. 7). The traditional paradigm of industrial organisation deals with exploring the relations between industrial structure, conduct (strategy) and corporate performance, particularly focusing on the factors and effects of the market force of firms (Scherer, Ross 1990).

The central function of industrial economics is the exploration of occurrences taking place in an industry in order to formulate generalisations and determine regularities, on the basis of which certain postulates can be defined concerning the industry and enterprises (Cabral 2000). The basic range of industrial organisation issues involves the market and industry structure, production concentration, localisation, innovations, firm theory, firm development theory, diversification, firm jointing, investment decisions and public interventionism in private and public sector (Pierścionek 1992). Analysis is performed in two areas; the subject of research is mainly the competitive environment of an enterprise and the mutual interaction of the participants on an imperfect competition market, particularly the oligopoly. Contemporary research applies e.g. the game theory, which is one of the main instruments of industrial economics (Fudenberg, Tirole 2001, p. 176; Tirole 1988). The other research area is the enterprise itself, whose development is conditioned, among others, by the technology, investment processes and knowledge or marketing policy. Viewing the corporate performance through the theory of industrial economics has important implications for complex enterprise analysis.

Due to the distinct development of industrial economics in different countries, two basic models can be distinguished: the Anglo-American (Schmalensee, Williga 1989; Jacquemin 1985) and the French one (Morgan 1990; Arena et al. 1991). The main concept of the first stream is the structure – conduct – performance sequence (Bain 1968; Łyszkiewicz 2003). The aim of analysis according to the Structure Conduct Performance Paradigm (SCPP) is to explain corporate performance through the characteristics of the market on which the enterprise operates (i.e. structures), and also through the way in which they operate on the market (conduct). However, the interpretation of relations between these three elements is not unquestionable, as on the one hand they can be treated as a cause-result phenomenon, where structures determine the conduct and the performance, but on the other hand they can be treated as independent (Rainelli 1996, p. 12; Demsetz 1973; Peltzman 1977).

The SCP model, which constitutes an important research instrument in the industrial economics, is also susceptible to different interpretations, depending on whether it is treated as a cause-result relation (the structure as a variable which explains the performance) or as the coexisting parallel occurrences (structures, conduct and performance). Moreover, the introduction of the strategic behaviours of enterprises considerably changes the concept of the relations between these three categories (Rainelli 1996, p. 23). In a traditional SCP model the analysis is based on empirical research, which aims at explaining the differences in effectiveness of industrial enterprises. It is assumed that they result from the market structure, which directly influences corporate performance. This kind of analysis is strongly supported by the concept of cross-section comparisons, where enterprises belonging to different industries are examined. The starting point

in the above mentioned cause-result sequence is the market structure, determining the conduct, which in turn influences the performance.

Summing up the above reflections in the context of their relationship with the corporate performance term interpretation, it should be stated that corporate performance constitutes one of the main research themes in the industrial economics, especially in terms of the reasons for its diversity. However, the literature does not provide a precise definition of the term corporate performance. In the theory of industrial economics, corporate performance is attributed such features as: profitability, development, product quality, technological progress as well as production and allocation efficiency.

In the analyses based on the SCP concept, profitability is considered as the most adequate measure of corporate efficiency. At the same time, it is also the most commonly applied measure. However, measuring profitability can be performed with the use of various methods, based for example on book values or market values. In practice, the most frequently used indicators include the following (Lipczynski, Wilson, Goddard 2005, p. 318–328):

– Tobin's q ratio, which is the relation of the market value of an enterprise to its recreation value,

– profit margin, which is the relation of the profit generated to the turnover,

– book value profitability rates, which are the relation of the net or gross earnings to the selected book values, such as assets, equity or sales.

Despite the utility of the profitability ratios as the efficiency measures for firms oriented at profit maximisation, they seem less adequate for enterprises aiming at other goals, such as sales, growth or managerial competence increase. In such cases, alternative efficiency measures are suggested, such as the growth rate of sales, assets or employment. The use of such rates also enables comparisons of corporate performance between different size firms. From the point of view of a customer or a group of customers, the quality of products or services should also be considered an important efficiency measure.

Another ratio characterising financial condition of an economic entity is the technological progress, which is a derivative of investments in research and development. In the long term, technological progress is probably also one of the most important factors affecting the market structure by influencing the demand (consumers' preferences and likings evolve as new products emerge) and supply (technology and cost structure change as new and more effective production processes are developed).

The last, but not least important symptom of corporate financial condition recognised in the theory of industrial economics is production and allocation efficiency. Production efficiency is associated with the extent to which an enterprise reaches its maximal, technologically feasible level of production from the employed combination of production factors. Production efficiency may also refer to whether an enterprise uses the optimal combination of factors in terms of costs in order to attain a given production level. Therefore it can be brought to the rational rule, according to which a firm operates rationally if it maximises the effects at a given level of expenditure or minimises the expenditure in order to reach a given effect. Allocation efficiency refers to maximising the social welfare in the state of economic equilibrium (Lipczynski, Wilson, Goddard 2005, p. 10).

The traditional industrial organisation refers to studies which attempt to draw inferences about the relationship between the structure of an industry (in particular, its concentration level)

and its profitability. However, due to the well recognized problems of endogeneity and two-way causal relations between structure, conduct and performance, it is important to note that the SCPP is considered to be the approach of the past. The main problems with the old empirical industrial organisation studies are that it is difficult to measure profitability, structure may be endogenous and often there is little connection between theory and empirical work. Therefore, the New Empirical Industrial Organization (NEIO) has developed as a reaction to the above mentioned problems. The NEIO builds on the econometric progress made by SCP paradigm using economic theory and typically focusing on a single industry in order to search for the relationship between concentration and efficiency (performance) (Pawłowska 2007, p. 41). It is worth mentioning however, that according to the NEIO the term efficiency is also very wide. There are several definitions of the term depending on how it is measured. The literature dedicated to the analysis of efficiency distinguishes the following terms: cost-efficiency, profit-efficiency and productive or technical efficiency. If a firm is cost-efficient, it generates a given amount of output at a minimum level of costs. A firm is profit-efficient if it maximises the profit at a fixed price level and fixed amount of expenditures. Technical efficiency refers to the difference between the actual production level of a firm and its maximum technically possible level (Pawłowska 2005, p. 22–23).

The contemporary empirical analyses concerning the relationship between the corporate performance and market structure confirm the thesis derived from the new stream of market organisation and competition research, i.e. that this relationship is much more complex than assumed by the classical SCP paradigm. Market structure affects other elements of the paradigm, but also is affected itself by economic influences and therefore represents the effect of certain market behaviours (see e.g. Pawłowska 2007, p. 39; Laderman 2007).

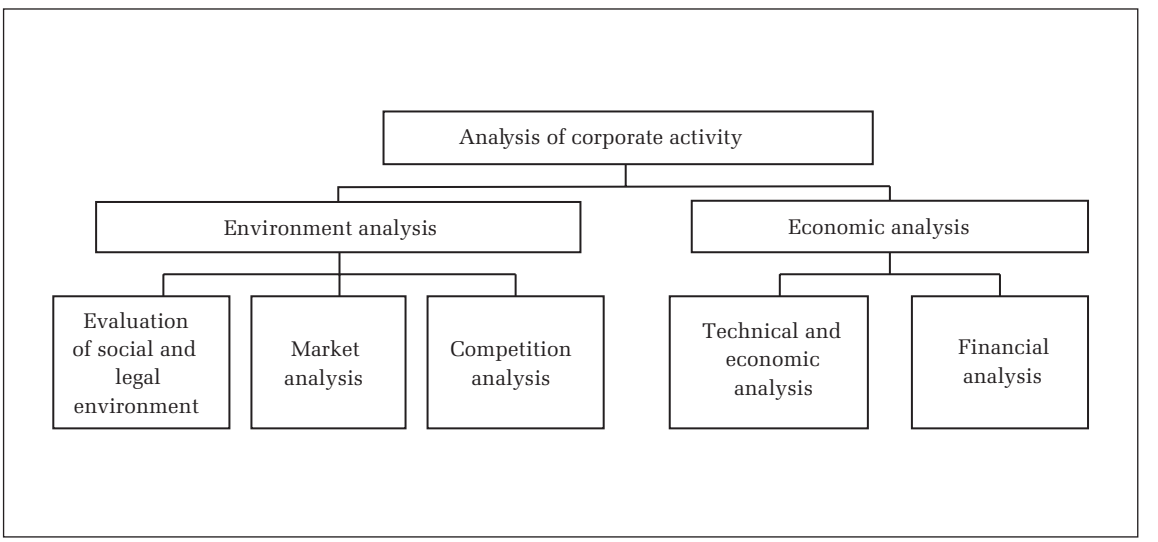
However, when referring to the practice of industrial organisations, corporate performance is almost exclusively identified as profitability. Despite this fairly narrow interpretation of the term, still there is no conformity concerning the universal measure of this economic feature. The ambiguity of the term 'profitability' is revealed in a number of studies on the diversity of this profitability under the influence of various factors, such as industry, corporate strategy or branch. The profitability ratio which is definitely the most commonly used in empirical research is the return on assets (ROA), i.e. the relation of earnings to the total of assets (Schmalensee 1985; Rumelt 1991; Powell 1996; Roquebert, Phillips, Westfall 1996; McGahan, Porter 1997; Mauri, Michaels 1998; McGahan 1999a; McGahan 1999b; Claver, Molina, Tari 2002; McGahan, Porter 2002; Hawawini, Subramanian, Verdin 2003; McGahan, Porter 2003; Ruefli, Wiggins 2003; Adner, Helfat 2003; Spanos, Zaralis, Lioukas 2004; Hawawini, Subramanian, Verdin 2004). Sometimes, however, some alternative profitability ratios are utilised, such as return on sales (ROS), i.e. the relation on the net earnings to the turnover (Kessides 1990), the very amount of operational profit (Furman) or even the level of earnings measured on an ordinal scale, indicated by managers in comparison with the competition (Caloghirou et al. 2004).

The corporate performance is sometimes also interpreted as the firm value measured with the use of e.g. Tobin's q (Wernerfelt, Montgomery 1988), economic value added (EVA), i.e. the difference between operational earnings after tax and the cost of total capital invested or the total market value (Hawawini, Subramanian, Verdin 2003; 2004). There are also some studies, where corporate performance is measured by the firm market share (Chang, Singh 2000).

3. Corporate performance versus corporate finance theory

A considerably different understanding of the term 'corporate performance' is provided by the theory of corporate finance. According to the most general definition, it is considered as an economic financial condition of an entity in a given time, which is also known as financial effectiveness (Bień 2002). In order to comprehensively recognise the financial condition of a firm, i.e. to diagnose it, various analytical methods are used. The classification of those methods is shown in Figure 1.

Figure 1
Classification of corporate performance analysis



Source: compilation based on Sierpińska, Jachna (2004, p. 14) and Gabrusewicz (2002, p. 15).

Environment analysis is used to determine those factors influencing corporate performance which are mainly independent from the enterprise. It aims at identifying the opportunities and risk embeded in the environment and therefore also determining the strengths and weaknesses of a firm. The market analysis in the above classification involves such aspects as e.g. demand analysis, product distribution, price forecasting, market segmentation, market demographic and geographic characteristics, etc. The competition analysis, which is performed e.g. by sales volume and sales dynamics analysis, is meant to identify main competitors (Sierpińska, Jachna 2004).

The fundamental part of corporate activity analysis is the economic analysis, involving technical and economic analysis, as well as financial analysis. The first one focuses on evaluating individual sections of corporate economic activity, such as production (quantity, product range, production methods), employment, pays, labour productivity, technical equipment, inventory management and technical progress (Bednarski, Kurtys 2001). In a market economy, it is the financial analysis which plays the crucial role and therefore constitutes the main field of economic analysis. Traditionally, it consists of the initial firm evaluation based on the structure

and dynamics analysis of financial reports (balance sheet, profit and loss account and cash flow) and also on the more profound ratio analysis of the corporate condition in the area of liquidity, solvency, profitability, efficiency and market value (Sierpińska, Jachna 2004; Jerzemowska 2004).

In the practice of corporate finance, firm evaluation is often limited only to financial analysis, which might be due to the easiness of its application. Data necessary for performing financial analysis are usually freely accessible, as the traditional financial analysis is based on financial reports. Sometimes it is limited exclusively to ratio analysis in basic areas under examination. In such case, corporate performance is usually characterised by ratios of profitability, liquidity, efficiency, solvency and capital market (Bień 2002; 2000; Gabrusewicz 2002; Jog, Suszyński 2000; Libby, Libby, Short 2009; Sierpińska, Jachna 2004).

Despite the fact that there are many different ways in which analytical areas contributing to the whole of corporate performance are classified, the very analytical tools formed by financial ratios are usually similar. Therefore, corporate performance can be affected by profitability, assets utilisation, long-term financial situation and liquidity (Bednarski et al. 2001). Considering the variety of aspects influencing the overall financial condition of an enterprise, the term can be interpreted as an economic and financial state of an entity in a given time, described by its effectiveness and solvency, and also – especially with reference to public companies – by its market value.

The issue of efficiency is of interest to many fields of science, although it is a very complex question and the very concept of efficiency is sometimes interpreted differently, both in the economic literature, as well as in business practice (Fedorowicz 1990; Felbur, Ważniewski 1994; Fiszel 1973; Kornai 1986; Kotarbiński 1973; Leibenstein 1978; Łubieński, Makowski, Rybak 1988; Melich 1980; 1985).

The comparison of the theoretical corporate performance definitions between economic and financial literature may lead to a conclusion that both approaches are quite similar, as they both consider some external and internal factors affecting the condition of a firm. However, differences become clearer when it comes to comparing practical interpretation of the term between empirical research in the stream of microeconomics and corporate finance. As mentioned in the previous section, a common practice in economic empirical analyses is to reduce corporate performance to just one selected profitability ratio, depending on data availability or the researcher's needs. The financial approach is usually much wider, covering not just profitability ratios, but also other parameters characterising liquidity, solvency, activity and sometimes market value. However, financial researchers are also far from being consistent when it comes to measuring performance. For instance, considering the very market value of a firm as the only variable representing the total of corporate performance is not uncommon.

The existence of such obvious discrepancies in the practical understanding of corporate performance creates the need for developing a compromise between the two streams and, as a result, a more versatile definition of the term. Accorging to the author, none of the above approaches is fully appropriate, as neither a single profitability ratio, nor the market value itself can sufficiently represent the complex image of the economic and financial condition of a company.

Considering the fact that the essence of the economic efficiency evaluation of an enterprise – as a complex economic category – should cover its multiplexity, i.e. the combined assessment

of the many diverse elements that determine it (Czechowski 1997, p. 130), efficiency can be interpreted as a relation of the broadly defined results obtained from economic activities to any expenses incurred for that purpose, where both the inputs and the effects are quantifiable values (Biliński 1987; Nahotko 1992; Żółkiewski 1993). Using the terminology of financial analysis, it can be stated that efficiency is characterized by indicators of profitability and effectiveness. The other aspect of financial condition, which should not be neglected when evaluating corporate performance due to its importance for the firm survival, is solvency, which can be defined as the ability to repay debt. In financial analysis this ability is decomposed into long-term and short-term solvency, known as liquidity.

The presented interpretation of corporate performance is probably the closest to the definition proposed by Kowalak (2003), who defines it as the financial condition at a given time, expressed by the ability of a company to maintain solvency, generate profits and expand assets and equity. The two basic areas included in this definition – efficiency and solvency – cover a large and important part of problems associated with the analysis of corporate performance, although certainly do not cover all the related issues.

4. The nature and genesis of the financial ratios as characteristics of corporate performance

The beginnings of the use of financial ratios for analytical purposes should be sought at the beginning of the last century, when they were means of assessing the financial situation of enterprises, mainly for banks and other financial institutions (Zarzecki 1997). This assessment focused primarily on the ability of the timely repayment of debt. Hence the important role was played by the short-term liquidity ratio (called current ratio), being a relationship of current assets to short-term liabilities. Later, to evaluate the financial health of companies, more indicators were successively introduced, but even a broad set of ratios did not guarantee the accuracy of analysis, which suggests that both the selection of ratios, as well as their interpretation should be treated with appropriate caution.

By contrast, in mid-20th century, the concept of using financial ratios has spread as a tool for eliminating or reducing the size effect in the comparative analyses of financial statements. Since then, financial ratios have been used in many analyses. However, as studies show, they are not completely unbiased by the size of an entity, and therefore can lead to distortion of cross-sectional comparisons (Hopwood, McKeown 1998). Analyses show that both the mean and standard deviations of ratios do depend on the size of the company, which confirms the existence of the size effect.

Currently, the use of financial ratios has become common practice in evaluating the performance of companies. Financial ratios, being the relationship of two or more volumes, allow to compare a company to the industry or competition. They are also used as tools in forecasting stock prices, profits from securities, financial risk, the likelihood of the acquisition of an entity, its financial difficulties or bankruptcy (Ketz, Doogar, David 1990, p. 1).

Industrial comparisons may have different degrees of reference, depending on how detailed the classification of industries. However, comparisons between companies with similar characteristics should take into account parameters such as size of the assets, market capitalization or equity (Muresan, Wolitzer 2004).

The source of information to determine the ratios is corporate accountant's report included in financial reports, mainly in the form of a balance sheet and a profit and loss account, but also the information contained in the statement of cash flows, statement of changes in equity and in some cases resulting from the notes. In order to properly use a ratio, i.e. to calculate and interpret it, a thorough knowledge of accounting principles is necessary. The utility of the ratio analysis is beyond doubt, if only because of the interest it creates in a broad spectrum of individuals and institutions, both internal and external.

The group of internal users of analysis, who are inside the company itself and have a direct impact on its performance, includes mainly managers. The category of external users, from outside the enterprise and without any direct influence on the effects of a company's activities, is much wider. It certainly includes the owners (shareholders), contractors (both suppliers and consumers), providers of capital (eg. banks), tax authorities, analysts and financial advisors, rating agencies, employees, journalists and public opinion. However, each of these bodies reveals the need for a different type of reporting information. A detailed range of information expected by individual groups of financial statements' users is presented in Table 1.

The common use of financial ratios is associated firstly with the fact that they are intuitively easy to calculate and simply defined as a set of book values – in the numerator – divided by the determined book values – in the denominator. Secondly, their interpretation is usually quite clear

Table 1
Users of financial information

User category		**Expected financial information**
Company management		current and projected financial situation of enterprise, information facilitating effective management, control and planning decisions
Shareholders (owners)		information to assess the effectiveness of management, mainly company's profitability
Contractors	Suppliers	firm's ability to repay debts
	Consumers	security of the company as a source of supply
Providers of capital		firm's ability to service debt (debt plus interests)
Tax authorities		amount of taxable income generated
Employees		sustainability of the company as an employer, the amount of wages depending on the financial situation
Analysts and financial advisers	Brokers	necessary information for investors in shares and the value of shares
	Rating agencies	information needed by suppliers, contractors
Journalists		information for the public, the readers
Public		information about the company's activities for members of the public such as taxpayers, consumers, workers

Source: compilation based on *Accountancy* (1991, p. 2–3) and Subramanyam, Wild (2009, p. 10).

due to the fact that they are based directly on accounting values. However, these user-friendly tools are not free from some shortcomings, of which the most important will be discussed further in the study.

Despite the likelihood of an easy abuse of financial ratios, resulting from their simplicity and widespread availability of source data, they facilitate the creation of certain patterns, supporting the management process considerably. The ratios also provide a starting point to investigate the diversification of companies and their positioning in the environment.

5. Selected classification systems of financial ratios

The systematics of financial ratios, also called taxonomy, is defined as a specific classification of ratios into groups, whose elements show a great similarity (Ketz, Doogar, David 1990, p. 2). It can therefore be expected that e.g. various cash ratios, such as the ratio of cash resources to current liabilities, sales or assets are combined into one category. Their membership in the same group stems from the fact that they measure the same property of a company, which is the monetary situation in relation to other aspects of the entity.

By contrast, elements of different categories should reflect different aspects of business, which means that the ratios derived from various categories should be more differentiated among themselves rather than similar. It is therefore reasonable to assume that e.g. current ratio will be in another category than the rate of return on sales or assets, as these ratios examine different aspects of business, i.e. short-term solvency and profitability, respectively. In fact, one may be faced with a company which is profitable and at the same time solvent, but also profitable but insolvent or unprofitable but solvent. Therefore, the taxonomy of ratios is based on combining similar elements, and separating directly unrelated elements from one another.

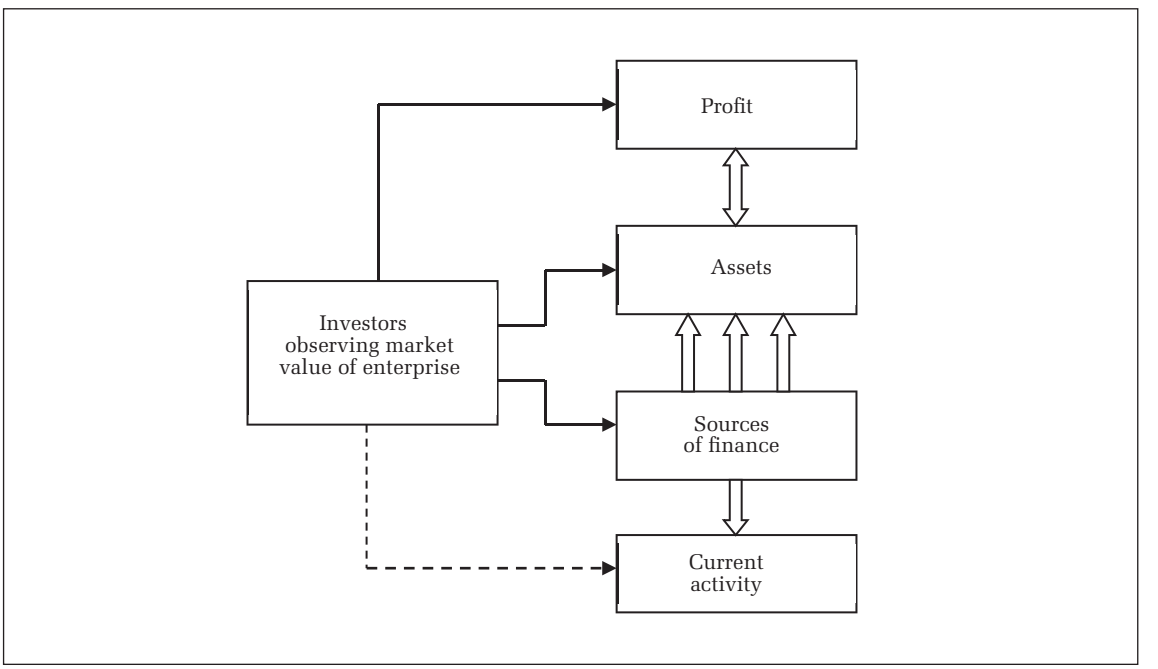
The most general classification of financial ratios takes into account only two categories: ratios of financial situation, i.e. solvency ratios indicating the ability of the timely repayment of debts, and the ratios indicating the achieved outcomes of the business, i.e. efficiency ratios (Fess, Warren 1984, pp. 570–580). More often, however, a more detailed categorisation of ratios is encountered, where they are divided into four groups: ratios of debt or capital structure (also called gearing or leverage ratios), liquidity ratios, activity ratios (also called productivity or management performance ratios) and profitability ratios (Wędzki 2006; Smith, Skousen 1984, pp. 1162–1179). Sometimes also capital market ratios or ratios of market value are distinguished as a separate category (Dębski 2005, pp. 99–102). Most other classifications, however, are dominated by the division of indicators into just four categories: liquidity, long-term debt, activity and profitability (White, Sondhi, Fried 1994; Rees 1990).

Another method of organizing the indicators is based on the system of data in financial statements. In such case, the following analytical areas are distinguished: analysis of assets situation (ratios mainly based on the combination of assets or their components with other interdependent values), analysis of the financial situation (ratios comprising elements of liabilities), analysis of the economic situation (ratios mainly based on the amounts from profit and loss account) and analysis of monetary situation (ratios based primarily on information from the cash flow statement) (Żurek 2007, p. 300).

An interesting alternative to traditional classification of ratios is a mnemonic method, which is based on using fingers as tools to help identify and remember the five most frequently used categories of financial ratios characterising the overall condition of a company (Muresan, Wolitzer 2004). The first letters of the names of groups of indicators (Profitability, Asset utilization, Long--Term Solvency, Market value, Short-Term Solvency) form the word PALMS and thus may help to organize the process of analyzing companies in the five key areas.

The process of analysis based on the method of PALMS is also convergent with the course of financial transactions held by a company during the financial year, as well as the approach to the analysis from the perspective of an investor who, in order to diagnose a firm, intuitively starts the analysis from the final effects of its activity, that is profits. This approach is illustrated in Figure 2.

Figure 2
The basic process of business analysis



Source: Muresan, Wolitzer (2004).

Profits are generated through properly managed assets. To come into possession of assets that generate profits, the sources of their funding must be known and found. A well thought-out way of shaping the capital structure is also important for the survival of a firm. For if an entity is overly indebted, in an effort to exploit the effect of financial leverage, it can lead to a situation in which the necessity of the debt and interest repayment decreases the profit generated from operations. This in turn will not be satisfactory to owners (shareholders), whose perception of the company plays a key role in the expectations concerning its future. However, when taking decisions regarding capital structure, one must take into account the usually lower cost of raising external capital compared

with equity, as well as its greater availability. The last, but not least important stage of analysis is to evaluate the company's ability to manage operations in the short term, i.e. the management of current assets and liabilities (Muresan, Wolitzer 2004).

Regardless of the classification method of ratios, their construction is such that they aim at evaluating one of the two aspects of a company: either the broadly defined solvency (regardless of the time horizon), i.e. the financial risk, or efficiency – on a gross basis (based on turnover) or on a net basis (profitability). At the same time, these two groups of ratios reflect the two fundamental criteria for evaluating the economic activities of companies, i.e. efficiency and safety, which are both important qualifiers taken into account when making investment decisions.

6. Limitations of financial ratios

Irrespective of the classification method of financial ratios, they are tools that are characterized by significant limitations in the application, which is an imperfection one should be aware of when using them. First of all, having the very values of financial ratios, without any wider context enabling their comparison, largely limits their utility as a resource of information and hinders the process of interpreting them. Consequently it limits the inference process based on the values of ratios. Obviously, it is difficult to formulate an objective opinion on the effectiveness of a company without the knowledge of the industry in which it operates, or without the information about the behaviour of the ratio in the past. However, even the exact knowledge of the nature and history of the analysed enterprise can sometimes be insufficient for a reliable ratio analysis due to the limited comparability of financial ratios.

One of the basic accounting rules is the principle of consistency, assuming a constant use of the once adopted rules and practices from one period to another to ensure comparability of financial data. Since financial ratios are usually the relation of two quantities taken from financial statements, it is important to maintain consistency in the calculation of these ratios. Neglecting the principle of continuity means that the calculated ratios lose their real meaning and comparability both between periods of the same entity and between other firms. Comparability is also affected if the numerator or denominator of a ratio is calculated incorrectly, for example, as a result of erroneous recognition of long-term receivables as short-term ones. The inclusion of receivables with a repayment period of more than twelve months to the receivables turnover ratio expressed in days would cause overestimation of the proportion. Similarly, improper classification of a loan with a repayment period of nine months as a long-term commitment would cause underestimation of short-term liabilities and therefore falsely improve liquidity ratios. Similar classification errors may occur in relation to components of any ratios, which in turn distorts the obtained results and reduces their usefulness (Muresan, Wolitzer 2004).

Disruption of comparability may also result from a variety of changes, which the analysed objects experience, such as methodological, financial, objective and organisational. Methodological limitations of comparability result from a change in the information content of ratios, which represent a different range of phenomena, or are the result of changes in accounting rules for registration. Disruptions of a financial nature are associated with changes including product prices, exchange rates, depreciation rates or tax rates. As a result of technological progress and

continuous improvement of the production process, the differences of quality in the manufactured products occur, which in turn is the cause of objective interference. Finally, there are comparability difficulties of an organizational nature with their origins in changes in the organizational structure of enterprises, e.g. resulting from their merger or division (Zarzecki 1997, p. 569).

Another important factor significantly influencing the process of analytical inference is the use of various banchmark values, such as industry-average values of a ratio, the historical values or the supposedly universal normative values. This latter type of reference value, though easy to use, is a major reason for concern. This is evident even when addressing discrepancies in the commonly used short-term liquidity ratio, whose lower critical values vary depending on the source from 1.2 to 1.6, while the upper ones from 1.9 to 2.5 (Bednarski 1999, p. 79; Benninga, Sarig 1993, p. 354; Dudycz, Wrzosek 2000, p. 54; Ostaszewski 1991, p. 54–55; Tarczyński 2002, p. 103; Tyran 1992, p. 162–163; Waśniewski 1997, p. 313; Waśniewski, Skoczylas 2002, p. 173; Westwick 1998, p. 178). In fact, the application of uniform standards for different companies may lead to erroneous decisions made under the influence of the analysis, because it ignores the impact of such important factors as the industry, company size and finally individual circumstances such as relationships with contractors. It can therefore be suggested that these normative reference values should be treated as indicative rather than definitive and absolutely obligatory. Striving to achieve them at all costs could cause the opposite effect than intended.

The proper selection of ratios and the corresponding reference values facilitates the management process aimed at optimising corporate results. However, the possibility of manipulation by managers should be detected by an appropriately performed analysis. Off-balance sheet transactions, fabricating results, related party transactions or premature revenue recognition are just some examples of a falsification of financial ratios. The use of such practices leads to a situation in which the evaluation of a corporate financial position does not reflect the reality.

Another trap lying in wait for an inexperienced user of financial ratios is excessive confidence in the calculated numerical values deprived of any critical overview of the primary parameters influencing a given ratio. An example of frequent misinterpretation can be supplied by one of the most commonly used profitability ratios, i.e. ROE, the return on equity, which is the relation of net income and equity. Companies which have relatively low book values of equity, can often be characterized with high rates of ROE, although at the same time they may show over-indebtedness, which elevates insolvency risk. The ROE increases with the decrease of the denominator of the ratio, so it can indicate high rates of return, while the condition of the company deteriorates. In addition, the book value of equity can be negative (when the value of liabilities exceeds the value of business assets), resulting in a value of the ratio with a completely different meaning in the analytical sense. Finally, if both the numerator and denominator of the ratio (net profit and equity, respectively) take negative values, the company could demonstrate a falsely positive ROE, which would be the most explicit example of an error generated by inappropriate use of ratios for analytical purposes. The superficial treatment of the final value of the ratio would lead to recognising an enterprise as a thriving business, when in fact it could be a bankrupt (Trimbath 2001, p. 2–6).

The above mentioned possibilities of ratios' misinterpretation do not only refer to the discussed situation. Similar reasoning errors may be committed also when using other ratios, especially those involving equity value in their construction, and when the denominator of the ratio may take the zero value. Thus, the skillful use of analytical tools in the form of ratios should not be limited to

purely arithmetical calculation of their value, but, to ensure fairness and reasonableness of the performed analysis, it should be complemented by a thorough look at the meaning of primary structural elements used in synthetic ratios.

Another major disadvantage of ratios is their reliance on book values, which are not always fully reliable and accurate. For example, significant differences were detected in the area of liquidity, solvency, indebtedness and profitability of companies depending on the accounting methods adopted (Lanez, Callao 2001). Results of other empirical studies, in turn, confirm the limited ability of financial ratios to detect and (or) predict fraudulent financial statements (Kaminski, Wetzel, Guan 2004).

Relying solely on the data from financial statements when determining ratios leads to certain limitations, which appear as a consequence of the imperfection of book values, for example in the form of manipulated financial figures, especially earnings. This problem concerns in particular certain profitability ratios, such as earnings per share or return on equity, which are often subject to management in a pejorative sense, for example, in order to meet the prescribed threshold values. An example might be supplied by the Chinese listed companies, for which the probability of manipulation seems to be higher than in other countries due to the statutory requirements regarding the possibility of raising capital on the stock market (Yu, Du, Sun 2006). The studies on this kind of occurrences, known as earnings management, are becoming more frequent and concern, among others, the distribution of rates of return around certain threshold values, such as zero or the value of the ratio from the previous reporting period. The result, and also the aim of manipulating earnings is the asymmetry of profit distribution, where values from above the threshold appear more often (Burgstahler, Dichev 1997; Moreira, Pope 2007; Charoenwong, Pornsit 2009, Dechow, Sloan, Sweeney 1995). Actions of this type are also observed in other countries and the presence of this phenomenon does not only refer to listed companies.

Imperfections of ratios also result from their properties consisting in a limited proportionality as applied to the evaluation of enterprises of different sizes, i.e. with the presence of the earlier mentioned size effect (McLeay, Trigueiros 2002). A multitude of different ratios may also cause difficulties in choosing the most appropriate measures to assess the analysed entity. The similarity of ratios structure sometimes contributes to duplicating information, instead of bringing new, valuable analytical content. So far, no set of ratios has been developed which would provide a universal method allowing to perform a systematic and fully complete analysis of a business.

A financial analyst, therefore, to support the conclusions from the study of the condition of a firm, cites a number of ratios representing each category of activity, which are supposed to answer questions about the five key areas: profitability, asset management, ability to survive through the efficient management of funding sources, maintenance of the market value and efficiency in the current activity management (Muresan, Wolitzer 2004).

Some difficulty in international comparisons of ratios, may also result form the differences in the use of accounting methods by individual countries. This issue was considered, for example, with reference to the impact of accounting differences on financial ratios and valuation of companies based on corporate data from France, Germany and the UK (Frost 1994). The aim was to assess the effectiveness of efforts taken by the European Union to reduce this diversity, i.e. to increase harmonisation, treated as the comparability and transparency of information in accordance with EU directives, emphasising the concept of 'true and fair view of the company'

(Walton 1993; 1997). Harmonisation is achieved in various areas, which include rules, regulations and practices. However, achieving harmonisation in one of them, such as e.g. regulations, does not automatically mean the overall consistency at another level, especially in accounting practice (Tay, Parker 1990).

Many of the above mentioned problems with the practical use of financial ratios can be avoided, provided that the user of ratios is aware of their presence. Some of the described limitations have already been identified and solved in the economic literature using modern quantitative techniques. For example, econometric analysis provides methods to control for differences in the economic environment or size in order to distill the pure effect under consideration (see e.g. Mohanram 2004). Therefore, the existing experience from the practice of empirical economics should also be applied in corporate finance analysis.

Also, many of the obstacles disrupting comparability can be eliminated with the use of appropriate conversions of primary data, provided that the exact nature of changes taking place inside the firm is known for the external user of the accounting information, which unfortunately is not always the case. In other situations, i.e. when comparability disruptions skip the researcher's attention or cannot be reduced, the research should not be totally abandoned as futile, but conclusions should be drawn more carefully and the limited reliability of the inference should be borne in mind.

7. Summary and conclusions

Summarizing the above considerations, it is clear that corporate performance constitutes a concept of considerable semantic extent. The multi-dimensionality of this term is shown by the discrepancies in the interpretation of the financial condition on the grounds of industrial economics and in the approach used in corporate finance. Another factor impeding unambiguous clarification of the concept is its different treatment in theory and practice of industrial economics.

In the theory of industrial economics corporate performance is characterised by a number of alternative or complementary characteristics, which include: profitability, growth, product quality, technological progress, productive and allocative efficiency. However, in many empirical studies the company's financial condition is usually characterized with just one attribute – usually with a selected profitability parameter.

In corporate finance, by contrast, assessing corporate performance includes output, employment, labour, technical equipment or technological progress, as well as multi--dimensional financial analysis, which in a market economy plays a key role. In practice of corporate finance, the assessment of the financial health of a company usually comes down to characterising the firm in terms of its profitability, efficiency, solvency and liquidity, and in the case of public companies also market value. These are also the main areas diagnosed in a traditionally performed financial analysis of a company.

Undoubtedly, the common part of the two concepts is a firm's ability to generate profits, i.e. profitability. However, it seems that narrowing the definition of financial condition solely to this aspect would result in a significant depletion of its interpretation, neglecting for example the issue of solvency, which is crucial for the survival of a company.

The discrepancies in the definition of corporate performance demonstrated in the study also contribute to the emergence of its measurement problems. The use of different measures to evaluate the same phenomenon, in turn, hinders the direct comparability of studies and research conducted.

Despite the presence of many ambiguities concerning the discussed term, which sometimes result from the availability of data or the researchers' needs, the author believes it would be advisable to seek a unification of concepts in this area, especially that corproate perfomance is one of the most common subjects of empirical studies. Understanding corporate performance as the economic and financial condition of a company in a given period, characterised not only by its ability to generate revenues and profits, but also by the solvency of both long and short-term, and market value where applicable, is some kind of a compromise between the presented scientific and practical approaches. According to the author, the above characteristics are indispensable features which should be included when evaluating corporate performance.

Measurement and assessment of corporate performance, contrary to common beliefs, is a task of considerable difficulty. Complications related to the assessment of corporate performance result primarily from the lack of clarity in defining the very concept of financial condition as well as the properties of financial ratios as tools commonly used to measure it. The most important of those include the number of available financial ratios and the diversity of their classification, sometimes hindering the selection of the most appropriate measures and consistent evaluation of the company.

Moreover, the construction of most of the ratios is such that they are based on accounting values, which often do not reflect the real image of the company, partly as a result of purposeful manipulation of certain values, aiming at improving this image. Probably the most common difficulty in conducting a fair evaluation of corporate performance is the occurrence of various disturbances in the comparability of ratios. However, some of them can be eliminated or controlled for with the use of quantitative techniques.

The occurrence of so many weaknesses of financial ratios, in principle, should disqualify them as tools for measuring the financial health of a company. It should be noted, however, that the ability of ratios to relativise financial phenomena, as well as the attractiveness and ease of their application, outweigh their shortcomings and determine their widespread use, both in the theory and practice of corporate finance.

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