METHODS FOR VALUATION OF RESTRUCTURING IMPACT ON FINANCIAL RESULTS OF A COMPANY[*]

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Abstract

In this paper, methods of valuation of restructuring impact on company's financial results are analysed. Such analysis is important as attention to restructuring is growing; however scientific literature does not present a single methodology for estimation of restructuring impact on value of a company and its performance results. There are analysed following valuation methods: traditional indicators of performance measurement (financial ratios), cash flow methods, value based methods, and cash flow return on investment. It was found that most of methods refer to profit (use accounting data) or cash flow (are based on forecasts, therefore often difficult to calculate and unreliable). The most of advantages have traditional performance evaluation methods (financial ratios) and one of value based methods (EVA); therefore they are the most suitable to estimate impact of restructuring on value of a company and its performance results.

Keywords: restructuring, corporate value, economic value added, financial ratios.

JEL Classification: G32, G34, M19.

Introduction

In a difficult economic situation that prevails in the world lately, most companies are forced to suspend temporarily or stop their activity. In order to survive in the market, to stand against the growing local and foreign markets, competition, companies must transform their business. The type of reform a company will choose depends on condition of well-timed notice and determination of financial problems because only in this case reorganization of activities of a company will he correct. One of the alternatives of company's reorganization is restructuring, which may result in a restoration of solvency, financial stabilization, and most importantly - the preservation and continuity of the business. It can be noticed, that an increasing attention is paid to restructuring during the last decade. The growing popularity of this process is conditioned by rapidly changing business environment, increasing competition in local and foreign markets, economic difficulties, which force companies to change priorities and reorganize operations.

Despite the growing interest, the main attention of researchers is mainly focused on the analysis of restructuring determinants and other factors, while only a few researchers examined the impact of restructuring on value and financial results of a company. With regard to the research carried out in Lithuania on restructuring topic, it can be said that they were rather abstract, analysing findings of foreign authors. However, there is lack of investigations determining how to effectively implement the restructuring process and how to evaluate the impact this process has on a company's value and its performance results. Therefore, **the purpose of this article** is to analyse valuation methods that are suitable to determinate the impact of restructuring on value of a company and it performance results. **The object of the research** is the valuation methods. **The research methods** are systematic and comparative analysis of scientific literature.

Valuation of restructuring

The scientific literature considers corporate restructuring in several respects: starting with determinants and consequences of restructuring (Khurana and Lippincott, 2000; Villalonga and Mcgahan, 2005) up to employment of experience in the restructuring process (Beixin et al., 2006; Bergh and Lim, 2007). Most of the researches are focused on corporate characteristics that cause problems, i.e. which are determinants of restructuring. More recent studies analyse impact of restructuring on activity of a company as well. However, there is not many of Lithuanian researches related to restructuring. In many cases Lithuanian scientists survey and analyze findings of foreign scientists, though there are some empirical researches as well (Juscius, 2001; Grigaravicius, 2002; Purlys, 2005; Lakstutiene and Stankeviciene, 2012). Summary of various scientific studies related to restructuring issue are presented in Table 1.

Review of studies clearly evidence that only few of them analyse impact of restructuring on corporate value and none of them present a single methodology for estimation of restructuring impact on value of a company and its performance results. Therefore, further various methods for valuation of company's performance are discussed.

Table 1. Researches related to restructuring

Field of research	Results of research	Author, year, country
Financial crisis of companies	There are identified key efficiency factors of assets', operations', management and financial strategies.	Sudarsaman et al., 2001, Great Britain
Cost of rehabilitation of companies	There are distinguished net rehabilitation costs and their calculation methodology is presented.	Purlys, 2005, Lithuania
Role of restructuring learning in creation of corporate value	There is presented different restructuring experience related to the restructuring method and performance indicators.	Bergh, et al., 2008, USA
Impact of restructuring on corporate value	It was established that value of restructured companies is lower than that of not-restructured companies.	Makhija, 2004, USA; Baek, et al., 2001, Korea; Lakstutiene and Stankeviciene, 2012, Lithuania
Effectiveness of restructuring	There are identified criteria that must be assessed in restructuring a company.	Bivainis, et al., 2002, Lithuania
Factors of restructuring	Restructuring is determined by: management efficiency, properly chosen time and objectives, growth opportunities, size of company, net cash flow, level of profit and liabilities, number of employees, etc.	Powell and Yawson, 2007, Australia; Gigaravicius, 2002, Lithuania; Beixin, et al., 2006, USA; Bergh, et al., 2008, USA; Khurana and Lippincott, 2000, USA; Villalonga and Mcgahan, 2005, USA; Juscius, 2001, Lithuania.

Traditional indicators of performance measurement. The most of Lithuanian companies use absolute values (such as revenue, net profit, profit before taxes) in order to evaluate performance results of a company (Christauskas and Kazlauskiene, 2009). Besides them, efficiency of activity is measured using return on investment (ROI), return on capital and other financial ratios. Ratios are more informative than absolute values, since they outline performance efficiency more precisely (Sakiene and Puleikiene, 2009). Foreign, as well as Lithuanian scientists also apply financial ratios to evaluate performance of a company or the effect of different decisions (including restructuring) on performance results (Charitonovas, 2004; Leepsa and Mishra, 2012; Lukason, 2012; Fedier, 2011)

Various groups of ratios are used for performance analysis of a company, however, for more accurate results, it is important to compute systems of indicators but not separate ratios. H. Sakiene and K. Puleikiene (2009) in their analysis of ratios showed that the most commonly used indicators belong to groups of profitability, liquidity (solvency), efficiency of asset management (turnover), capital structure and debt management (financial stability), market value. Key financial ratios are presented in Table 2.

As A. Lakstutie and J. Stankeviciene (2012) state, the main advantage of financial ratios is simple calculation, where outside information of a company is enough. In addition, all companies may be evaluated using them if they are not exclusively specific and if they use the same accounting methods. However, financial ratios have some limitations, as well: they are sensitive to accounting errors, some of them (those of market value) can be calculated only for listed companies. For these reasons, financial ratios can be used at the beginning of analysis and other methods should be used hereafter.

Cash flow methods. In estimating value of a company, a great attention is also given on methods of discounted cash flow (Jennergren, 2011a; Jennergren, 2011b; Zaptorius and Garbanovas, 2007), where following models can be distinguished: discounted cash flow (DCF), discounted dividend (DDM) and discounted free cash flow (FCF). Discounted cash flow methods assess all future revenues and convert them to current value. The main difference among the methods is that different cash flows and discount rates are used.

Table 2. Financial ratios

Ratio	Formula	No of formula
Profitability ratios reflect efficiency of profit-earning, investment, and financial decision-making		
Gross profit margin	Gross profit / Sales revenue * 100	1
Operating profit margin	Operating profit / Sales revenue *100	2
Net profit margin	Net profit / Sales revenue *100	3
Return on assets (ROA)	Net profit / Total assets *100	4
Return on equity (ROE)	Net profit / Equity *100	5
Liquidity (solvency) ratios reflect ability of a company to fulfill short-term liabilities in time		
Current ratio	Current assets / Current liabilities	6
Quick ratio	(Current assets-inventory) / Current liabilities	7
Cash ratio	Cash / Current liabilities	8
Net working capital	Current assets – Current liabilities	9
Asset turnover ratio reflect efficiently of assets management in a company		
Inventory turnover	Sales revenue / Mean inventory	10
Receivables turnover	Sales revenue / Mean accounts receivable	11
Payables turnover	Sales revenue / Mean accounts payable	12
Net working capital turnover	Sales revenue /Mean net working capital	13
Fixed asset turnover	Sales revenue / Fixed assets	14
Total asset turnover	Sales revenue / Total assets	15
Capital structure and debt management ratio reflect ability of a company to meet its liabilities and size of leverage		
Debt ratio	Total liabilities / Total assets	16
Debt-to-equity ratio	Total liabilities / Equity	17
Equity multiplier	Total assets / Equity	18
Long-term debt ratio	Long-term debt / Total assets	19
Market value ratios are used for companies listed on the Stock Exchange, because they are based on share prices		
Capitalization	Number of ordinary shares * Stock market price	20
Earnings per share (EPS)	Net profit / Number of ordinary shares	21
Price-to-earnings ratio (P/E)	Stock market price / Earnings per share	22
Stock book value	Equity / Number of ordinary shares	23
Market-to-book ratio (MBR)	Stock market price / Stock book value	24

The most common method used in scientific literature for estimation of value of a company, is a discounted cash flow method (DCF), where other dimensions (net profit, dividends, interest, etc.) can be used. The DCF method is based on the calculation of present value of future cash flows; in this case, the corporate value equals net value of future cash flows. According to the DCF model, a value is calculated as follows:

$$V = \sum_{t=1}^{\infty} \frac{E[CF_t]}{(1+r_c)^t} \tag{25}$$

Here: CF_t – cash flow of period t; r_c – capital cost, estimated adding to risk.

A. Dzikevicius et al., (2008) distinguish model of discounted dividend (DDM) and mark out the possibility to appraise the effect of time, also the life cycle of a company or product as an advantage. Value of a company is calculated as follows:

$$V = \frac{D_1}{1+k} + \frac{D_2}{(1+k)^2} + \frac{D_3}{(1+k)^3} + ... = \sum_{t=1}^{\infty} \frac{D_t}{(1+k)^t} \tag{26}$$

Here: D_t – dividend per share in the corresponding year t; k – required profit rate in the year t.

Models of discounted free cash flow are suitable for use when a company does not pay dividends. There can be noted models of discounted cash flow (FCFF) and discounted cash flow on equity (FCFE).

According to FCFF method, value of a company can be calculated as follows:

$$V = \sum_{t=1}^{T} \frac{FCFF_t}{(1+WACC)^t} + \frac{TV}{(1+WACC)^T} \qquad (27)$$

Here: $FCFF_t$ - Free cash flow in the period t (operating profit after-tax + depreciation expense - long-term investment - change in working capital); T - the last forecasted year; WACC - the weighted average capital cost of a company; TV - continued value.

According to FCFE method, value of a company can be calculated as follows:

$$V = \sum_{t=1}^{T} \frac{FCFE_t}{(1+k_e)^t} + \frac{TV}{(1+k_e)^T} \qquad (28)$$

Here: $FCFE_t$ - Free cash flow on equity in the period t (net profit + depreciation expense - long-term investment × (1 - debt capital) - change in working capital × (1 - debt capital)); k_e – cost of equity.

These methods determine value of a company through value of its share price; therefore it is difficult to evaluate companies whose shares are not traded. In summary, the cash flow methods also have following limitations: 1) reliability and accuracy of cash flow forecasting: the longer is the forecasting period, the more complicated is calculation, and there may be cases when the assumptions of forecasting are settled according to the expected results; 2) model of dividend discount can be applied, if a company pays dividends and they can be easily forecasted; otherwise, the calculation is complicated by the need to identify likely rate for dividend payment; 3) it is difficult to settle a discount rate; 4) it is required a complex detailed analysis; 5) methods can be applied only under certain conditions; 6) internal information is required in order to calculate value of a company. Thus, these methods are stochastic because forecasting is based on assumptions that change when business environment is changing. Therefore, it is difficult to make a long-term performance forecasting.

Value based methods. According to C. Christauskas and V. Kazlauskiene (2009), traditional methods are insufficient to determine value of a company under today's dynamic business conditions, therefore modern valuation systems become increasingly popular. This view is shared by L. Vaskeliene and V. Boguslauskas (2001) who emphasize that none of the traditional valuation method is recognized as the most proper and closest outlining the company's value in so far. Value based valuation methods are not new and are used in practice since 1990 (Petravicius, 2008); but more common in Lithuanian companies is only EVA indicator (Christauskas and Kazlauskas, 2009).

Economic value added (EVA) proposes that value is created when the revenue generated by a company overpass economic costs, which include expenditure from the profit and loss statement and cost of capital. As compared with traditional valuation methods, EVA is advantaged because it measures and expresses value created to shareholders in cash rather than other units. T. Petravicius (2008) indicates that this indicator can be used to evaluate mergers, efficiency of new product introduction to market, consequently, also the effect of restructuring. EVA is calculated using following formula (Keys et al., 2001; Nthoesane, 2012):

$$EVA = NOPAT - (C \times Capital) \qquad (29)$$

Here: NOPAT – operating profit after taxes; C – rate of capital cost (WACC); Capital – at the beginning of the year (long-term and short-term financial debt + equity).

Market value added (MVA) is the difference between the market value of stock and book value of equity (or the present value of future EVAs) (Petravicius, 2008). This value can be calculated as follows:

$$MVA = Market\ value\ of\ a\ company - CE_{t-1} \qquad (30)$$

Here: CE_{t-1} – total amount of capital; Market value of a company = market value of equity + book value of liabilities.

When MVA is calculated, value of a company equals to:

$$V = IC + MVA \qquad (31)$$

Here: IC – book value of invested capital.

A positive value of this indicator evidences that an extra market value is created to shareholders of a company.

Cash flow return on investment (CFROI) is an average return on projects of a company (Petravicius, 2008). This indicator is calculated as follows:

$$CFROI = (CF - ED) / C_{ad} \qquad (32)$$

$$ED = RC \times k_c / ((1 + k_c)^n - 1) \qquad (33)$$

Here: ED – economic depreciation; RC – asset renewal expenditure with respect to inflation; k_c – capital cost of a project; n – duration of a project in years.

In this case, value of a company equals to:

$$V = [(CFROI*I-DA)(1-t)-(CX-DA)-\Delta WC]/(k_c-g_n) \qquad (34)$$

Here: I – investments; DA – depreciation and amortization; t – tax rate; CX – capital expenditure; ΔWC – change of current assets; k_c – cost of capital; g_n – growth rate.

The value to the shareholders is created when CFROI rate is higher than the cost of capital.

The analysed literature evidence that there are many models suitable for the valuation of impact of restructuring on value of a company and its performance results. Therefore, it is necessary to designate models that are most suitable for this reason.

Estimation of methods' appropriateness to evaluate outcomes of restructuring

Earlier in this paper, different methods used to evaluate impact of restructuring on value of a company were discussed. In order to establish their appropriateness and to select the most suitable, advantages and limitations of all discussed methods are presented in Table 3.

Table 3. Advantages and limitations of valuation methods

Financial ratios	
Advantages	*Limitations*
• Simple calculation of the ratios • Suitable for valuation of any type of a company • Does not require forecasting of future cash flow • Outside information of a company is enough	• Is based on accounting estimates, therefore they are sensitive to accounting errors • Ratios of market value can be calculated only for listed companies • Cash flows are disregarded • Shows the result of only a specific year
Cash flow methods	
Advantages	*Limitations*
• Cash flows are included	• Forecasting is not reliable • Calculation is complicated • Not all companies pay dividends and it is difficult to forecast them • It is difficult to settle a discount rate • Complex detailed analysis is required • Internal information is required
EVA	
Advantages	*Limitations*
• Simple calculation of the indicator • Current and foreseen costs are included • Suitable for valuation of any type of a company • Debt and equity cost is included • Does not require forecasting of future cash flow • Allows to monitor and control usage of invested capital more effectively	• Is based on accounting estimates, therefore it may be affected by accounting distortions • Cash flows are disregarded • Shows the result of only a specific year • Requires external and internal information of a company
MVA	
Advantages	*Limitations*
• Demonstrates the efficiency of government decisions at all levels of management • Estimates the performance efficiency of managers • Public information is sufficient for the calculation of the indicator	• Must be used together with others, because if based solely on MVA method, the majority of management decisions would be made considering only short-term outlook and a long-term growth of company would not be ensured. • Cash flows are disregarded

Continuation of Table 3. Advantages and limitations of valuation methods

CFROI	
Advantages	*Limitations*
• Return on investment is evaluated • The period impact on cash flow is evaluated • Cash flow corrections are possible considering the inflation rate • Estimates impact of activities on maximizing value for shareholders in the long run • Public information is sufficient for the calculation of the indicator	• Cost of raising and possessing of financial resources is not included • Complex calculation of the indicator

The analysis of advantages and limitations of all methods evidences that most of methods refer to profit or cash flow. First methods use accounting data and latter methods are based on forecasts, therefore they are often difficult to calculate. Moreover, their results may be obtained according to expected outcomes and therefore be not reliable. As a result, my conclusion is that traditional performance evaluation methods (financial ratios) and one of value based methods (EVA) have the most of advantages and are the most suitable to estimate impact of restructuring on value of a company and its performance results.

Conclusions

The analysis of Lithuanian and foreign studies on the restructuring topic evidenced that scientists do not agree which method is the most suitable to evaluate the impact of restructuring on value of a company and its performance results.

The analysis corporate valuation methods evidenced that the most suitable methods for evaluation of restructuring impact are financial ratios and the EVA. These methods are chosen basing on several factors:

– The effect of restructuring is calculated on the basis of historical data and therefore methods based on forecast are not suitable;
– Financial ratios and EVA may be used for evaluation of any type of business;
– Financial ratios show the stability, and therefore their changes during restructuring process and after it show the effectiveness of the process.

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