European Research Studies Journal
Volume XXV, Issue 3, 2022

pp. 84-95

Dynamic and Static Decomposition Analysis of the Czech Automotive Production Sector

Submitted 10/08/22, 1st revision 27/08/22, 2nd revision 19/09/22, accepted 15/10/22

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Abstract:

Purpose: *The objective of the paper is to analyse financial performance through the economic value added (EVA) measure of the Czech automotive production sector, NACE 29, in the years 2015-2019, using dynamic and static decomposition methods.*
Design/Methodology/Approach: *The applied methods are as follows: literature review, economic value-added measure formulation, pyramid decomposition, static decomposition deviation analysis, and dynamic decomposition deviation analysis due to variance analysis.*
Findings: *The static analysis results showed the non-stability of the crucial influential factors in both absolute and relative EVA measures. Dynamic decomposition analysis can reveal fundamental ratios influencing the EVA measure dynamically in state span. It was verified that the functional decomposition method is suitable for static analysis modelling positive and negative ratio deviations. The dynamic decomposition analysis based on the variance analysis method is appropriate for problem modelling. It was found that the Czech automotive sector is declining in relative EVA measures.*
Practical Implications: *Knowing the ranking and volume of influential financial factors of financial performance allows one to manage operational and strategic objectives successfully. Declining relative EVA measures, even if positive, reveal the necessity to correct and improve the management, financial and business model.*
Originality/Value: *The study contributes to the analysis of crucial sectors of the Czech economy, and the dynamic aspect is investigated as well. The findings can provide a better understanding of the development of the automotive production sector. Furthermore, crucial financial ratios are defined for managerial decision-making.*
Keywords: *Economic value-added, automotive sector, functional decomposition method, dynamic decomposition analysis, variance analysis.*
JEL Classification: *C02, C81, D24, G12, G32, G3.*
Paper type: *Research article.*
Acknowledgements: *The paper is supported by the Grant Agency of the VSB-Technical University Ostrava SP2022/58; this support is gratefully acknowledged.*

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1. Introduction

The automotive industry in Czechia has a long history. The first car was produced in the year 1895. Nowadays, the most important producers of personal vehicles are Škoda Auto, a.s, belonging to the car group Volkswagen, Toyota Motor Manufacturing Czech Republic, s.r.o, Hyundai Motor Manufacturing Czech, s.r.o. Trucks are produced by Tatra Trucks, a.s and Avia Motors, s.r.o, whereas tractors are made by Zetor Tractors, a.s. Buses are produced by the IVECO Czech Republic, a.s, and SOR Libchavy, s.r.o. Motorbikes are produced by JAWA Moto s.r.o. Trailers and semi-trailers are produced by Schwarzmüller s.r.o.. and AGADOS s.r.o.

In Czechia, many companies are connected to established car manufacturers as suppliers. Therefore, the automotive production sector share in the Czech economy is advanced-normal. Thus, sector analysis and development are crucial in economic management.

Financial performance is a crucial indicator of a company's financial effectiveness. One advanced and practically successful measure is the Economic Value Added (EVA) indicator. The EVA measure means a minimal rate of return of all capital and consists of the market and accounting data.

Dynamic and static analysis of the EVA measure consists of finding value drivers, including their significance and impact. So, the decomposition method by the pyramid method is essential. The static deviation analysis is applied to investigate one period change, and results change every period. Dynamic analysis can be used to obtain a more stable and strategic solution through several periods. The intention is to apply the dynamic influence analysis for several periods and obtain more stable and strategic information. Furthermore, static methods using deviation analysis and dynamic methods based on variance analysis are to be carried out.

The paper's objective is to perform static and dynamic analysis of EVA measures decomposed by the pyramid approach of the Czech automotive industry.

The paper is structured as follows: (1) a reference review; (2) a research methodology description of EVA measures, static and dynamic decomposition methods and input data; (3) an empirical results presentation separately for static decomposition and dynamic decomposition along with a comparison; (4) conclusion and discussion.

2. Literature Review

The EVA measure concept was introduced by Rappaport (1986) and elaborated mainly by Stewart (1991), Grant (1997), Ehrbar (1998), and Young and O'Byrne (2000). Other researchers and practitioners have dealt with the phenomena (e.g., Alshehhi *et al.*, 2018; Anil and Sharma, 2010; Athanassakos, 2007; Dluhošová, 2004; Gupta and Sikarwar, 2016; Iazzolino, 2014; Park, 2021; Peloza, 2009; Sabol and Sverer, 2017; Saeidi *et al.*, 2015; Woodhouse, 2017).

Pyramid decomposition is an instrument utilised for advanced analysis, and many authors applied this method (e.g., Borodin *et al.*, 2021; Dluhošová, 2004, 2021; Jencova *et al.*, 2018; Jeppson, 2021; Jin and Yan, 2017; Kryzanowski and Mohsni, 2015; Szymańska, 2017).

The procedure is carried out by a deviation analysis which can be performed by various methods with pros and cons. The basic methods are the following (Dluhošová *et al.*, 2021; Zalai *et al.*, 2000; Zmeškal *et al.*, 2013): the method of gradual changes, the method of division with residue, the logarithmic method, and the functional method. The advanced logarithmic method applied is suitable for deviation analysis; however, it is limited only to positive changes of indices, see e. g. (Ang, 1994; 2004; 2005; Ang and Lee, 1994; Dluhošová, 2004; Park and Se-Hark 1992). The advanced functional method overcomes the logarithmic method restriction and is suitable for both positive and negative indices (Zalai et al., 2000; Zmeškal *et al.*, 2013).

Dynamic analysis of deviations stems from variance analysis. The analysed function on pyramid decomposition is calculated as the variance of a linear function, see e. g. (Dluhošová *et al.*, 2015; Dluhošová *et al.*, 2021; Gaffney, 2007).

3. Research Methodology and Input Data

3.1 EVA Measure

EVA expresses the difference between profit and cost of capital, reflecting a minimal rate of return of capital invested in equity and debt. Data set availability and the way the cost of capital is calculated determine the EVA calculation method. Moreover, it is also essential if an absolute or a relative value EVA is calculated. So, broadly speaking, two basic calculation approaches are operating profit and value spread concepts.

The conception of value spread is used in the paper. Consequently, the absolute value spread is formulated as follows,

$$EVA = \left(ROE - R_E\right) \cdot E \,,$$

and the relative value spread is expressed in this way,

$$EVA_r \equiv EVA / E = \left(ROE - R_E\right),$$

whereas ROE is a return on equity, R_E is a market cost of equity, and E is an equity value.

The following pyramid decompositions for absolute and relative EVA are applied,

$$EVA = ROE - R_E = \frac{EAT}{EBIT} \cdot \frac{EBIT}{Rev} \cdot \frac{Rev}{A} \cdot \frac{A}{E} - R_E \,,$$

$$EVAr = \left(ROE - R_E\right) \cdot E = \left(\frac{EAT}{EBIT} \cdot \frac{EBIT}{Rev} \cdot \frac{Rev}{A} \cdot \frac{A}{E} - R_E \right) \cdot E \,,$$

whereas EAT is earnings after tax, $EBIT$ is earnings before interest and tax, Rev is revenue, A is an asset value, E is equity value and R_E is the cost of equity capital. Thus, performance is provided by tax and debt reduction, revenue profitability, asset turnover, financial leverage, equity cost of capital, and eventually equity. The proposed decomposition is used in the analysis and prediction part.

3.2 Static Decomposition Deviation Analysis

We suppose to know a non-linear or linear function of a decomposition, $x = f(a_1, a_2 ... a_N)$. A deviation of the analysed (top) indicator as an addition of the particular indices influences as follows, $\Delta y_x = \sum_i \Delta x_{a_i}$,

here x is the analysed indicator, Δy_x is the deviation of the analysed indicator, a_i is a particular explanation indicator, Δx_{a_i} is the influence of the particular indicator a_i on the analysed indicator *x*.

Influences should be analysed mainly for addition and multiplication operations.
For addition operation $x = \sum_i^n a_i$, then $\Delta x_{a_i} = \Delta a_i / \left(\sum_i \Delta a_i \right) \cdot \Delta y$,

where $\Delta a_i = a_{i,1} - a_{i,0}$, $a_{i,0}$ and $a_{i,1}$ are indicator values in the beginning period (index 0) and the subsequent period (index 1).

For multiplication operations, $x = \prod_i^n a_i$, the functional method can be used, because it is applicable to both positive and negative indicators. The generalised formula is the following,

$$\Delta x_{a_i} = \frac{1}{R_x} \cdot R_{a_i} \cdot \left(1 + \sum_{j \neq i} \frac{1}{2} \cdot R_{a_j} + \sum_{j \neq i} \sum_{\substack{k \neq i \\ k > j}} \frac{1}{3} \cdot R_{a_j} \cdot R_{a_k} + \sum_{j \neq i} \sum_{\substack{k \neq i \\ k > j}} \sum_{\substack{m \neq i \\ m > k}} \frac{1}{4} \cdot R_{a_j} \cdot R_{a_k} \cdot R_{a_m} + ... \right) \Delta y_x$$

Consequently, the functional method for three indices is formulated as follows

$$\Delta x_{a_1} = \frac{1}{R_x} \cdot R_{a_1} \cdot \left(1 + \frac{1}{2} \cdot R_{a_2} + \frac{1}{2} \cdot R_{a_3} + \frac{1}{3} \cdot R_{a_2} \cdot R_{a_3}\right) \Delta y_x,$$

$$\Delta x_{a_2} = \frac{1}{R_x} \cdot R_{a_2} \cdot \left(1 + \frac{1}{2} \cdot R_{a_1} + \frac{1}{2} \cdot R_{a_3} + \frac{1}{3} \cdot R_{a_1} \cdot R_{a_3}\right) \Delta y_x,$$

$$\Delta x_{a_3} = \frac{1}{R_x} \cdot R_{a_3} \cdot \left(1 + \frac{1}{2} \cdot R_{a_1} + \frac{1}{2} \cdot R_{a_2} + \frac{1}{3} \cdot R_{a_1} \cdot R_{a_2}\right) \Delta y_x.$$

Analogically, the functional method for two indices is formulated as follows:

$$\Delta x_{a_1} = \frac{1}{R_x} \cdot R_{a_1} \cdot \left(1 + \frac{1}{2} \cdot R_{a_2}\right) \Delta y_x, \quad \Delta x_{a_2} = \frac{1}{R_x} \cdot R_{a_2} \cdot \left(1 + \frac{1}{2} \cdot R_{a_1}\right) \Delta y_x.$$

Here $R_{a_i} = \frac{\Delta a_i}{a_{i,0}}$, $R_x = \frac{\Delta x}{x_0}$.

3.3 Dynamic Decomposition Deviation Analysis

A variance analysis (equal to the expected quadratic deviation) can be used for the dynamic influence analysis. A variance is calculated from a linear function $\Delta x = \sum_i \alpha_i \cdot \Delta a_i$. If the function is non-linear, a linear part of Taylor's expansion can be applied for linearisation (e. g. for multiplicative function) and so $\alpha_i = \frac{\partial x(\cdot)}{\partial a_i}$. Accordingly, then $\Delta x = \sum_i z_i$ after substituting for $z_i = \alpha_i \cdot \Delta a_i$. Supposing a knowledge of the time series of financial ratios, $\Delta \vec{x} = \left[\Delta x_1; \Delta x_2; \ldots \Delta x_N\right]$, $\vec{z}_i = \left[z_{i1}; z_{i2}; \ldots z_{iN}\right]$, the covariance matrix $cov\left(\vec{z}_i; \vec{z}_j\right) \in C$ and the correlation matrix $cor\left(\vec{z}_i; \vec{z}_j\right) \in R$ can be computed. Subsequently, the variance is formulated in this way $var(\Delta \vec{x}) = \sum_{i=1}^{N} \sum_{j=1}^{N} cov\left(\vec{z}_i; \vec{z}_j\right)$. Finally, the contribution (influence) of the financial indices to the whole variance is $s\left(\vec{z}_i\right) = \sum_{j=1}^{N} cov\left(\vec{z}_i; \vec{z}_j\right)$, and a standardised influence is given by $w\left(\vec{z}_i\right) = \frac{s\left(\vec{z}_i\right)}{var(\Delta \vec{x})}$.

3.4 Input data

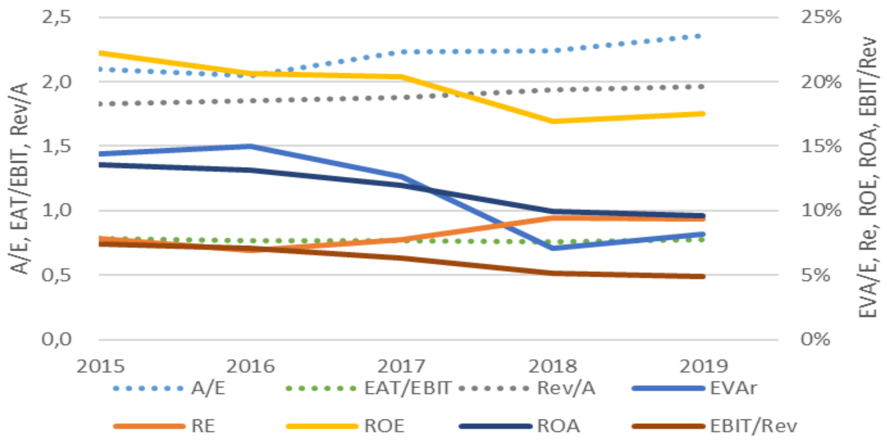
Table 1 and Figure 1 present the input data of the financial ratios of the EVA measure pyramid decomposition. Data are on a yearly basis for the period 2015 to 2019 for Czech automotive sector, NACE 29. The Source of the data is Ministry of Industry and Trade, Czech Republic, Finanční analýza podnikové sféry https://www.mpo.cz/cz/rozcestnik/analyticke-materialy-a-statistiky/analyticke-materialy. The investigated period is ended in year 2019 because of the pre-COVID-19 years before economic shocks. Therefore, those data are the last published, and thus the newest data are not in the unavailable.

Table 1. *Financial ratios input data*

Item	Unit	Years				
		2015	2016	2017	2018	2019
ROE	%	22.269	21.973	20.374	16.506	17.539
R_E	%	7.848	6.940	7.759	9.414	9.373
E	thousand CZK	264.228	291.441	288.532	279.969	271.505
EAT/EBIT	%	78.243	0.747	0.764	0.754	0.774
EBIT/Rev	%	7.398	7.299	6.352	5.038	4.895
Rev/A	-	1.833	1.951	1.882	1.939	1.963
A/E	-	2.099	2.065	2.232	2.240	2.359
EVA	billion CZK	38.103	43.815	36.398	19.857	22.170
EVAr	%	14.421	15.034	12.615	7.093	8.166

Source: *Own study.*

Figure 1. *Development of the input financial ratios, period 2015 – 2019*



Source: *Own study.*

4. Empirical Results of Decomposition Analyses

Stemming from the research aims, the empirical part is devoted to the static and dynamic analyses, following the methodology described in section 3.

4.1 Static Analysis

The static analysis is performed due to the functional analysis methodology described in section 3.2 because of a generalised conception. Four comparison analyses are carried out.

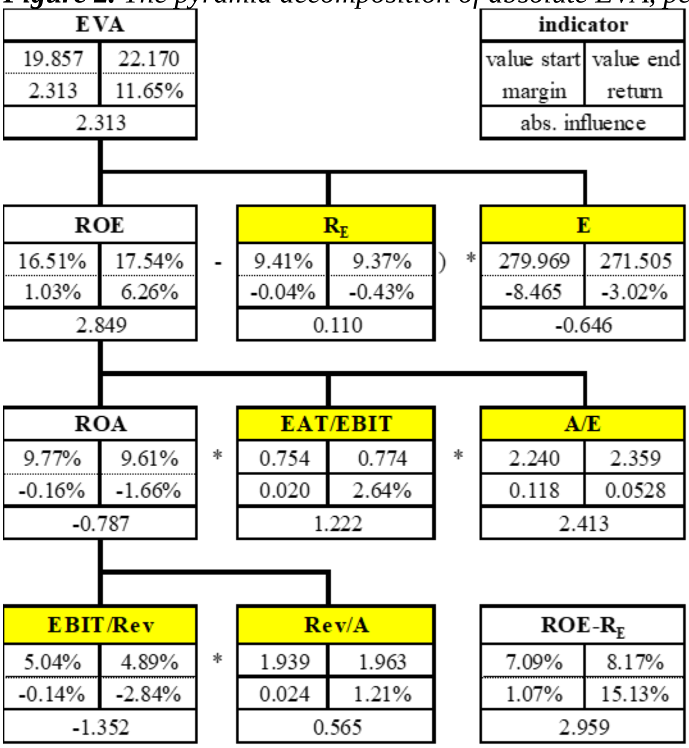
In the case of absolute EVA decomposition, Table 2 demonstrates the results, and in Figure 2, the particular computation for the comparison years 2019/2018 is presented. Apparently, ranking and deviation volumes are not stable and are changing every compared year.

Table 2. *Static influence analysis for absolute EVA*

year	2016 / 2015		2017 / 2016		2018 / 2017		2019 / 2018	
indicator	influence	Rank.	influence	Rank.	influence	Rank.	influence	Rank.
EVA	5.7120		-7.4167		-16.5413		2.3133	
E	4.0077	1	-0.4022	3	-0.8438	4	-0.6458	5
Re	2.5248	3	-2.3759	5	-4.7034	5	0.1104	4
EAT/EBIT	-2.8327	6	1.3461	2	-0.6702	3	1.2220	2
A/E	-1.0017	5	4.7694	1	0.2078	2	2.4135	1
EBIT/Rev	-0.8262	4	-8.5397	6	-12.1126	6	-1.3523	6
Rev/A	3.8402	2	-2.2144	4	1.5810	1	0.5655	3

Source: *Own study.*

Figure 2. *The pyramid decomposition of absolute EVA, periods 2019/2018*



Source: *Own study.*

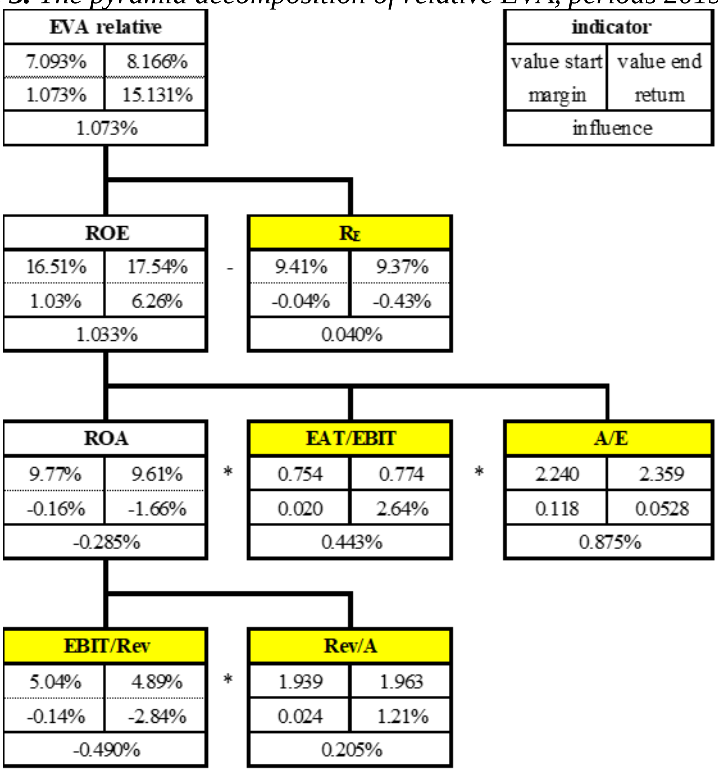
The results of decompositions for relative EVA are shown in Table 3 and detailed calculations for the 2019/2018 years are introduced in Figure 3. Similarly, to an absolute decomposition, influencing factors, including their volume, are unstable. Therefore, finding the main factors for managing performance is difficult.

Table 3. *Static influence analysis for relative EVA*

year	2016 / 2015		2017 / 2016		2018 / 2017		2019 / 2018	
indicator	influence	Rank.	influence	Rank.	influence	Rank.	influence	Rank.
EVAr	0.6134		-2.4189		-5.5224		1.0732	
R_E	0.9087	2	-1.8534	4	-1.6547	4	0.0400	4
EAT/EBIT	-1.0196	5	-0.0522	3	-0.2358	3	0.4432	2
A/E	-0.3605	4	3.9222	1	0.0731	2	0.8753	1
EBIT/Rev	-0.2974	3	-5.1832	5	-4.2612	5	-0.4904	5
Rev/A	1.3822	1	0.7476	2	0.5562	1	0.2051	3

Source: *Own study.*

Figure 3. *The pyramid decomposition of relative EVA, periods 2019/2018*



Source: *Own study.*

Comparing absolute and relative influence factors (Table 2 and Table 3), it can be concluded that the results of the crucial ratios are not the same and can be influenced by the performance indicator type. Due to non-stability, results are helpful, particularly for yearly analyses.

4.2 Dynamic Analysis

The dynamic analysis is carried out only for relative EVA measures due to Section 3.3. methodology. Input data for every year from 2015-2019 are used. The correlation matrix and standard deviation of ratios are demonstrated in Table 4. Final ratio influences, including expected values and variances, are presented in Table 5.

Table 4. *Correlation matrix and standard deviation of financial ratios*

	EAT/EBIT	**EBIT/Rev**	**Rev/A**	**A/E**	**R_E**	**st. dev.**
EAT/EBIT	1.00	-0.22	-0.91	0.91	-0.43	0.006998
EBIT/Rev	-0.22	1.00	0.37	-0.20	0.96	0.019034
Rev/A	-0.91	0.37	1.00	-0.98	0.49	0.009204
A/E	0.91	-0.20	-0.98	1.00	-0.31	0.009365
R_E	-0.43	0.96	0.49	-0.31	1.00	0.011038

Source: *Own study.*

Table 5. *Results of dynamic decomposition analysis, including influence ratios ranking*

Ratio	**Expected value**	**Variance**	**Influence**	**Ranking**
EAT/EBIT	-8.5149E-04	-1.2465E-05	-1.370%	5
EBIT/Rev	-1.9578E-02	5.6480E-04	62.079%	1
Rev/A	3.7047E-03	5.6197E-05	6.177%	3
A/E	5.9034E-03	-5.5333E-06	-0.608%	4
R_E	-3.8130E-03	3.0681E-04	33.723%	2
Summary relative EVA		9.10E-04	100.000%	

Source: *Own study.*

Dynamic analysis of the Czech automotive sector, NACE 29, points at ranking the influential ratios of sector financial performance. The advantage of the approach consists in results being valid for a stated period and can be considered to be stable results.

The results show that the most important financial ratio for the sector of investigation NACE-29 is, in a positive sense, the revenue profitability, and the second most important is the cost of equity capital. Another ranked ratio is asset turnover. In a negative sense, even if not significantly influencing performance, it would be the financial leverage, and lastly, the tax and debt reduction ratio. The conclusion confirms the hypothesis that profitability is a crucial parameter of financial management. One interesting aspect is the significance of equity capital cost. It can be explained by investments and fixed capital cover of the sector, and the sector’s efficiency is measured by a relative EVA measure.

The relative EVA was decreasing, showing efficiency declination even if on a positive scale. Another critical financial characteristic is liquidity, represented by the asset turnover ratio, which is smaller. The sector could probably use current assets better. The last two ratios reveal the sector's insufficient debt and tax financial policy. The results of the dynamic analysis can be considered to be valuable information for long-term financial sector strategy. Subsequently, the obtained information could serve as a background for managerial decisions and strategies.

5. Conclusion

The paper has focused on the dynamic and static performance analysis of the Czech automotive sector NACE 29. The advanced performance measures of absolute and relative economic value-added conception were used for financial performance analysis. It showed in dynamic analysis the importance of taking into account the equity cost of capital. The pyramid decomposition was used successfully, permitting the creation of various decomposition schemes.

The static analysis based on the functional method was applied and verified. The advantage of usage possibility of positive and negative ratio deviations was confirmed, and the generalisation approach was examined. The drawback of the non-stability results of the static approach was overcome by applying the dynamic decomposition method based on the variance decomposition method. The method was verified on the real data of the Czech automotive sector. It can be concluded that the proposed and verified methodological apparatus is suitable for the solution of the decomposition and influential analysis problems.

The Czech automotive sector is above-standard, influencing substantially the development and efficiency of the Czech economy and industry. Therefore, all analyses and predictions are necessary for deciding and implementing chosen measures. Results of the studies show that the EVA measure is positive, albeit declining, and some corrections and improvements in the financial, management and business models are desirable.

Subsequent research can be focused on verifying the more complex pyramid decomposition schemes. Applying a more extended time series and the impact of time span on results can be investigated. Methodologies can be used in other sectors, and international comparisons of sectors can put forward exciting results.

References:

Albers, S. 1998. A framework for analysis of sources of profit contribution variance between actual and plan. International Journal of Research in Marketing, 15(2), 109-122. https://doi.org/10.1016/S0167-8116(97)00038-4

Alshehhi, A., Nobanee, H., Khare, N. 2018. The impact of sustainability practices on corporate financial performance: Literature trends and future research potential.

Sustainability (Switzerland), 10(2). https://doi.org/10.3390/su10020494
Ang, B.W. 1994. Decomposition of industrial energy consumption: The energy intensity approach. Energy Economics, 16(3), 163-174. https://doi.org/10.1016/0140-9883(94)90030-2
Ang, B.W. 2004. Decomposition analysis for policymaking in energy: which is the preferred method? Energy Policy, 32(9), 1131-1139. https://doi.org/10.1016/S0301-4215(03)00076-4
Ang, B.W. 2005. The LMDI approach to decomposition analysis: a practical guide. Energy Policy, 33(7) 867-871. https://doi.org/10.1016/j.enpol.2003.10.010
Ang, B.W., Lee, S.Y. 1994. Decomposition of industrial energy consumption: Some methodological and application issues. Energy Economics, 16(2), 83-92. https://doi.org/10.1016/0140-9883(94)90001-9
Anil, K., Sharma, S.K. 2010. Economic Value Added (EVA) - Literature Review and Relevant Issues. International Journal of Economics and Finance, 2(2). https://ccsenet.org/journal/index.php/ijef/issue/view/198
Athanassakos, G. 2007. Value-based management, EVA and stock price performance in Canada. Management Decision, 45(9), 1397-1411. https://doi.org/10.1108/00251740710828663
Borodin, A., Mityushina, I., Streltsova, E., Kulikov, A., Yakovenko, I., Namitulina, A. 2021. Mathematical Modeling for Financial Analysis of an Enterprise: Motivating of Not Open Innovation. J. Open Innov. Technol. Mark. Complex., 7, 79. https://doi.org/10.3390/joitmc7010079
Dluhošová, D. 2004. Přístupy k analýze finanční výkonnosti firem a odvětví na bázi metody EVA – Economic Value Added, Finance a úvěr – Czech. Journal of Economics and Finance, 11-12(54)
Dluhošová, D. et al. 2021. Finanční řízení a rozhodování podniku- analýza, investování, oceňování, riziko, flexibilita, interakce. Ekopress, Praha.
Dluhošová, D., Ptáčková, B., Zmeškal, Z. 2015. Financial performance variance analysis of non-linear decomposition in metalurgy. Metal 2015: 24th international confetrence on metalurgy and materials.
Ehrbar, A. 1998. EVA: The real key to creating wealth. New York: John Wiley & Sons, Inc.
Gaffney, K., V. Gladkikh, V., Webb, A.R. 2007. A case study of a variance analysis framework for managing distribution costs. Accounting Perspectives 6 (2), 167-190. https://doi.org/10.1506/8172-1165-6601-3L37
Grant, J.L. 1997. Foundations of Economic Value Added. Pennsylvania: New Hope.
Gupta, V.K., Sikarwar, E. 2016. Value creation of EVA and traditional accounting measures: Indian evidence. International Journal of Productivity and Performance Management, 65(4), 436-459. https://doi.org/10.1108/IJPPM-01-2014-0008
Iazzolino, G., Laise, D., Migliano, G. 2014. Measuring value creation: VAIC and EVA. Measuring Business Excellence, 18(1), 8-21. https://doi.org/10.1108/MBE-10-2013-0052
Jencova, S., Litavcova, E., Vasanicova, P. 2018. Implementation of Du Pont Model in Non-Financial Corporations. Montenegrin Journal of Economics, 14(2), 131-141. https://doi.org.10.14254/1800-5845/2018.14-2.8
Jeppson, N.H., Ruddy, J.A., Salerno, D.F. 2021. The influence of social media usage on the DuPont method of analysis. J Corp Account Finance, 32(4), 31-44. https://doi.org/10.1002/jcaf.22507

Jin, Yan 2017. DuPont Analysis, Earnings Persistence, and Return on Equity: Evidence from Mandatory IFRS Adoption in Canada. Accounting perspectives, 16(3), 205-235. https://doi.org/10.1111/1911-3838.12142.

Kryzanowski, L., Mohsni, S. 2015. Earnings forecasts and idiosyncratic volatilities. International Review of Financial Analysis, 41, 107-123. https://doi.org/10.1016/j.irfa.2015.06.001.

Ministry of Industry and Trade, Czech Republic, Finanční analýza podnikové sféry. https://www.mpo.cz/cz/rozcestnik/analyticke-materialy-a-statistiky/analyticke-materialy.

Park, B.J. 2021. Corporate social and financial performance: the role of firm life cycle in business groups. Sustainability (Switzerland), 13(13). https://doi.org/10.3390/su13137445.

Park, Se-Hark 1992. Decomposition of industrial energy consumption: An alternative method, Energy Economics, 14(4), 265-270. https://doi.org/10.1016/0140-9883(92)90031-8.

Peloza, J. 2009. The challenge of measuring financial impacts from investments in corporate social performance. Journal of Management, 35(6), 1518–1541. https://doi.org/10.1177/0149206309335188z.

Rappaport, A. 1986. Creating Shareholder Value. New York: Free Press.

Sabol, A., Sverer, F. 2017: A review of the economic value added literature and application, UTMS Journal of Economics, 8(1) 19-27. http://hdl.handle.net/10419/174163.

Saeidi, S.P., Sofian, S., Saeidi, P., Saeidi, S.P., Saaeidi, S.A. 2015. How does corporate social responsibility contribute to firm financial performance? The mediating role of competitive advantage, reputation, and customer satisfaction. Journal of Business Research, 68(2), 341-350. https://doi.org/10.1016/j.jbusres.2014.06.024.

Stewart, G.B. 1991. The Quest for Value. New York: HarperCollins.

Szymańska, E.J. 2017. Determinants of profitability of enterprises of meat industry in Poland. Acta Sci. Pol. Oeconomia, 16(3) 2017, 83-91. https://doi.org/10.22630/ASPE.2017.16.3.36.

Woodhouse, K., Mather, P., Ranasinghe, D. 2017. Externally reported performance measures and benchmarks in Australia. Accounting & Finance, 57, 879–905. https://doi.org/10.1111/acfi.12168.

Young, S.D., O'Byrne, S.F. 2000. EVA and Value-Based Management. Practical guide implementation. Mc Graw Hill.

Zalai, K. et al. 2000. Finančno-ekonomická analýza podniku. Sprint, Bratislava.

Zmeškal, Z., Dluhošová, D., Tichý, T. 2013. Finanční modely. Ekopress, Praha.