ECONOMIC ANNALS, Volume LXX, No. 244 / January – March 2025
UDC: 3.33 ISSN: 0013-3264

https://doi.org/10.2298/EKA2544087D

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CAUSAL RELATIONSHIPS IN THE BALANCED SCORECARD: A SERBIAN BANKING PERSPECTIVE

ABSTRACT: *This paper examines cause-and-effect relationships within the balanced scorecard (BSC), focusing on the case of commercial banks operating within the territory of Serbia. Despite the widespread application of the BSC as a strategic management tool, the literature presents diverse conclusions regarding the efficacy of its cause-and-effect relationships. The research aims to investigate the interrelationships between perspectives, with a specific focus on the financial perspective and its causal factors. A study was conducted on five banks operating in the territory of Serbia using the method of documentation analysis, and data were collected for the period from 2010 to 2023. The conclusions are based on the results of simple panel data regression and multiple panel data regression. The results obtained provide empirical support for previously established cause-and-effect relationships within the BSC framework and also highlight new implications of causality among perspectives.*

KEY WORDS: *BSC (balanced scorecard), balanced scorecard perspectives, causality, banking sector*

JEL CLASSIFICATION: G21, M21

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1. INTRODUCTION

The balanced scorecard (BSC), as a performance measurement tool, emerged due to the inadequacy of the traditional evaluation system to meet the needs of strategic management in an era of increasing competition (Liu, 2022). The fundamental critique of the traditional approach revolves around its inability to provide a complete picture of organisational performance.

The criteria used for performance evaluation in the financial sector have been criticised by many authors. Pradhan & Murari (2019) emphasise that financial performance alone is insufficient for assessing business success, primarily because it reflects business results only for a short period. Additionally, focusing on the short-term return on investment for new ventures can deter managers from pursuing them, even if they may bring significant long-term financial benefits (Dearden, 1969).

The BSC approach to performance measurement arose from the need to determine whether the management team's activities contribute to fulfilling the company's strategic objectives and vision. It was first introduced by David Norton and Robert Kaplan in 1992, and the primary characteristic of the BSC concept is its inclusion of both financial and non-financial parameters as significant indicators of business success (Jovičić et al., 2018). The BSC is conceived not only as a system of strategic measurement but also as a system of strategic control, capable of aligning the goals of organisational units and employees with the overall company strategy (Norreklit, 2000).

According to Kaplan and Norton (1996), the BSC offers two significant improvements over traditional financial performance evaluation approaches. The first improvement lies in the identification of four interconnected perspectives of business activities critical to all levels in companies: (1) the learning and growth perspective, (2) the internal processes perspective, (3) the customer perspective, and (4) the financial perspective. Furthermore, the BSC seeks to link these measures in a model that accurately reflects the cause-and-effect relationships between perspectives and indicators of those perspectives. This requirement for connecting perspectives leads to the development of strategic maps visually illustrating the cause-and-effect relationships, aiming to incorporate the four traditional perspectives of the BSC into the strategic management process. The

main goal of these relationships is to help managers recognise how improvement in one perspective affects other perspectives and whether this improvement will ultimately have a positive impact on the organisation's financial results (Elbanna et al., 2022).

The subject of this study is to determine the cause-and-effect relationships among non-financial perspective indicators within the BSC, i.e. the learning and growth perspective, the internal processes perspective, and the customer perspective, as well as to assess the impact of non-financial indicators on financial outcomes. The study aims to guide managers on which non-financial aspects to invest limited resources in, with the goal of ensuring long-term company growth and maximising financial performance.

In the literature, numerous empirical studies on the causality of BSC perspectives exist, based on examples from the public sector, such as healthcare institutions (Chan, 2006; Coop, 2006; Forgione, 1997; Kober & Northcott, 2021; Northcott et al., 2008; Zelman et al., 2003), libraries (Brui, 2018; Krarup, 2003), and hospitality industry companies (Brander Brown & McDonnell, 1995; Elbanna at al., 2022; Pham & Pham, 2019), with limited empirical evidence on the potential causality of perspectives based on data from the banking sector.

For public sector companies, the relationships between perspectives and primary objectives may not always be complementary to the primary goals of financial institutions, which involve profit maximisation. For instance, in healthcare institutions, as public sector companies, the primary perspective within the BSC is the customer perspective, and the main goal is patient satisfaction and efficient service delivery (Kober & Northcott, 2021). Previous research focusing on customer satisfaction primarily examines the influences of other non-financial perspectives on the customer perspective, with limited investigations into the impact of all non-financial perspectives on the financial perspective.

Moreover, the significance of applying the BSC as a strategic management tool in the banking sector has been the subject of research by many authors, but only a few studies have focused on the mutual influences of perspectives within the BSC model in the banking sector (Al-Gamazia & Kaddumi, 2020,, ;Tariq et al, 2014). Investigations into the causality of perspectives using examples of banks operating in Serbia have not been conducted.

This study contributes to closing the mentioned gap by examining the influence of perspectives using the example of commercial banks. Additionally, the study aims to indicate whether improvements in non-financial perspectives result in changes in financial performance, and to what extent. The study results should provide empirical evidence of the potential causality of BSC perspectives in the banking sector and fill the gap in the literature, as most research on the causality of perspectives has been conducted in the public sector. The paper is structured into three interconnected parts: the first part provides a theoretical overview of strategic maps, perspectives within the BSC, previous research on the application of the BSC model in the banking sector, and studies on the causality of perspectives. The second part describes the methodology of the research conducted in this study and presents the research model. The third part of the paper contains the results of simple panel data regression and multiple panel data regression, which were used to reevaluate the validity of the set hypotheses.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1. Balanced scorecard perspectives

The BSC was initially introduced as a model designed to assist managers in strategy implementation, providing a framework to measure company performance from four distinct perspectives: three non-financial and one financial. Financial performance metrics serve as the primary indicators of business success, offering top management relevant short-term feedback on the outcomes of prior initiatives. Non-financial metrics, crucial for gaining a competitive advantage and ensuring long-term success, are present in the other three perspectives of the BSC framework: learning and development, internal processes, and customer perspectives (Bento & Bento, 2013). By connecting these perspectives, Kaplan & Norton (2004) developed strategic maps to enable managers to test the company's strategy, assessing whether improvements in each non-financial perspective led to subsequent growth in financial performance.

2.1.1. Learning and growth perspective

The focus of the learning and growth perspective is primarily on a company's human resources, representing its most significant intangible asset. Liu (2022) notes that the dimension of learning and development includes three main goals: improving employees' technical abilities, enhancing their skills in performing

business processes, and increasing employee motivation, empowerment, and collaboration. Human capital is crucial for the long-term value creation of companies, primarily because technology can be replaced, and business properties can lose their significance and application (Savkin, 2019). Employees must continuously upgrade their knowledge and skills in line with changes in technology and the company's operating environment (Visalakshi & Kasilingam, 2015). Commonly used performance indicators for this perspective include employee satisfaction, employee retention rate, employee capabilities and skills (Domanović, 2019), the number of training hours per employee (Liang & Hou, 2007), employee turnover rate and employee stability rate (Kober & Northcott, 2021), and staff absenteeism rate (Koys, 2001), among others.

2.1.2. Internal processes perspective

The primary goal of the internal processes perspective is to incorporate customer expectations into company internal processes. Accordingly, the internal processes perspective should focus on internal procedures that must exceed customer expectations (Abueid, 2021). The quality of a company's products and services often depends on the processes of creating value in the internal value chain of the company (Liu, 2022). Commonly used metrics for this perspective include new product development (Marr, 2005), the number of improved internal processes (Daniel & Merigó, 2021), and the efficiency of service delivery (Chiang et al., 2020).

2.1.3. Customer perspective

The significance of the customer perspective lies in the fact that customers are a source of business revenue. Companies require information from customers to assess their expectations, building a strategy that would fulfil and respond to the desires and needs of future customers (Abueid, 2021). The customer perspective also aids organisations in introducing new products to the market with the help of customer feedback (Pradhan & Murari, 2019). Performance indicators for this perspective include market share, profitability per customer, brand value (Cunha Callado & Jack, 2015), customer retention rate, customer acquisition rate, and customer satisfaction (Kaplan & Norton, 1996).

2.1.4. Financial perspective

This perspective involves traditional methods for measuring company performance. Within the framework of benchmarks and indicators, it illustrates what will motivate shareholders and other investors to invest in the company and retain their shares (Rašić-Jelavić & Pajdaković-Vulić, 2021). The primary goal of the financial perspective is to improve financial business results by achieving objectives such as profit maximisation or cost minimisation. Financial performance indicators typically reflect profitability, solvency, operational capability, and company growth (Liu, 2022). Therefore, the financial perspective helps the company analyse whether the implemented strategy improves the financial outcome of the business (Pradhan & Murari, 2019). Commonly used indicators in most studies include revenue by product, revenue per employee, contribution margin, return on investment (ROI), return on assets (ROA), and level of indebtedness, among others (Cunha Callado & Jack, 2015).

2.2. Balanced scorecard in the banking sector

Similar to all organisations, banking institutions must find an efficient way to align their core activities with organisational objectives based on performance analysis. In order to gain a competitive advantage, banks must implement a performance evaluation model that considers both financial and non-financial indicators, which are a significant part of their operations and have a direct impact on financial performance (Stojkovski & Nenovski, 2019). The application of the BSC system, as a widely accepted strategic management tool, has been explored in various business sectors, including the banking sector.

Dave & Dave (2012) conducted research on the application of the BSC in the Indian banking sector and emphasised the importance of intangible aspects of business and non-financial performance as crucial indicators of banking sector success. They highlighted the necessity of the BSC as a strategic management tool that encompasses various aspects of banking operations and helps understand the complementarity between different performance indicators.

The mutual dependence of BSC model perspectives in the Islamic Republic of Pakistan's banking sector was the focus of the research by Tariq et al. (2014). The study results indicate that implementing the BSC in business operations will lead to increased customer satisfaction and improved financial performance of the

bank. Setting customer preference standards, obtaining feedback from them, and maintaining constant communication will generate a loyal customer base, ultimately enhancing the bank's financial performance.

The application of the BSC system as a performance measurement system in the banking sector was conducted in Libya using the Jumhouria Bank as a case study. On the basis of this case study, Abofaied (2017) concluded that the bank primarily focuses on financial performance indicators while neglecting non-financial metrics.

Al-Gamazia & Kaddumi (2020) tested the impact of non-financial perspectives of the BSC on the financial perspective using Jordanian banks as an example. The study findings showed a statistically significant influence of non-financial perspectives as well as their cumulative impact on the financial performance of banks. Their case study led to the conclusion that the management of commercial banks should adopt and implement the BSC due to its positive impact on performance, with a greater emphasis on addressing customer needs, as the customer perspective had the most statistically significant impact on the financial perspective.

Akinbowale et al. (2022) tested the implementation of the BSC model in the South African banking sector and concluded that the internal business processes perspective influences both the customer perspective and the financial perspective by improving customer trust through robust internal controls and by reducing financial losses.

2.3. Cause-and-effect relationships in the balance scorecard

The most significant contribution of the BSC in implementing corporate strategy relates to the cause-and-effect relationships between perspectives (Tucker et al., 1996). Kaplan and Norton (1996) assume the following causal relationship: the perspective of organisational learning and growth → internal processes perspective → customer perspective → financial perspective. Measures of organisational learning and growth, therefore, drive measures of the internal processes perspective. Furthermore, these processes drive measures of the customer perspective, which in turn impact financial performance. If companies have an innovative production process, efficiently manage orders, and adapt

quickly to changes, there is a high likelihood that the company's product/service will meet consumer needs, increase market share, and generate higher profits (Cohen et al., 2008).

Cravens et al. (2000) and Bukh & Malmi (2005) conducted research with results complementary to the claim that effectively linking all four perspectives in an organisation can be crucial for the implementation of corporate strategy. Essentially, the core aspect of the BSC is the articulation of the links between performance metrics and strategic objectives (Kober & Northcott, 2021). Similar findings about the existence of cause-and-effect relationships within the BSC, in addition to Kaplan and Norton (2004), were found by authors such as Norreklit & Mitchell (2007), Chenhall (2009), and Hoque (2014).

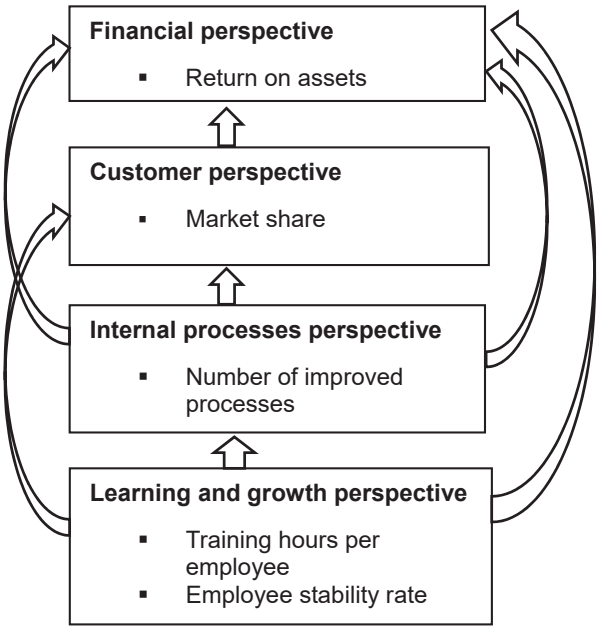
However, the literature also mentions research indicating limited evidence of causality in the BSC (Huelsbeck et al., 2011; Malina et al., 2007; Norreklit, 2000). These authors emphasise that each perspective is independent and the result of various internal and external factors. Ittner et al. (2003) conducted an examination of the results of applying the BSC to determine the compensation system in bank branches. The results showed that the implementation of this system did not help managers better understand and implement the bank's strategy or achieve strategic goals. Norreklit (2000) questions the validity of applying the BSC arguing that:

- A time dimension is missing in the BSC to establish cause-and-effect relationships;
- No evidence of a cause-and-effect relationship between individual perspectives has been found in previous research;
- The four dimensions themselves are not independent.

In addition to the causal relationships in the BSC proposed by Kaplan and Norton (1996), which involve the path of influence, i.e. the perspective of learning and growth → internal processes perspective → customer perspective → financial perspective, there are other observed mutual influences between perspectives. Spinelli & Canavos (2000) mention a statistically significant and positive connection between the learning and growth perspective and the customer perspective, while Koys (2001) concludes that the learning and growth perspective also influences the financial perspective. As the primary perspective

for companies is the financial perspective, some studies have examined the influence of the internal processes perspective on the financial perspective (Dossi & Patelli, 2010). Based on the previous findings, the subject of this study is all the cause-and-effect relationships in the BSC, presented through the adapted concept of strategic maps.

Figure 1: Strategic maps



Source: Adapted from Liang & Hou, 2007

2.3.1. Impact of the learning and growth perspective on the internal processes perspective

To support organisational strategy, companies need to measure the capabilities and skills of employees necessary during the strategy implementation process. Kaplan and Norton (2004) suggested that this perspective has a direct impact on the internal processes perspective, stating that competent and motivated employees will perform all internal processes more efficiently and productively. Studies conducted by Brown & Lam (2008) and Tahernejad et al. (2013) demonstrate that employees satisfied with the work environment and job are

more likely to become loyal to the organisation and make maximum efforts to ensure quality internal processes. Since every service provision requires a significant amount of human effort, it is vital for companies to maintain and meet the expectations of their employees, considering previous conclusions that satisfied employees will be more productive in their jobs (Lee & Way, 2010; Tahernejad et al., 2013; Spinelli & Canavos, 2000). Aldrich & Herker (1977) state that satisfied employees are also dedicated to providing better quality of business and motivated to perform all processes in a way that will result in providing greater value to customers. The number of training hours and employee training is considered a predictor of the learning and growth perspective, enabling them to be more competent and motivated to perform processes (Brown & Lam, 2008; Yee et al., 2008).

In order to determine the impact of the learning and growth perspective on the internal processes perspective, the first research hypothesis is formulated:

H1: The number of training hours per employee has a direct and positive impact on the number of improved business processes.

2.3.2. Impact of the learning and growth perspective on the customer perspective

Work organisation and investments in employee training are critical elements for implementing corporate strategy (Goldstein, 2003). The literature states that employee retention and customer retention are closely related. For employees satisfied with the work environment and the job itself, there is a lower chance of leaving the organisation. Satisfied employees also make efforts to provide better services to customers, ultimately resulting in increased customer satisfaction (Chi & Gursoy, 2009). Schneider et al. (1980) investigated the connection between employee and customer satisfaction in the banking sector by collecting data through surveys in larger bank branches. The results showed that the most significant impact on employee satisfaction is the kindness and competence of the staff.

Positive correlation between employee satisfaction and customer satisfaction has been confirmed in the research of other authors (Bettencourt & Brown, 1997; Brown & Lam, 2008; Schmit & Allscheid, 1995; Spinelli & Canavos, 2000; Wiley, 1991; Yee et al., 2008). Indicators such as the employee turnover rate, the

employee stability rate, and the employee sick leave rate have been used by Kober & Northcott (2021) as job satisfaction indicators, while other authors have used the number of hours of employee training, emphasising that employee development affects their productivity and job satisfaction (Banker et al., 2004; Lipe & Salterio, 2000;).

In line with the results of previous research, the following hypotheses are set:

H2: The employee stability rate has a positive impact on the market share.

H2a: The number of training hours per employee has a direct and positive impact on market share.

2.3.3. Impact of the learning and growth perspective on the financial perspective

Results from Koys' study (2001) suggest that employee satisfaction plays a crucial role in achieving financial performance. The positive impact of employee stability on the financial performance of the company is explained by the fact that higher employee stability rates lead to a reduction in hiring costs. Consequently, reduced costs would contribute to improved financial performance. However, there are different conclusions about the impact of employee satisfaction on the financial perspective of the company. For instance, Tornow & Wiley (1991) demonstrated a negative relationship between employee satisfaction and financial performance. This negative correlation is explained by the fact that an increase in employee satisfaction implies higher expenses for companies, such as wages and bonuses, subsequently reducing profit.

In order to determine the impact of the learning and growth perspective on the financial perspective, the following hypothesis is proposed:

H3: The employee stability rate has a positive and direct impact on ROA.

2.3.4. Impact of the internal processes perspective on the customer perspective

The improvement of internal processes within a company, as stated by Kaplan & Norton (1996), should result in increased customer satisfaction. Thus, positive financial performance is the result of customer loyalty, and loyalty is the consequence of improved and innovative internal processes. In addition to

improving existing internal processes, developing new products and services is necessary to achieve customer satisfaction (Liang & Hou, 2007). Conner-Spady et al. (2004) reached a similar conclusion about the impact of innovating internal processes on patient satisfaction during their study of determinants of patient satisfaction in healthcare institutions. Causality between these two perspectives has been confirmed by Kober & Northcott (2021) and Liang & Hou (2007).

In line with the results of the previously mentioned studies, the following hypotheses are proposed:

H4: The number of improved internal processes has a positive impact on the company's market share.

2.3.5. Impact of the internal processes perspective on the financial perspective

Studies conducted by Dossi & Patelli (2010) and Ittner et al. (2003) indicate a direct impact of the internal processes perspective on the financial perspective. This causality is explained by the fact that any improvement in internal processes will lead to reduced costs or increased sales through improved customer satisfaction. Jackson & Qu (2008), in their study on brand management in the hospitality industry using the BSC, demonstrated a direct and positive impact of the internal processes perspective on the financial perspective. Similar conclusions were reached by Elbanna et al. (2022) examining the causality of BSC perspectives in hotels.

Considering the results of these studies, the following hypothesis is proposed:

H5: The number of improved internal processes has a positive impact on the ROA.

2.3.6. Impact of the customer perspective on the financial perspective

The assumption that satisfied customers contribute to long-term profit growth through loyalty and repeat transactions has been confirmed by numerous studies (Anderson & Sullivan, 1993; Bernhardt et al., 2000; Hauser et al., 1994;; Nelson et al., 1992).

By testing assumed cause-and-effect relationships in the BSC, Norreklit (2000) concluded that an increase in customer satisfaction and loyalty will not lead to long-term profit growth for companies. This conclusion is explained by the fact that the costs of investing in product quality improvements and various loyalty programmes can be higher than the revenue increase due to increased sales volume. In contrast, Kober & Northcott (2021), testing cause-and-effect relationships within the BSC using healthcare as an example in the public sector, demonstrated mutual dependence between the customer perspective and the financial perspective. The authors demonstrated this causality by testing the impact of patient satisfaction rates and the percentage of resolved complaints and grievances (customer perspective) on net invested funds (financial perspective).

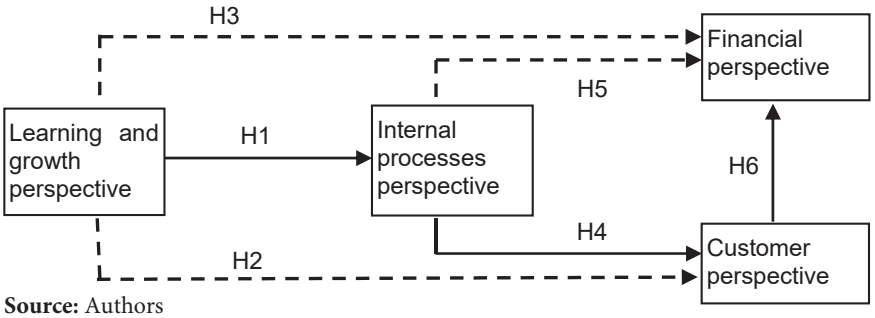
In order to determine the dependence of the customer perspective on the financial perspective, the following hypothesis is proposed:

H6: Growth in market share has a positive impact on ROA.

3. RESEARCH METHODOLOGY

The study was conducted using data from five banks operating in Serbia which, according to data from the National Bank of Serbia, had the highest total assets in the past business year. The panel regression method was used to test the research hypotheses presented in this paper (Figure 2). This method allows for a more thorough examination of the relationships between variables, tracking their mutual influences throughout the entire observed period. Panel regression analysis was conducted using R-studio software for statistical computing. The method of document analysis was used to collect data on the number of training hours per employee as well as on the number of improved business processes for the period of 14 years, from 2010 to 2023. Data on returns on assets and market share amounts were collected on the basis of publicly available financial reports and annual bank operation reports.

Figure 2: Research model



Source: Authors

The performance indicators for the learning and growth perspective included the number of training hours per employee and the employee stability rate. For the internal business processes perspective, the number of improved business processes in the bank was considered. Market share served as the indicator for the customer perspective, while ROA was observed for the financial perspective. ROA is a financial metric used to measure the profitability of a company relative to its total assets. The formula for calculating ROA is net income / total assets.

3.1. Stationarity test

As a prerequisite for performing panel regression analysis, the stationarity of all variables was first tested. Stationarity tests are crucial in time series analysis because non-stationary data can lead to spurious regression results (Çivak et al., 2021). The Augmented Dickey-Fuller (ADF) test was employed to assess the stationarity of the time series data (Table 1). Since the p-value of the ADF test is 0.01, which is less than the commonly used significance level of 0.05, we conclude that the time series is stationary.

Table 1: Augmented Dickey-Fuller Test

Test name	Augmented Dickey-Fuller test
Dickey-Fuller statistic	-4.3961
Lag order	4
p-value	0.01
Alternative hypothesis	Stationary

Source: Authors

3.2. Model suitability test

The Durbin-Wu-Hausman test was performed in order to determine whether a fixed effects model or a random effects model is more appropriate for accurate panel regression analysis (Table 2). A low p-value ($p \leq 0.05$) indicates that the fixed effects model is more appropriate, as it suggests a significant difference between the model, meaning the fixed effects model better accounts for the variability in the data (Stefko et al., 2021). The significant p-value ($p<0.05$) from the Durbin-Wu-Hausman test for all observed variable relationships suggests the use of the fixed (within) effects model.

Table 2: Durbin-Wu-Hausman test

Hypotheses	Variables	p-value
H1	Number of training hours per employee → number of improved business processes	0.010
H2	Employee stability rate, number of training hours per employee → market share	0.016
H3, H5, H6	Employee stability rate, number of improved business processes, market share → ROA	0.013
H4	Number of improved business processes → market share	0.000

Source: Authors

Note: " → " indicates the impact of the independent variable(s) on the dependent variable

3.3. Panel data regression analysis

Fixed effects models control variables that do not change over time by effectively subtracting their effects, thereby isolating the impact and responses of other variables. This analysis was applied to examine the interrelationships of variables across all five observed banks over a 14-year period, allowing for the analysis of both cross-entity (between banks) and temporal (within entity over time) variations.

Panel data regression with fixed effects model:

- $Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \cdots + \beta_k X_{kit} + u_{it}$,

where:

- Y = dependent variable;
- X = independent variable;
- $_i$ = number of banks, $_i = 5$;
- $_t$ = time dimension;
- $_t$ = number of time periods, $_t = 14$;
- β_0 = constant term;
- $\beta_{1...k}$ = regression coefficients;
- $_k$ = number of explanatory variables;
- u_{it} = is the error term.

4. TESTING THE HYPOTHESIS

The first research hypothesis in this study examines the impact of employee training on the number of improved business processes. Through simple panel data regression with a fixed effects model, it was determined that the independent variable (training hours for employees) has a statistically significant impact on the dependent variable (number of improved business processes), as the p-value of the coefficient is very low ($p = 5.677e^{-10}$; $p < 0.05$). The estimated coefficient is 0.089, which means that for each additional hour of employee training, the number of improved business processes is expected to increase by approximately 0.089 units, holding other factors constant. The positive sign of the coefficient indicates a positive relationship between employee training and the improvement of business processes.

The coefficient of determination (adjusted R^2 = 0.411) indicates that approximately 41% of the variability in the number of improved business processes can be explained by the training hours per employee.

Table 3: Impact of employee training on the number of improved business processes

Independent variable	Estimate	Std. error	t-value	p-value	Dependent variable
Number of training hours per employee	0.089	0.012	7.293	$5.677e^{-10}$	Number of improved businesses processes
R-squared	0.454				
Adjusted R-squared	0.411				
F-statistic	21.365 (3, 62)				
p-value	0.00				

Source: Authors

To test the second hypothesis in the study, a multiple panel data regression with fixed effects was applied; market share is the dependent variable, while employee training and employee stability rate are the independent variables. In multiple panel regression analysis, it is necessary to test for multicollinearity (Table 4). Multicollinearity is not considered a problem if the variance inflation factor (VIF) is less than 5 for all pairs of variables (Kamel & Abonazel, 2023).

As the VIF coefficient for both variables is less than 5, multicollinearity was not detected.

Table 4: Multicollinearity analyses for number of training hours per employee and employee stability rate

Independent variables	Number of training hours per employee	Employee stability rate
VIF	1.057	1.057
Dependent variable	Market share	

Source: Authors

Following the confirmation of no multicollinearity, a multiple panel regression analysis was performed (Table 5). Since the significance coefficients for both variables are $p > 0.05$, it is concluded that there is no significant linear correlation between the independent and dependent variables. Additionally, the low R-squared (8.9%) and adjusted R-squared (0.3%) values suggest that the model does not effectively explain the variability in market share. On the basis of this, hypotheses H2 and H2a cannot be accepted.

Table 5: Impact of number of training hours per employee and employee stability rate on market share

Independent variables	Estimate	Std. error	t-value	p-value	Dependent variable
Number of training hours per employee	0.000	0.015	1.452	0.151	Market share
Employee stability rate	0.022	0.000	1.836	0.071	
R-squared	0.090				
Adj. R-squared	0.003				
F-statistic	3.112 (2, 63)				
p-value	0.051				

Source: Authors

The third hypothesis in this study examines whether the employee stability rate affects the ROA. To evaluate the combined influence of all observed independent variables within the research model on ROA, a multiple panel regression analysis was conducted. As a prerequisite, a multicollinearity test of the variables was performed (Table 6). Since the VIF coefficients for all variables are less than 5, panel regression analysis can proceed.

Table 6: Multicollinearity for employee stability rate, number of improved business processes, and market share

Independent variables	Employee stability rate	Number of improved businesses processes	Market share
VIF	1.004	1.003	1.003
Dependent variable	ROA		

Source: Authors

The results of the multiple panel regression analysis (Table 7) indicate that the employee stability rate has a statistically significant impact on ROA ($p = 0.014$; $p < 0.05$). Specifically, each unit increase in the employee stability rate is associated with an approximate increase of 0.023 units in ROA (Estimate = 0.023). Therefore, hypothesis H3 is accepted.

Table 7: Impact of employee stability rate, number of improved business processes, and market share on ROA

Independent variables	Estimate	Std. error	t-value	p-value	Dependent variable
Employee stability rate	0.023	0.009	2.528	0.014	ROA
Number of improved business processes	0.012	0.000	3.992	0.000	
Market share	0.231	0.057	4.046	0.000	
R-squared	0.509				
Adj. R-squared	0.454				
F-statistic	21.433 (3, 62)				
p-value	$1.213e^{-09}$				

Source: Authors

The fourth hypothesis tests the influence of the number of improved business processes on market share. The model is statistically significant ($p = 1.021e\text{-}07$; $p < 0.05$), and approximately 30.98% of the variance in market share is explained by the variance in the number of improved business processes ($R^2 = 0.310$). With

each one-unit increase in the number of improved business processes, the market share increases by approximately 0.412 units. Consequently, hypothesis H4 is accepted.

Table 8: Impact of number of improved business processes on market share

Independent variable	Estimate	Std. error	t-value	p-value	Dependent variable
Number of improved business processes	0.412	0.069	5.998	$1.021e^{-07}$	Market share
R-squared	0.360				
Adj. R-squared	0.310				
F-statistic	35.976 (1, 64)				
p-value	$1.021e^{-07}$				

Source: Authors

The next hypothesis tests the impact of the number of improved business processes on ROA. Based on the coefficient from Table 7 ($p = 0.000$; $p < 0.05$), we conclude that there is a statistically significant positive influence. The estimated coefficient indicates that for each additional improved business process, ROA increases by approximately 0.0115 units, assuming other variables are held constant. This suggests a positive relationship between the number of improved business processes and ROA. Based on this evidence, hypothesis H5 is accepted.

The final research hypothesis measures the impact of market share on ROA. From the coefficients in Table 7, we observe that the p-value is 0.000 ($p < 0.05$), indicating that the influence of market share on ROA is statistically significant. For each one-unit increase in market share, ROA increases by approximately 0.231 units, assuming other variables are held constant. Consequently, hypothesis H6 is accepted.

5. DISCUSSION OF RESULTS

The aim of this study is to determine potential causal relationships between perspectives in the BSC using a complex model that examines the influence of all

three perspectives on the financial perspective – the foundational perspective for every company's operation. An extended and adapted model of strategic maps developed by Kaplan and Norton (2004) was employed. The concept of strategic maps visually illustrates the connections between perspectives and emphasises that trained and motivated employees will contribute to the improvement of business processes within the company. Such improvements will impact customer satisfaction, ultimately resulting in increased company profits.

In general, the results of the study confirm the existence of causality within the BSC perspectives and are consistent with previous research (Banker et al., 2000; Chenhall, 2009; Davis & Albright, 2004; Hoque & James, 2000; Kaplan & Norton, 1996). However, the results differ from those of the study conducted by Malina et al. (2007), which did not confirm interdependencies between perspectives, despite acknowledging the significance of implementing the BSC as a strategic tool in American companies. Differences may be attributed to the research methodology, as the authors of that study apply Grenier's causality method for hypothesis testing, which is prediction-based. Additionally, their study focuses on the distribution segment in companies, which may not necessarily imply the absence of connections between perspectives in other organisational segments.

The first research hypothesis aimed to determine a direct connection between the learning and development perspective and the internal business processes perspective. It was established that there is a direct and positive impact of the number of training hours and employee development (as indicators of the learning and development perspective) on the number of improved business processes. This causality aligns with the results of previous research (Shamir, 1980; Spinelli & Canavos, 2000; Tahernejad et al., 2013), indicating that investing in employee development leads to improvements in internal company processes. Schneider et al. (1980) demonstrated that employee satisfaction and motivation are crucial for ensuring quality internal processes. Satisfied employees will make efforts to provide internal processes that add more value to customers.

On the other hand, there was no evidence of causality between the learning and development perspective and the customer perspective. Testing training hours per employee and employee stability rate on market share (as an indicator of the customer perspective) did not show that either variable has a statistically positive

impact on customer satisfaction. These results contradict previous research by Wiley (1991), Bettencourt and Brown (1997), Spinelli and Canavos (2000), and Brown and Lam (2008), which suggest that customer satisfaction is closely related to employee satisfaction and motivation. This can be explained by the fact that the training provided to bank employees and the workshops attended were more oriented toward improving business processes than providing value to end customers. Additionally, the stability rate of employees will not affect customer satisfaction if it involves staff not motivated to maximise value for the client. These results are in line with the study conducted by Liang & Hou (2007), emphasising that the staff stability rate does not always impact customer retention. To achieve a positive correlation, companies need to provide incentive programmes for employees, competitive salary schemes, and other ways to retain a competent workforce. In contrast to these conclusions, Reichheld (1996) states that the employee turnover rate is closely linked to customer satisfaction. For employees not loyal to the company, there is a low probability of building a base of loyal customers. Different conclusions regarding the existence of causality between the employee turnover rate and customer retention rate may be related to the nature of the company's activities under investigation. The human resources strategy perspective suggests that the effects of the employee turnover rate critically depend on the context or system in which the turnover occurs (Miller & Friesen, 1984). In the banking sector, improved business processes are more crucial predictors of customer satisfaction than trained and satisfied employees.

In contrast to the results indicating the lack of causality between the learning and growth perspective and the customer perspective, a statistically significant connection was found between the employee stability rate, as an indicator of the learning and growth perspective, and the financial perspective, represented through the ROA. The results align with those found by Koys (2001), indicating that hiring costs (selection and recruitment) and costs of training for new employees will fall directly if the employee turnover rate decreases. Increased employee satisfaction will lead to a lower employee turnover rate, subsequently influencing the financial health of the bank, expressed through ROA. On the other hand, there are conclusions in the literature suggesting that an increase in employee satisfaction would imply high expenses for companies, resulting in a decline in bank earnings (Tornow & Wiley, 1991). However, based on the results

obtained here, we can conclude that satisfied employees will be more concerned about the long-term interests of the company and positively impact financial performance through a decrease in the turnover rate and the associated cost reduction.

Internal business processes, as represented by the indicator of the number of improved business processes, have a positive impact on both the customer perspective and the financial perspective. Any improvement in processes, which in the banking sector involves reducing response times to customer requests, faster loan approval processes, quicker request processing, etc., will directly and positively affect customer satisfaction and contribute to increased ROA. This causality has been demonstrated by both Liang & Hou (2007) and Diamantini et al. (2016). However, the results are not consistent with the study conducted by Northcott et al. (2008), testing the influence of the internal business perspective on the customer perspective in the public sector. They demonstrated that the strength of this connection is weak and could not find evidence that process improvement will lead to increased customer satisfaction. The differences in results may be attributed to the fact that the study was conducted in a healthcare institution as part of the public sector, where indicators of customer satisfaction significantly differ from those of bank customers. For users of healthcare institutions, the motivation and adequacy of staff will have a more significant impact on satisfaction than improved internal processes.

A highly positive and statistically significant coefficient of the impact of customer satisfaction with services on loyalty indicates that higher customer satisfaction leads to greater loyalty and repeated purchases. This strong statistical connection has been confirmed by many authors (Ertemel et al., 2021; Lin & Yin, 2022; among others). This is significant for companies because by offering a high-quality product, they gain satisfied consumers, ultimately translating satisfied consumers into loyal ones. Additionally, retaining existing customers is cheaper for companies than attracting new ones (Gursoy et al., 2007). The positive impact of customer satisfaction on a company's financial health is often the subject of research, as some authors have concluded that investments in customer satisfaction can incur high costs that may outweigh revenue growth, thereby reducing profits for the company. Negative causality between these two perspectives has been demonstrated by Tornow & Wiley (1991) and Bernhardt et

al. (2000), indicating that employee satisfaction requires significant expenses for items such as benefits and salaries and that profits will increase more if management focuses on minimising business expenses. However, the present study has shown that customer satisfaction will lead to direct recommendations to other customers, repeated purchases, word-of-mouth promotion, and other activities that will result in generating a higher level of company earnings. These results are consistent with the findings of Reicheld & Sasser (1990), who state that repeated purchases are more profitable for companies than individual customer transactions.

6. CONCLUSION

In today's highly competitive environment and with the increasing demands of consumers, achieving financial growth represents a significant challenge for management in the banking sector. This case study examines the impact of different non-financial perspectives on the financial perspective, which is considered the primary one. Considering the significance of non-financial performance metrics as important indicators of business success, this study explores the causal relationships among non-financial perspectives and their synergistic role in achieving the financial goals of a bank.

The implications of this study, based on a literature review and previous empirical studies, are twofold. It emphasises the importance of implementing the balanced scorecard as an effective strategic management tool and provides specific guidelines for bank managers to improve financial performance, illustrating how investments in non-financial aspects can directly enhance net profit growth. Additionally, it enriches the literature by offering insights into the causal relationships between the balanced scorecard perspectives in the banking sector. A significant contribution of the study is the application of the complex concept of strategic maps to understand the multiple relationships between perspectives. Unlike prior research, which predominantly adopted a hierarchical approach as introduced by Kaplan and Norton (1996), this study employs a complex model to explore both hierarchical and non-hierarchical influences. By confirming the direct connections between all non-financial balanced scorecard perspectives and the financial perspective, it highlights the responsibility of managers at all levels for actions and outcomes that shape overall financial performance. Moreover, it

provides empirical evidence on the causality within the balanced scorecard framework in the banking sector.

The originality of the research lies in its comprehensive examination of all potential causalities, with a primary focus on the financial perspective. Conducted as a case study in the banking sector over a successive 14-year period, the study improves the reliability of the results regarding the interrelationships between perspectives. Additionally, it incorporates panel regression analysis, offering the advantage of controlling for variables that cannot be directly observed or measured. This methodology reduces the impact of omitted variable bias and provides more accurate and reliable estimates of relationships within the balanced scorecard framework, thereby enhancing the robustness of the findings and contributing to a deeper understanding of banking sector dynamics.

Recommendations

Investing in customer satisfaction is paramount, as it has the most significant influence on financial results. Banks should continuously develop initiatives such as loyalty programmes, premium services, cashback credit cards, and discounts with partners to enhance the customer experience. Strengthening the bank's brand image and equity is also a vital strategy for improving financial performance. Second, enhancing employee training and development programmes is crucial. While employee satisfaction does not directly impact customer satisfaction, it significantly influences profitability. Banks that invest in training and development programmes strengthen employee loyalty, decrease turnover rates, and subsequently reduce recruitment and selection costs, leading to improved financial performance. Furthermore, motivated and satisfied employees are more likely to contribute to business process improvements, adding value for customers, which indirectly enhances customer satisfaction.

Finally, continuous improvement of business processes leads to better financial results through cost reduction and increased efficiency. Improved processes lead to enhanced customer experiences, which, in turn, increase customer satisfaction and support market share growth.

Limitations

The primary limitation of this study is that the findings are based on data from banks operating in Serbia. Results may differ in other countries due to variations in competition, legal frameworks, and other factors. This research can serve as a foundation for future studies on the interdependence of perspectives in banking sectors of other countries, facilitating cross-country comparisons. Another limitation is that all perspectives were measured using a single indicator, treating them as one-dimensional concepts. However, employee and customer satisfaction are complex, multidimensional concepts influenced by numerous factors. This simplification may result in an oversimplification of the relationships between the variables studied. Future research should incorporate a greater number of indicators and account for other factors influencing customer satisfaction, such as service quality, company image, and customer value. Moreover, additional factors outside the current model may also affect a company's financial performance. Including a broader range of factors in future research could strengthen conclusions regarding the indicators of financial performance growth in companies.

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Received: January, 28, 2024
Accepted: February, 02, 2025