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Article

The Relationship between Leadership in BPM and Company Profitability

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Abstract: This paper studies the relationship between leadership as an activity of business process management (BPM) and company performance. Business process data about leadership and business processes in SMEs were collected via questionnaires on the population of 3007 SMEs in Slovenia. Aspects of leadership such as the involvement of employees, middle management, customers and suppliers were studied. The financial data of the SMEs of the sample were obtained from publicly available financial statements to assess relative residual income profitability ROE_r and ROE_a . Data analysis was performed using Bartlett's, Kaiser–Maier–Olkin and nonparametric Mann–Whitney U tests. We confirmed a positive relationship between employee involvement in leadership as an activity of BPM and company profitability. It was proved that companies that involve employees and middle management in improving core business processes to a greater degree are more profitable. Intense involvement of employees in changes in core business processes results in higher company profitability, which has been detected by the higher risk-adjusted profitability measure ROE_a . Companies that involve middle management to a greater degree by leading employees based on their interests are more profitable. The results are important for managers as decision-makers and other company stakeholders, especially those responsible for business process improvements. Theoretical and practical implications and further research possibilities are discussed.

Keywords: management; leadership; BPM; risk-adjusted profitability measures; SMEs

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1. Introduction

Markets require companies to change business processes for competitiveness and further development constantly. The competitiveness of business processes results in a company's competitiveness (Trkman et al. 2015). Furthermore, Abdallah et al. (2021) and Sahoo (2022) prove that business processes positively affect innovativeness and company performance. Consequently, each company should manage its business processes, which we define as business process management (BPM). BPM, according to Nogueira et al. (2022) and Arshad et al. (2022), helps to achieve better performance and higher employee satisfaction and reduces conflicts within an organisation.

On the other hand, Lyridis et al. (2022) demonstrate that a lack of human-related aspects in BPM results in less successful BPM implementation and company performance (Nogueira et al. 2022; Arshad et al. 2022). Organisations perform business processes more effectively if they involve internal participants such as managers and employees and their interests (Trkman et al. 2015). This aspect is described as the interest aspect of an organisation (Gošnik and Kavčič 2021), which we address further in this research. The use of BPM for better company performance is affected by many external and internal factors that cannot be included in one study. Therefore, based on the previous findings (Trkman et al. 2015; Hutahayan 2020; Hernández et al. 2021; Mamedova et al. 2022; Seyffarth and

Kuehnel 2022), we limited our research to how activities such as leadership as a part of BPM activities are related to company performance.

We focused on core business processes within SMEs because core business processes, according to recent studies (Abdallah et al. 2021; Lyridis et al. 2022; Nogueira et al. 2022), contribute to innovations and company performance the most.

Since there is no research about the relationship between leadership considering the interests of employees, middle management, customers and suppliers in BPM and its relationship to company performance, we perceived this as an unexplored research area and research gap. The main goal of this research is to study the relationship between leadership in BPM, which especially focuses on the role of employees, middle management, customers and suppliers in BPM and company performance. This study uses previous findings in this field (Trkman et al. 2015; Hutahayan 2020; Usman et al. 2020; Hernández et al. 2021) and upgrades existing theories with new findings.

This article presents new findings about how leadership affects BPM practices and company profitability measured by risk-adjusted performance measures considering the interests of employees, middle management, customers and suppliers. The originality of this research is represented by the study of a unique view of BPM—interest aspects of leadership in BPM; a literature review on the field of interest aspects of an organisation and a critical literature review on the field of company risk-adjusted performance measures were performed and an instrument for measuring the interest aspects of leadership in BPM was developed. We tested the hypothesis: “Leadership as an activity of BPM, focused on the interests of employees, suppliers and customers, has a positive impact on the company profitability measures ROE_r and ROE_a .”

This research aims to emphasise the importance of the interest aspect of organisations, especially the aspect of leadership in BPM and its relation to company performance.

The paper is organised as follows: theory and literature analysis, presentation of BPM and the interest aspect of an organisation focusing on leadership, presentation of company profitability measures, results of empirical research and discussion, limitations and open questions for further research.

2. Theoretical Basis and Literature Review

2.1. The Interest Aspect of an Organisation and the Role of Leadership in BPM

The interest aspect of an organisation emphasises the organisation as a society of interests and tells about how the interests of the participants (i.e., employees, management, customers and suppliers) are fulfilled. Previous studies (Adamides 2015; Trkman et al. 2015; Hutahayan 2020; Abdallah et al. 2021; Hernández et al. 2021; Mamedova et al. 2022; Seyffarth and Kuehnel 2022; Lyridis et al. 2022; Nogueira et al. 2022) provide evidence that cooperation between these participants results in the fulfilment of their interests and their greater satisfaction. Cooperation between employees, suppliers and other market participants is a key factor of competitiveness, resulting in the faster responsiveness of the company (Adamides 2015). Communication and the exchange of knowledge between employees, suppliers and other market participants make an organisation more performance-driven (Adamides 2015).

Management activity within the aspect of interest focuses on acquiring new knowledge, implementing goals and strategies and emphasising coordination with as many participants as possible. Organising within the aspect of interest considers employees and other organisation participants as a source of creativity and new ideas. The interest aspect of leadership as a management activity is considering employees’ needs and abilities. Usman et al. (2020) demonstrate the importance of leadership in business and of building good governance. Leadership in a management activity within the aspect of interest is oriented toward the common benefit and satisfaction of the interests of participants. Business results are considered from the interest aspect of an organisation and assessed through the satisfaction of participants (employees, customers, suppliers) and their long-term cooperation. Hutahayan (2020) and Hernández et al. (2021) argue that

organisations that incorporate external knowledge (i.e., suppliers) in BPM are more likely to achieve a competitive advantage. Each company should manage its business processes (plan, organise, lead and control) according to the interests of these participants (Trkman et al. 2015). The business processes of a company can be classified into operating (core) processes, which contribute to innovations and company performance the most (Abdallah et al. 2021; Nogueira et al. 2022) and management/support processes (APQC 2022). BPM is a synthesis of different managerial practices and approaches for business optimisation that enable the differentiation and competitiveness of companies. Trkman et al. (2015) state that BPM requires developing and implementing innovative solutions in businesses and enables the differentiation and competitiveness of companies. John Jeston (2008) define BPM as achieving organisational objectives through improving, managing and controlling essential business processes. Hung (2006) defines BPM as an integrated management philosophy and set of practices that include incremental change and radical change in business processes and emphasises continuous improvement, customer satisfaction and employee involvement.

Previous research on this field (Trkman et al. 2015; Mamedova et al. 2022; Seyffarth and Kuehnel 2022; Lyridis et al. 2022; Nogueira et al. 2022) discovered the following problems related to the BPM in companies, such as (1) companies spend only a small part of their time on creating value for the customers; (2) companies are usually dealing with high-process operating costs and poor process change management; (3) a lack of resources in changes of core business processes; and (4) once they start, business processes change projects, poorly include participants and their interests in process innovation management and even using an inadequate management approach. These problems are related to a common root cause: poor leadership activities in BPM. In companies, for successful BPM, a comprehensive and systematic view of BPM is needed, where leadership activities as a part of general management activities (planning, organising, leading, controlling) should consider company participants, employees, customers and their interests, which is called interest aspects of leadership. Business processes must be managed based on the knowledge of all employees and must be carried out correctly and in consideration of the relationships between employees, the management of the organisation, suppliers and customers, emphasising benefits for the customer (Trkman et al. 2015; Mamedova et al. 2022; Seyffarth and Kuehnel 2022).

From this perspective, leadership for successful BPM and thus related company performance should include the interests of employees, management, suppliers and customers to achieve more effective business processes and consequently better company performance, which we define as interest aspects of leadership, supported by preliminary studies on this field by Trkman et al. (2015); Mamedova et al. (2022); Seyffarth and Kuehnel (2022); Lyridis et al. (2022); Nogueira et al. (2022). They highlight the importance of employee and customer perspectives in BPM for better business process performance, measured by the efficiency of business processes. However, despite much research on the field of BPM, there is a lack of studies that specifically relate leadership as a management activity in BPM to company performance. In particular, there is a lack of research relating BPM to company risk-adjusted profitability measures ROE_a and ROE_r . Due to a lack of studies on this field, we detected that as a research gap.

From this perspective, a correlation between the role of leadership in BPM and its relationship to company performance risk-adjusted profitability measures arise.

The research questions we address in this study are: (1) how does the involvement of employees, suppliers and customers impact leadership as an activity of BPM; and (2) what are the relations between the interest aspects of leadership in BPM and the company risk-adjusted profitability measures ROE_r and ROE_a .

Company performance measures are, in practice, usually measures such as firms' profitability ratios such as profit margin, basic earning power, return on assets (ROA) and return on equity (ROE). Profitability ratios are often used as performance measures when researching how management affects the performance of the business. However,

based on the authors' findings (Gošnik and Stubelj 2021), the ROE risk-adjusted measure was the most suitable company performance measure. Therefore, in this study, we used risk-adjusted profitability measures, such as ROE_r and ROE_a , as a measure of company performance.

2.2. Business Processes and the Risk-Adjusted Profitability Measures of Companies

Company performance is measured as the degree to which a company objective, such as profit, is achieved (De Waal 2008). The return on investor capital invested in companies is dependent on risk. Risk and return are correlated, and asset pricing on the market is based on this premise. Market stock price fluctuations measure a market-listed company return over time. A non-listed company's financial profitability ratios, such as return on assets, return on equity, return on invested capital, basic earning power and profit margin, are used to measure its return. However, to compare the financial ratios of companies from different industries, the difference in risk must be considered. To test the effects of management approaches on profitability, we use the return on equity measure adjusted for risk with two different approaches.

2.2.1. Risk-Adjusted Equity Capital Profitability Measure Based on Residual Income

According to financial theory, the purpose of a capital company and, consequently, the task of managers is to increase the value for owners. Managers achieve this by increasing the value of assets, which leads to increasing the value of equity. For owners and their supervisors to monitor whether management is successfully following the business purpose of a capital company, we need a measure. Management also needs such a measure for monitoring the success of set business strategies. The increase in value for owners is achieved when the actual return on equity of the company is higher than the required return on equity determined by the risk. As a criterion, we can use residual income based on a very meaningful logic introduced in the early 1920s.

Nevertheless, it was not widely used in practice. Renewed interest in this model was stimulated by Stewart's publication in 1991, in which the authors presented a modernised version of the residual income model called Economic Value Added or EVA[®] (Christensen et al. 2022). This is similar to residual income but applied to cash flows that belong to all investors. The added value of the residual income model lies in the emphasis on the contention that simply making a profit does not mean creating value. The net income may be sufficient to exceed the net income required by the owners concerning the risk to which they are exposed and only the surplus is an added value.

We used the residual profit principle as a measure of risk-adjusted return. We derived a model based on the Residual Income Valuation Model (RIV), which received attention among accounting professionals. Specifically, the model shows the potential for greater weight and inclusion of accounting data in equity valuation. Many researchers have dealt with this model. They determined its value as a model of equity valuation and assessed the advantages and disadvantages of this model, which they presented in numerous publications.

The residual income for a company could be estimated with an equation according to Halsey (2001):

$$RI_1 = E_1 - r \cdot BV_0 \quad (1)$$

RI_1 is the residual income value for period 1, E_1 is the net income value for period 1, r is the equity capital required return and BV_0 is the equity capital book value in period 0. RI must be positive to increase the owners' value in period 1.

Considering the average equity capital in a period in which the company will generate the expected net income, we could express the relative residual income for a specific company and the observed period with the following:

$$RI_{i,t}(\%) = \frac{RI_{i,t}}{\frac{BV_{i,t-1} + BV_{i,t}}{2}} = \frac{E_{i,t} - r_{i,t} \cdot \frac{BV_{i,t-1} + BV_{i,t}}{2}}{\frac{BV_{i,t-1} + BV_{i,t}}{2}} = \frac{E_{i,t}}{\frac{BV_{i,t-1} + BV_{i,t}}{2}} - r_{i,t} \quad (2)$$

Considering that the ROE is net income divided by the average equity capital in a period in which net income in a company is generated, we could simplify the equation as follows:

$$RI_{i,t}(\%) = ROE_{i,t} - r_{i,t} = ROE_{i,Residual} \quad (3)$$

where $ROE_{i,t}$ is a company i return on equity capital in year t , $RI_{i,t}$ is the company i residual income in year t , $BV_{i,t-1}$ is the company i equity capital book value at the end of the year $t - 1$, $E_{i,t}$ is the company i net income in year t , $BV_{i,t}$ is the company i equity capital book value at the end of the year t and $r_{i,t}$ is the company i required return on equity estimated in the year t . $RI_{i,t}(\%)$ is the company i residual income in % or relative residual income in year t , which we will call the company residual ROE or ROE_r .

Regarding the above equation, the Capital Asset Pricing Model or CAPM can be used to estimate the required equity return for a company with the assumption that ROE and market returns are equal, at least in the long term. CAPM is one of the most established models in finance and for its development, Sharpe (1964) was awarded the Nobel Prize in 1990. However, the model is based on very strong assumptions. Some doubts about the validity and applicability have already been pointed out by Bai et al. (2022).

2.2.2. Risk-Adjusted Equity Capital Profitability Measure Based on ROE Adjusted for a Systematic Risk

To correctly compare profitability between companies from different industries, profitability needs to be adjusted for differences in risks between industries. Given that asset prices are mostly based on the expectations of investors who have diversified assets, it makes sense to adjust the ROE by considering a systematic risk measure for each industry. In the event of the diversification of assets, the specific risk is eliminated and only the systematic risk is relevant. The CAPM model is also based on this assumption, in which specific risk is measured with beta. Based on the above and the fact that we will use accounting data to calculate profitability in our research, we will consider the following two assumptions for ROE adjustment for risk: (a) market returns and ROE of companies are equal for longer periods and (b) only the systematic risk matters as investors eliminate the specific risk of ROE with diversification.

The risk-adjusted ROE was derived from the CAPM equation by replacing the required return with the ROE and the market return with the risk-adjusted ROE:

$$ROE_i = r_f + \beta_i \cdot (ROE_{i, Adjusted} - r_f) \quad (4)$$

By rearranging the equation, we obtain the following:

$$ROE_{i, Adjusted} = \frac{ROE_i}{\beta_i} + r_f \cdot \left(1 - \frac{1}{\beta_i}\right) \quad (5)$$

where $ROE_{i, Adjusted}$ is the company i ROE, adjusted for the market risk, which we will call ROE_a , ROE_i is the company i ROE of, r_f is the risk-free rate of return, β_i is the market risk measure of equity i .

Company profitability measures ROE_r and ROE_a consider differences in market risk between industries. This improved approach allows for testing the effects on the profitability of a sample of companies operating in different industries.

3. Materials and Methods

Theoretically, we can relate management activity, such as leadership, to company profitability. Our article focuses on the interest aspect of leadership in BPM practice and relates them to company profitability. In our research, company profitability is measured with ROE_r and ROE_a . Our methodology has been improved as follows: (1) we improved the assessment of the risk-adjusted profitability measures; (2) we tested the impact of the interest aspects of BPM activities on profitability in the period after the measurement of the

interest aspects of BPM activities with the assumption that management approaches have a delayed effect on profitability. We tested the impact of BPM activities on risk-adjusted profitability for the period after the assessment of BPM activities with the assumption that management approaches have a delayed effect on profitability perceived as an opportunity for the new added value of science in the field of evaluating managerial approaches.

In line with the theory and perceived research opportunity, our hypothesis was: “Leadership in BPM, focused on the interests of employees, suppliers and customers, has a positive impact on the company profitability measures ROE_r and ROE_a .”

A hypothesis was developed based on the previous findings of [Trkman et al. \(2015\)](#); [Gošnik \(2019\)](#); [Lyridis et al. \(2022\)](#); [Nogueira et al. \(2022\)](#), which outlines the importance of customer perspective in BPM and claims that BPM should be renamed to CPM (customer process management). In addition, [Nodeson et al. \(2012\)](#) highlight the importance of employees for successful BPM. However, none of the studies in the literature investigate the relationship between leadership in BPM and company profitability measures. This aspect we see as an upgrade of the existing theory in the field of BPM. Since there is a lack of studies about the relationship of leadership in BPM to risk-adjusted company financial performance measures, we used risk-adjusted parameters to study company performance.

In our research, we related two interrelated areas: leadership in BPM and financial measurement of company performance using company profitability measures. First, leadership was studied as an activity of BPM including the interest of employees, customers, middle management and suppliers. Relation to the company profitability measures such as ROE_r and ROE_a was studied, which also presents a unique contribution to the BPM studies.

We investigated: (1) whether there are statistically significant relationships between the interest aspects of leadership as an activity of BPM and the company profitability measures ROE_r and ROE_a ; (2) whether the hypothesis is valid; and (3) how leadership is (including the interests of employees, customers, middle management and suppliers) as an activity of BPM related to the company profitability measures ROE_r and ROE_a .

3.1. Data Collecting Methodology

A questionnaire was used to collect data about leadership practices regarding changes in core business processes in SMEs. The questionnaire was developed based on the literature research. The company profitability measures of SMEs (ROE_r and ROE_a) for four observed years were assessed using data from different secondary sources.

3.2. Financial Data of Companies

Of 3007 SMEs, 143 responded to our questionnaire. Companies with negative equity capital or companies that did not have financial data available for all the years (2017–2020) were excluded from the database. The financial data for all 143 companies was collected for the four years 2017–2020. A publicly available financial database (GVIN) was used ([Gvin 2022](#)). We obtained each company’s latest publicly available financial data concerning net income, debt and equity. Average values were calculated and used in further analysis, as suggested by [De Waal \(2008\)](#).

3.3. Data Analysis

An analysis of the relationship between variables of the interest aspect of leadership was performed with the assistance of Bartlett’s test and the Kaiser–Maier–Olkin test. In addition, the nonparametric Mann–Whitney U test was used to assess the differences in the company profitability measures ROE_r and ROE_a and variables of the interest aspect of leadership between more and less profitable groups of companies and hypothesis testing.

4. Results

4.1. Population and Sample

The population used in our research was all 3007 SMEs in Slovenia. A questionnaire was sent to all 3007 SMEs. In addition, the valid completed questionnaires of 143 SMEs were analysed, representing our research sample. The response rate was 4.75%, similar to other research in the region based on questionnaire data gathering. Those who participated in this research included business unit managers (33%), general managers (29%) and process improvement experts (25%), followed by process owners (7%), project managers (4%) and technical managers (2%).

The sample of 143 SMEs included in the analysis consists of 62 small companies (43.3%) and 81 medium-sized companies (56.7%). Most companies (55) are from the production sector (38.5%). The database about leadership activities regarding core business processes included the period 2012–2017 and was combined with secondary financial data (2017–2020) for each SME who completed the questionnaire. Because changes in BPM practices and their effects on company performance cannot be detected immediately, the profitability of the companies was measured in time delay for the period 2017–2020.

4.2. Interest Aspects of Leadership Concerning Changes in Core Business Processes

The results of the measurement system analysis for measuring the interest aspects of leadership regarding changes in core business processes are presented in Table 1.

Table 1. Core business processes and the interest aspects of leadership.

Statement	Avg. (1–6)	St. Dev.	Skewness Koef.	Kurtosis Koef.
When changing the core business process, we regularly involve our employees.	4.35	1.194	−0.640	0.190
When changing core business processes, we regularly involve our customers.	3.69	1.210	−0.076	−0.468
When changing core business processes, we regularly involve our suppliers.	3.77	1.263	−0.121	−0.625
The involvement of middle management is crucial for successfully implementing changes in core business processes.	4.02	1.267	−0.323	−0.624
Total	3.96			

Source: own elaboration.

Based on the values shown, we note that the respondents, on average, assigned the highest score (4.35 out of 6 on a Likert scale) to the statement that changing the core processes regularly involves employees. In contrast, the lowest average score (3.69 out of 6 on a Likert scale) is assigned to the claim that changes in core processes regularly involve their customers.

Based on the data from Table 1, we analysed the relationship between the statements (Table 2). This shows that our instrument for measuring the interest aspects of BPM focused on leadership is consistent and appropriate for further analysis.

Table 2. Kaiser–Meyer–Olkin and Bartlett tests.

Kaiser–Meyer–Olkin test		0.701
Bartlett test	Hi-square	150.263
	Degree of freedom	6
	<i>p</i> -value	0.000

Source: own elaboration.

The analysis shows that the Kaiser–Meier–Olkin value is 0.701, Hi-square = 150.263 and the *p*-value is less than 0.05 (Table 3).

Table 3. Correlation between statements for interest aspects of leadership regarding changes in core business processes.

Statements	When changing the core business process, we regularly involve our employees.	When changing core business processes, we regularly involve our customers.	When changing core business processes, we regularly involve our suppliers.	The involvement of middle management is crucial for successfully implementing changes in core business processes.
When changing the core business process, we regularly involve our employees.	1.000			
When changing core business processes, we regularly involve our customers.	0.444	1.000		
When changing core business processes, we regularly involve our suppliers.	0.384	0.599	1.000	
The involvement of middle management is crucial for successfully implementing changes in core business processes.	0.439	0.307	0.312	1.000

Source: own elaboration.

Our statements for measuring the interest aspects of leadership are appropriate for further analysis. All statements are well correlated, shown by values of more than 0.3 (Table 3).

4.3. Company Risk-Adjusted Performance Measures Estimation

4.3.1. Input Variables Estimation

We estimated the variables for the calculations, which was a challenge as there is no prescribed ideal method. This is especially problematic for the Slovenian capital market due to its small size and lack of depth. In June 2022 ([Ljubljana Stock Exchange 2022](#)), 9 shares in the first quotation and 15 shares in the standard quotation were listed on the stock exchange, the total stock exchange turnover in 2021 amounted to EUR 380.0 million and the stock market capitalisation at the end of December was EUR 9,513.5 million. In general, this is not a very efficient market. However, it is well integrated internationally, as just over 50% of the turnover in the first quotation is generated by international investors. Due to the above, we started with data from the American capital market, which we adjusted for Slovenia. Calculations are based on data from Bloomberg ([Bloomberg 2022](#); [Damodaran 2022](#); [European Central Bank 2022](#); [Fred 2022](#); [Gvin 2022](#)).

4.3.2. Estimated Variables

A long-term, risk-free rate for every observed year 2017–2020 was estimated as the average yield to maturity of the last 10 years before the observed year of the US 30-Year 3-7/8% Treasury Inflation-Indexed Bond, due 4/15/2029. We used monthly data from the [Fred \(2022\)](#). Despite inflation rates being currently very high, we used the [European Central Bank \(2022\)](#) target of a 2% inflation rate as the best estimation for the long-term expected inflation rate. Finally, we added the expected inflation rate to obtain the nominal risk-free rate of return. The market risk premium was estimated as an average of two approaches following the procedure used by [Gošnik and Stubelj \(2021\)](#).

All the estimated parameters (compliant with the previously explained methodology) used in the CAPM, except for the leveraged betas we determined for each industry, are shown in Table 4.

Table 4. Estimated parameters.

Variable/Year	2017	2018	2019	2020
Real risk-free rate (%)	1.07	0.93	0.75	0.51
Nominal risk-free rate (%)	3.07	2.93	2.75	2.51
Estimated market risk premium (%)	5.54	5.68	5.51	4.40

Source: own elaboration.

For the measure of risk, we used industry-level (average beta of US companies in the industry) unlevered betas (i.e., market risk measures) corrected for cash (which are pure-play betas), which we found at [Damodaran \(2022\)](#). Then, we translated the US industry-level betas (according to Damodaran 2022) to the Slovenian industry classification. Where more than one US industry (more detailed classification) translates into one Slovenian industry, we calculated the beta as the average of betas. In the next step, we calculated the firm-level leveraged beta considering the relevant corporate income tax rate and company-specific debt-to-equity ratio for each Slovenian firm in the sample for each observed year by applying the Hamada equation ([Hamada 1972](#)).

4.3.3. Adjusted Profitability Measures Estimation

The parameters were estimated in compliance with the explanations in the paper. Tables 5 and 6 present the median values for our sample in comparison to the aggregate of Slovenian companies. In all the following analyses, data on the level of individual companies are used.

The results show that the median leveraged beta for our sample in all the analysed years is greater than one. This implies that our samples of companies are riskier in the median than the median risky Slovenian company. This holds with the following two assumptions: (a) US companies from which the industry betas are calculated to have, on average, the same level of debt; and (b) the distribution of companies between industries is similar to the distribution of Slovenian companies. (Tables 5 and 6)

Table 5. ROE was calculated from the aggregated data of all Slovenian companies and the median ROE of all analysed companies.

Aggregated ROE in %	2017	2018	2019	2020
Median ROE of all analysed companies (n = 143)	10.05	10.20	9.86	8.31
Aggregate ROE of all Slovenian companies	8.29	9.1	9.36	5.40
Difference	1.76	1.10	0.50	2.91

Source: own elaboration.

Table 6. Median values of estimated parameters.

Median (n = 143)	2017	2018	2019	2020
Leveraged beta of all analysed companies	1.16	1.26	1.28	1.24
Required return on equity capital (%)	9.49	10.07	9.81	9.21
Relative residual income (ROE_r) (%)	-0.08	0.00	-0.94	-1.11
Risk-adjusted ROE (ROE_a) (%)	8.53	8.61	7.33	7.15

Source: own elaboration.

By taking into account all the assumptions of our methodology, we can see that the greater median ROE of our sample of companies compared to the aggregated ROE of all Slovenian companies shows (in line with the theory) a positive relationship between risk and return. The relative residual income (in %) is negative in all years except 2018, which equals zero. (Tables 5 and 6)

Our results show that in the median in the years from 2017–2020, the capital value of our sample of companies was not increased if we consider the required return based on risk (Figure 1).

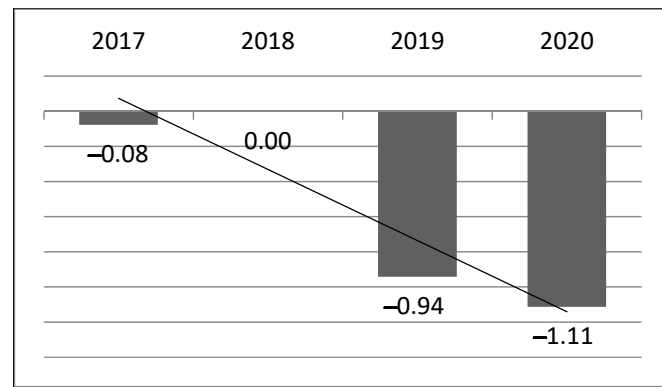


Figure 1. Median ROE_r (%) for the analysed companies in 2017–2020. Source: own elaboration.

Table 7 shows the required return, relative residual income and risk-adjusted ROE of all Slovenian firms at $\beta = 1$, which is theoretically the market beta. From the data, we can determine that Slovenian companies, in the aggregate, earned approximately the required return for their investors in the years 2017–2019. However, in 2020, the aggregated ROE of Slovenian firms dropped substantially due to the pandemic crisis and the achieved return was below the required level. Of course, in all such and similar inferences, we must consider the limitations of the methodology used that result from all the assumptions in our analysis. Nevertheless, the results are relatively realistic and relevant.

Table 7. Required return, ROE_r and ROE_a of all Slovenian firms at $\beta = 1$.

	2017	2018	2019	2020
Required return on equity capital (%)	8.61	8.61	8.26	7.91
Relative residual income (ROE_r) (%)	-0.32	0.49	1.10	-2.51
Risk-adjusted ROE (ROE_a) (%)	8.29	9.10	9.36	5.40

Source: own elaboration.

We checked the relationship between (1) leadership as an activity in BPM (respondents' evaluation of statements) and (2) the company profitability measures ROE_r and ROE_a considering four years (2017–2020). To avoid a distorted image, we eliminated companies with extreme four-year average values for ROE_r and ROE_a , such as the top best 10% and the bottom worst 10% number of companies (the first and last decile). Statistical differences for each interest aspect of leadership (employees, customers, suppliers, middle management) regarding changes in the core business process were analysed. We compared the best 20% and the worst 20% companies based on the four-year average company profitability measures ROE_r and ROE_a . The results are shown in Table 8. The results indicate a difference between the companies with the highest ROE_r and those with the lowest ROE_r . Companies that involve employees in changes in core business processes to a greater degree have been shown to have a higher ROE_r . It was also shown that companies with a higher ROE_r involve middle management in changes in core business processes to a greater degree.

The results also prove the difference between the 20% of companies with the highest ROE_a and the 20% of companies with the lowest ROE_a . In addition, companies that involve employees in changes in core business processes to a greater degree have been shown to have a higher ROE_a .

Table 8. Comparison of the interest aspects of leadership regarding changes in core business processes and relationship to ROE_r and ROE_a .

	ROE_r		ROE_a	
	Top 20% of Companies	Bottom 20% of Companies	Top 20% of Companies	Bottom 20% of Companies
Four-year average (%) (2017–2020)	8.07	−8.67	15.02	2.68
Statements	Likert (1–6)	Likert (1–6)	Likert (1–6)	Likert (1–6)
When changing the core business process, we regularly involve our employees.	4.29	4.18	4.46	3.96
When changing core business processes, we regularly involve our customers.	3.43	3.68	3.64	3.57
When changing core business processes, we regularly involve our suppliers.	3.89	3.89	4.04	3.57
The involvement of middle management is crucial for successfully implementing changes in core business processes.	4.32	3.82	4.14	3.57

Source: own elaboration.

An analysis (Table 8) shows the average values of the 20% of companies with the highest ROE_r (8.07%) and the average values of the 20% of companies with the lowest ROE_r (−8.67%). It also shows the average values of the 20% of companies with the highest ROE_a (15.02%) and the average values of the 20% of companies with the lowest ROE_a (2.68%).

Companies that include employees in changes in core business processes to a greater degree have a higher average risk-adjusted profitability. This is shown by the higher average value of the statement “When changing core business processes, we regularly involve our employees.” shown by the value of 4.46 out of 6 on a Likert scale for the more profitable companies measured with ROE_a (15.02%). Furthermore, a high average value for the same statement (4.29 out of 6 on a Likert scale) was also detected in the more profitable companies measured with ROE_r (8.07%). Therefore, more involvement of employees in changes in core business processes results in better company profitability, which has been detected by the higher risk-adjusted profitability measure ROE_a .

In addition, we can see that the group of companies with the highest average value ROE_r (8.07%) better evaluated (4.32 out of 6 on a Likert scale) the statement “Involvement of middle management is crucial for successful implementation of changes in core business processes.”

A high average value for the same statement (4.14 out of 6 on a Likert scale) was also detected in the more profitable companies measured with ROE_a (15.02%). Therefore, we can assume that companies that have a higher inclusion of middle management are more profitable, which has been detected by the higher risk-adjusted profitability measure ROE_r . The group of more profitable companies measured with ROE_a (15.02%) also has a higher average value (4.04 out of 6 on a Likert scale) regarding the statement “When changing core business process, we regularly involve our suppliers.” With less probability, we can assume that more involvement of the customers’ perspective in changes in core processes results in higher profitability, which has been detected by the higher risk-adjusted profitability measure ROE_a . In addition, we used the Mann–Whitney U test and statistically proved the difference in ROE_a between the two groups of more and less profitable companies measured with ROE_a . With the same test, we confirmed the difference in the statement concerning the interest aspect of leadership: “Involvement of middle management is crucial for successful implementation of changes in core business processes” between the groups of more and less profitable companies measured by the risk-adjusted profitability measure ROE_r and ROE_a . According to the average values and a statistically significant test ($p < 0.05$), we can say that companies in which there is a stronger belief that the involvement of middle management is crucial for the successful implementation of changes in core business processes are more

profitable. Therefore, we can confirm our hypothesis: “Leadership as an activity of BPM, focused on the interests of employees, suppliers and customers, has a positive impact on the company profitability measures ROE_r and ROE_a .”

5. Conclusions

In this research, we analysed the relationship between the interest aspects of leadership as an activity of core BPM activities and the risk-adjusted profitability measures ROE_r and ROE_a . Our results show the different average scores of some of the analysed interest aspects of leadership regarding changes in core business processes between the groups of more and less profitable companies measured with the risk-adjusted performance measures. In compliance with our hypothesis, we found a positive relationship between employee involvement in BPM and company profitability. Changes in the core business processes (1) in which employees are more included result in a higher level of company profitability (ROE_a); and (2) in which middle management is more included result in better company profitability (higher ROE_r). The involvement of customers and suppliers in changing core business processes does not result in higher company profitability.

Based on the results of our study, we can conclude that successful companies involve employees and middle management to a greater degree in changes in core business processes, which can be described as the interest aspect of leadership. Despite the interesting results, probably due to a relatively small sample, we were able to statistically prove only the difference in the selected statement of the interest aspect of leadership related to middle management involvement in changes in core business processes. In the statistically proven more profitable group of companies, the score of the statement “Involvement of middle management is crucial for successful implementation of changes in core business processes” was statistically proven to be higher than in the less profitable group. The conclusion is that companies that involve middle management to a greater degree (by acquiring new knowledge, leading employees based on their interests and implementing process improvement goals and strategies based on coordination with as many participants as possible) are more profitable.

The research results are useful for encouraging decision-makers in SMEs to invest more in employees and to set priority actions. However, our research has some limitations: (1) we focused on core business processes; (2) our research involved only SMEs from Slovenia; (3) we studied only a selected aspect of BPM, such as the activities of leadership, including employees, customers, suppliers and middle management and its interest; (5) the use of a questionnaire for gathering data, the possible subjective assessment of respondents and the relatively low response rate. However, some of the mentioned limitations are common in questionnaire-based studies.

The validity of the research was ensured with a comprehensive research methodology, which is explained in detail. The research instrument (questionnaire) was statistically validated. Considering the research limitations, it is possible, to some extent, to generalise the results for SMEs (taking into account the differences) to other similar EU transitional economies. However, influential differences in capital markets must be taken into account.

Further studies could take several directions: (1) studies involving a larger sample of SMEs; (2) studies considering additional aspects of BPM; (3) studies on the population of large companies.

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References

- Abdallah, Ayman Bahjat, Rasha Zuhair Alkhalidi, and Majed M. Aljuaid. 2021. Impact of social and technical lean management on operational performance in manufacturing SMEs: The roles of process and management innovations. *Business Process Management Journal* 27: 1418–44.
- Adamides, Emmanuel D. 2015. Linking operations strategy to the corporate strategy process: A practice perspective. *Business Process Management Journal* 31: 345–66.
- APQC. 2022. Process Classification Framework. Available online: www.apqc.org (accessed on 12 December 2022).
- Arshad, Noreen I., Rachele Bosua, Simon Milton, A. Kamil Mahmood, A. Izuddin Zainal-Abidin, Mazeyanti M. Ariffin, and Nurshazlyn M. Aszemi. 2022. A sustainable enterprise content management technologies use framework supporting agile business processes. *Knowledge Management Research & Practice* 20: 123–40.
- Bai, Hang, Kewei Hou, Howard Kung, and Lu Zhang. 2022. The CAPM Strikes Back? An Investment Model with Disasters. Available online: <http://www.nber.org/papers/w21016.pdf> (accessed on 12 December 2022).
- Bloomberg. 2022. Financial Data. Available online: <https://www.bloomberg.com/europe> (accessed on 25 June 2022).
- Christensen, Peter O., Gerald A. Feltham, and Martin G. H. Wu. 2022. Cost of capital in residual income for performance evaluation. *The Accounting Review* 7: 1–23.
- Damodaran, Aswath. 2022. Damodaran Online. Available online: https://pages.stern.nyu.edu/~adamodar/New_Home_Page/data.html (accessed on 12 December 2022).
- De Waal, André A. 2008. The Secret of High-Performance Organizations. *Management Online Review* 2: 100–8.
- European Central Bank. 2022. Monetary policy/Strategy/Two percent inflation target. Available online: <https://www.ecb.europa.eu/mopo/strategy/pricestab/html/index.en.html> (accessed on 12 December 2022).
- Fred. 2022. Federal Reserve Bank of St. Louis. Economic Data. Available online: <https://www.stlouisfed.org/> (accessed on 12 December 2022).
- Gošnik, Dušan, and Igor Stubelj. 2021. Business process management and risk-adjusted performance in SMEs. *Kybernetes* 51: 659–75. Available online: <https://doi.org/10.1108/K-11-2020-0794> (accessed on 15 December 2022).
- Gošnik, Dušan, and Klemen Kavčič. 2021. Analysis of selected aspects of an organisation: The organisation as an instrument, an interest group and as a process. *Managing Global Transitions: International Research Journal* 19: 167–81. [CrossRef]
- Gošnik, Dušan. 2019. Core business process management and company performance. *Management* 14: 59–86, 89. [CrossRef]
- Gvin. 2022. Financial Data. Available online: <https://accounts.bisnode.si/Home/?product=0&language=en-US> (accessed on 12 December 2022).
- Halsey, Robert F. 2001. Using the Residual-Income Stock Price Valuation Model to Teach and Learn Ratio Analysis. *Issues in Accounting Education* 16: 257–72. [CrossRef]
- Hamada, Robert S. 1972. The Effect of the Firm's Capital Structure on the Systematic Risk of Common Stocks. *Journal of Finance* 27: 435–52. [CrossRef]
- Hernández, Virginia, María Jesús Nieto, and Alicia Rodríguez. 2021. Product and Process Innovations and the Institutional Context of Transition Economies: The Effects of External Knowledge. In *The Multiple Dimensions of Institutional Complexity in International Business Research (Progress in International Business Research)*. Edited by Alan Verbeke, Rob Van Tulder, Elizabeth L. Rose and Yingqi Wei. Bingley: Emerald Publishing Limited, vol. 15, pp. 155–70.
- Hung, Richard Yu-Yuan. 2006. Business process management as competitive advantage: A review and empirical study. *Total Quality Management and Business Excellence* 17: 21–40.
- Hutahayan, Benny. 2020. The mediating role of human capital and management accounting information system in the relationship between innovation strategy and internal process performance and the impact on corporate financial performance. *Benchmarking: An International Journal* 27: 1289–318.
- John Jeston, Johan Nelis. 2008. *Management by Process a Roadmap to Sustainable Business Process Management*. Burlington: Butterworth-Heinemann, pp. 1–10.
- Ljubljana Stock Exchange. 2022. Annual Reports. Available online: <https://ljse.si/en/annual-reports/762> (accessed on 12 December 2022).
- Lyridis, Dimitrios V., Georgios O. Andreadis, Christos Papaleonidas, and Violetta Tsiampa. 2022. A BPM-based framework for the impact assessment of blockchain to the midstream LNG supply chain. *Maritime Business Review* 7: 49–69.
- Mamedova, Natalia, Mikhail Afanasev, Alexey Dyuzhov, Andrey Ivanov, and Antonina Kuzyakina. 2022. Optimal model of it directors' interaction in the digital transformation of business processes. *Technology Analysis & Strategic Management*. Available online: <https://www.tandfonline.com/doi/full/10.1080/09537325.2022.2090331> (accessed on 12 December 2022).
- Nodeson, Suresh, P. Beleya, G. Raman, and C. Ramendran. 2012. Leadership role in handling employee's resistance: Implementation of innovation. *Interdisciplinary Journal of Contemporary Research in Business* 4: 466–77.

- Nogueira, Cintia Alves, Silvia Inês Dallavalle Pádua, and Ronaldo Bernardo. 2022. A map for the holistic BPM diagnosis. *Business Process Management Journal* 28: 630–55.
- Sahoo, Saumyanjan. 2022. Process quality management and operational performance: Exploring the role of learning and development orientation. *International Journal of Quality & Reliability Management* 39: 1190–208.
- Seyffarth, Tobias, and Stephan Kuehnel. 2022. Maintaining business process compliance despite changes: A decision support approach based on process adaptations. *Journal of Decision Systems* 31: 305–35.
- Sharpe, William F. 1964. Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk. *The Journal of Finance* 19: 425–42.
- Trkman, Peter, Willem Mertens, Stijn Viaene, and Paul Gemmel. 2015. From business process management to customer process management. *Business Process Management Journal* 21: 250–66.
- Usman, Indrianawati, Nira Hariyatie Hartani, and Mariusz Sroka. 2020. Operational performance of SME: The impact of entrepreneurial leadership, good governance and business process management. *Polish Journal of Management Studies* 21: 408–18. [[CrossRef](#)]

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