

# Forum on Economics and Business

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# Return of financial crises: old and new causes

**IVÁN BÉLYÁ CZ<sup>1</sup>**

The financial crisis prevents financial markets from functioning efficiently and results in the contraction of economic activity. The causes of the financial crisis should be explored in order to avoid them in the future. Based on an exhaustive analysis of a certain number of selected bibliographic sources, this paper focuses on the main characteristics of financial and equity crises, the asymmetric information approach, the role of uncertainty in the development of financial crises, the short-term commitment of investors (security holders). Today, there is every reason to expect another (possibly global) financial crisis. Financial markets are tightly interconnected, and a new crisis could emerge anywhere, as the global financial crisis results from an unfortunate interplay of internal and external factors. To answer the question of how to respond to worrying imbalances and problems on the forecast horizon, we can only say that the financial crises predicted by market participants rarely occur where and when they are expected and are assumed to arise due to pervasive uncertainty.

**Keywords:** global crisis, financial markets, equity crisis, economic forecasting, crisis management.

**JEL codes:** G01, G15, P19.

## **The emergence of financial crises**

According to Mishkin (1991), a financial crisis is defined as a disturbance in financial markets. The situation of adverse selection and moral hazard worsens, and financial markets cannot channel funds efficiently towards the most productive investment opportunities. The financial crisis prevents financial markets from functioning efficiently and results in the contraction of economic activity. In financial crises, the economy can shift from an equilibrium state of high output (in which financial markets function well) to a state where output falls severely as the financial system fails to channel funds toward high-yield targets.

The causes of the 2007-2008 financial crisis should be explored in order to avoid them in the future. Regulators should choose the most cost-effective ways to reduce systematic (market-based) risk. Experience shows that three types of reforms have been implemented since the financial crisis: preventive, rescue and restructuring reforms. The general opinion is that emphasis should be shifted from rescue reforms to preventive and restructuring interventions.

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The 2007-2008 financial crisis developments demonstrated the importance of fundamental uncertainty. A genuine environment of uncertainty arises when financial market participants cannot imagine all possible scenarios of future events, either because they do not completely understand the full spectrum of consequences or because they cannot assign a specific probability to each event.

Disaster myopia can be defined as a systematic tendency of financial market participants to underestimate the probability of a shock. The financial and economic shock in general (Guttentag–Herring 1986) and the financial crisis of 2007-2008 in particular were characterised by catastrophic short-sightedness, especially in the housing and credit markets (Cornand–Gimet 2011).

One of the primary explanations for the previous financial crises reflects a monetarist perspective. Friedman–Schwartz (1963) linked the financial crisis to banking panics. The importance of this was stressed because, in their view, it was the cause of the contraction in the money supply, which in turn led to a reduction in aggregate economic activity. Monetarists ignored financial crisis events which, while causing a sharp fall in asset prices and an increase in business failures, did not trigger a banking panic or reduce the money supply.

The monetarist explanation for financial crises does not give a time-determination of the banking panic, i.e. why it happens when it does. On the other hand, asymmetric information analysis treats banking panics due to high-interest rates, corporate failures, or weak business opportunities, with deposit account holders worrying about whether their money is safe with the banks. Deposit account holders can't get out of bad banks without a loss when the information that is damaging to those banks is made public.

Kindleberger (1978) and Minsky (1972) take the opposite view of financial crises; they give a broader definition of the financial crisis than monetarists. In their view, financial crises include a sharp fall in asset prices, the failure of large financial and non-financial corporations, deflation, disturbances in foreign exchange markets, or some combination of these. As they define the emerging financial crisis more broadly, the authors argue that extensive government intervention is warranted when detecting any of these disruptions, as they may have severe consequences for aggregate economic activity.

### **Information asymmetry: adverse selection and moral hazard**

Financial market transactions are subject to information asymmetry, where one party does not know all the information about the other party, which is

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necessary to make correct decisions. For example, the borrower usually has better information than the lender about the potential return and the risk associated with the project to be undertaken. Asymmetric information can cause problems in the financial system in two primary ways: before the transaction takes place (adverse selection) and after the transaction takes place (moral hazard).

Since adverse selection is likely to make a loan risky, it is also possible that lenders will not lend even though there are no credit risk problems in the market. This outcome is a feature of the classic “lemon problem”, which was first analysed and described by Akerloff (1970). As suggested by Myers–Mayluf (1984) and Greenwald et al. (1984), the lemon problem occurs in bond and equity markets when lenders have trouble determining whether they are taking a reasonable risk by lending (financing low-risk, good investment opportunities) or, conversely, a bad risk (financing poor investment projects with a high risk).

Moral hazard occurs in financial markets when the loan has already been issued, and the lender is exposed to risk because the borrower commits undesirable (immoral) acts from the lender’s point of view, which increases the risk of failure. Moral hazard arises due to asymmetric information because the lender has no knowledge of the borrower’s actions, which allows the borrower to commit moral hazard.

One way to solve the problems caused by asymmetric information is to use collateral in financial markets. The collateral reduces the consequences of adverse selection or moral hazard by mitigating the lender’s loss in the event of default. If the borrower defaults, the lender takes title to the collateral and sells it, eliminating credit loss. Accordingly, if the collateral is of reasonably good quality and the fact that there is asymmetric information between the borrower and the lender is no longer important, the loss is recovered (in whole or in part) for the lender because the loss on the defaulted loan can be substantially reduced.

In a persistently low-interest rate environment, the fight for yields has found another attractive source in the deceptive appearance of collateralised loan obligations. This construction bears many similarities to the now infamous mortgage-backed securities of the previous crisis.

During the mortgage-backed securities boom, banks that bundled loans with different credit ratings took the risk off their balance sheets. Over time, this practice fuelled low-quality lending, as banks did not have to bear the consequences of bad loans. The pooling centres (financial institutions) that now

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bundle corporate debt continue the same practice. The financial institutions that benefit from the increasing volume of corporate debt do that at the cost of a slide down the quality scale of debtors. Not only are new loan requests coming from low-quality companies, but the commitments are also associated with an erosion of collateral quality.

The analysis of financial crises shows that the asymmetric information approach provides a more plausible explanation for the facts than the monetarist view. Although it attributes a vital role to banking panics, the asymmetric information view of financial shocks does not consider them as financial disturbances with negative effects on the macroeconomy. A financial crisis with a negative impact on the economy as a whole can occur even if there is no threat to the banking system. The asymmetric information analysis suggests that the lender of last resort role may become necessary to provide liquidity to the non-bank sector in the financing system in which the asymmetric information problem has evolved. It further suggests that financial disturbances outside the banking system can have serious adverse consequences on the macroeconomy. These negative consequences can only be averted by swift action by the central bank to expand the role of the lender of last resort (Mishkin 1991).

However, according to the asymmetric information approach, the reduction in the money supply that occurs in the wake of the financial crisis does not tell the whole story of how the financial crisis affects the functioning of the economy as a whole. Instead, a much broader view of the financial crisis is needed, and a different perspective is required when it is more about the real economy.

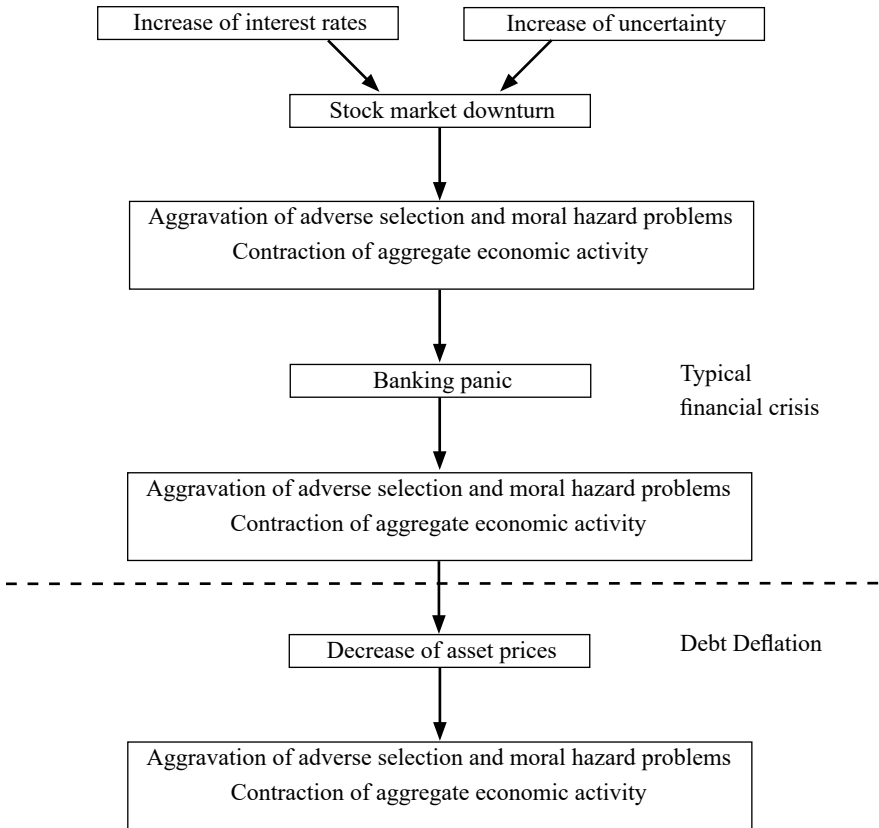
The chain of events above the dashed line (Figure 1) happens in almost every financial crisis, while those below the line will emerge only if the financial crisis grows into debt–deflation.

### **Crisis of liquidity or crisis of return on equity?**

Governments and central banks worldwide tackled the 2007-2008 financial crisis by saving liquidity, thus laying the foundations for the next potential financial crisis. To do that, more money had to be created to solve the liquidity problem. What if excess liquidity were the primary source of the financial crisis? There are many indications that some of the previous financial crises were not liquidity crises but return-on-equity and equity shortfall crises.

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Source: Minsky (1991. 12)

**Figure 1. Chain of events in the financial crisis**

If people create money by borrowing from the private sector, that puts the central bank in a “bad bank” position because that is the place where the bad loans accumulate. Instead, commercial banks accumulate new money reserves in record amounts. Since the financial crisis of 2007-2008 was identified as a liquidity crisis, its cure ultimately led to the global financial system being flooded with a waterfall of money.

If the capital return crisis is misdiagnosed as a liquidity crisis, then monetary bailouts, corporate bailouts, and flawed investment management will continue, and corporate and macroeconomic capital structure will become even more distorted.

What would happen if the next financial crisis turned out to be a return-on-equity crisis? It would prove that the financial crises of the past decades were primarily return-on-equity crises. These financial crises, equity crises, were temporarily treated with more liquidity, which proved to be a symptomatic treatment. Although all financial crises appear to be liquidity crises in their external form, at the heart of the crisis lies a slow rate of return or a complete lack of return on equity.

The expansion of global liquidity has led to debt accumulation by a wide variety of actors. Excessive government spending has created a massive mountain of debt in the public sector in many countries. In the private sector, credit is easy to obtain for the expansion of production, and the aim is also to encourage consumers to borrow. Companies have accumulated debt at low interest rates because mediocre and weak projects are also attractive in such an environment. In any such case, the process of indebtedness is unsustainable. Many borrowers know this, but the temptation to increase debt at any cost is strong because low interest rates are so attractive that they are hard to resist.

Low interest rates have not only encouraged domestic borrowers – governments, companies, and consumers – but have also attracted foreign borrowers to emerging economies, especially governments and companies.

Global debt, fuelled by central banks' monetary surpluses, has increased the fragility of the financial system. The number of financial market operators is growing, and their equity capital is too low to compensate for the unexpected fall in asset values. Too many of these institutions are banks in need of rescue – especially in times of crisis. They operate on the basis that, in case of trouble, the state must hear their cry for help. The managers of indebted companies and financial institutions say that the whole financial system will collapse if the state does not help.

This was the practice during the 2007-2008 crisis. As a result, the intervening governments accumulated internal debt and entered a state of fragility themselves. The question is who will rescue the rescuers in the next financial crisis? (Mueller 2018)

If – as is the case today – the managers and executives of international banks and funds and the credit rating agencies focus on economic growth rates, investment rates, and price levels, they can diagnose the state of the economy on these bases and pay less attention to the quality of assets and liabilities, the level of indebtedness, its changes, and therefore be exposed to misjudgements again.

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The state and the central bank seem to be healers of last resort, unlimited lenders of last resort. The state is hailed as the saviour even though, together with the central bank, it plays a significant role in creating financial crises through an expansionary monetary policy. One of the great delusions of our times is portraying economic and financial crises as failures of the free market, ignoring the crucial roles of the state and the central bank and the strict state regulation of financial markets. The fact is that the destructive boom and bust cycle can only be broken if the state withdraws from both investment management and money creation.

Government bailouts of some companies may have the significant disadvantage of keeping inefficient companies alive and may increase the risk that some companies might (undeservedly) rely on those bailouts. In essence, this will lead to a re-emergence of the asymmetric information problem, as governments are unlikely to be able to separate insolvent companies from temporarily illiquid ones. Furthermore, political pressure may influence decisions to bail out companies and banks at the expense of economic efficiency.

### **Uncertainty, bubble, noise trading**

Uncertainty plays a role in the development of financial crises. Risk and uncertainty are often misinterpreted as the same phenomenon, but there is a significant difference between them. Risk refers to calculating the probability of a future event, while uncertainty refers to the lack of perfect foresight about any unforeseen event that may occur in the future. In other words, when decision makers have high confidence in their estimates, it is pure risk, and when they have low confidence, it is uncertainty.

A special place among the arguments for uncertainty is given to the so-called “black swan” occurrence, which refers to very rare and unexpected events. Because of their low probability, decision makers do not expect them at all and thus tend to neglect them. A source of uncertainty can be the situation when little is known with certainty about the future payoffs of investment decisions made today. In financial markets, a random walk indicates that asset movements do not follow any trend or run-off pattern and that past price movements are inappropriate for inferring future price movements.

An important manifestation of investor uncertainty is that it is never possible to know with absolute certainty whether the investments traded on the market are overvalued or undervalued.

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Adding to the uncertainty is the growing number of so-called “noise traders” among financial market investors seeking to raise and spend funds ad hoc and the decreasing number of market participants relying on information and analysis.

A growing proportion of investors are security holders with a very short-term commitment, which implies a short-term orientation and increases financial market uncertainty (Reinhart 2019).

Mishkin (2009) argues that valuation risk plays a vital role in the emergence and deepening of the financial crisis. This risk also determined the re-pricing of structured credit products during the 2007-2008 financial crisis, as investors sought to understand how subprime mortgage bonds with high potential losses could have passed through the complex valuation process. Placing the problem in a broader context, Trichet (2008) argues that the deeper cause of the relevant financial crisis was the widespread and massive underpricing of risk by markets, financial institutions, and countries. He attributes this to two critical factors. The first is that the probability of certain events was misjudged; that is, these events were considered too unlikely, if not downright impossible. The second is that the effects of increasing fundamental uncertainty were neglected across all versions of asset classes.

The disruption of efficient financial market functioning and the emergence of financial asset price bubbles are symptoms of financial crises. In such cases, asset prices rise much faster than fundamental values, which can eventually burst as prices fall. Reinhart–Rogoff (2008) points out that the technical explanation for the phenomenon of financial bubbles differs significantly from the everyday perception. Fama (2014) points out that financial market bubbles are relatively easy to identify based on the facts but almost impossible to predict in advance. A good decade after the mortgage-backed securities bubble burst and despite tighter regulations, the hot market that led to the emergence of the asset price bubble is still active today. With a rapid increase in the global supply of financial assets, the potential for bubbles to form is increasing, supported by strong investor interest. There are four main stages in the formation of speculative financial bubbles: stealth, awareness, mania, and blow-off (Dedu et al. 2012), but the financial crisis can also be analysed based on behavioural, structural, and cyclical factors. Highlighting behavioural factors, biases, heuristics, and emotions contribute to the breakdown of ethical behavioural standards in financial markets. For example, optimism and wishful thinking, overconfidence, enthusiasm and resignation,

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avoidance of responsibility, the “times are different today” syndrome, or any combination of these can have an impact.

### Epilogue

Today, there is every reason to expect another (possibly global) financial crisis. The effects of the pandemic and the brutal war on the production process, the disruption of supply and value chains, the isolationist and self-sustaining tendencies that defy globalisation, the accelerated inflation, and the rise in interest rates could all contribute to the contraction of liquidity. Financial markets are tightly interconnected, and a new crisis could emerge anywhere, as the global financial crisis results from an unfortunate interplay of internal and external factors.

When we look for an answer to the question of how to respond to worrying imbalances and problems on the forecast horizon, we can only say that the financial crises predicted by market participants rarely occur where and when they are expected and are assumed to arise due to pervasive uncertainty. The mood of market participants can shift from euphoria to fear, and vice versa, as a permanent transformation. The sudden burst of fear or euphoria is a phenomenon that no one can foresee.

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## Performance analysis of the Romanian food industry

**TIBOR TARNÓCZI<sup>1</sup> – EDINA KULCSÁR<sup>2</sup> – DÁVID BADON<sup>3</sup>**

This research used a complex method to measure company performance instead of traditional financial ratios in order to gain a more comprehensive picture of firm efficiency. The study aims to investigate the efficiency of Romanian food industry companies. The performance analysis is based on the financial statements of Romanian food industry firms between 2018 and 2020. The companies included in the research database operate in different sub-sectors of the food industry. First, an empirical analysis was performed using Data Envelopment Analysis (DEA) to examine the efficiency of the firms considering all the companies and four sub-sectors. A multivariate and multifactorial analysis of variance (MANOVA) was performed to investigate the efficiency and profitability differences, using several factors affecting the efficiency scores and the selected profitability ratios. Based on the efficiency analysis results, it can be concluded that the Romanian food companies operated with an efficiency of over 50% in all three years. However, it can also be seen that, while the number of companies operating with an efficiency of at least 70% in the first two years exceeded 50%, in the third year, this proportion was only 25%. The decrease was most likely an effect of the Covid-19 epidemic. It can be stated that the efficiency of Romanian food companies is generally average, taking into account what was mentioned before. The analysis by sub-sector shows that only the average efficiency value of the largest sub-sector (680 firms - 46.41%; Manufacturing of bakery and farinaceous products) is below the average efficiency indicator of the whole company database. Except for two sub-sectors (Manufacturing and processing of milk and dairy products; Manufacturing of bakery and farinaceous products), the average efficiency coefficient of all sub-sectors is above 0.7, which can be considered good enough. Based on the analysis of variance results, it can be concluded that county and size-1 (Ranking by Total Revenue) factors have a statistically significant effect on all profitability indicators. However, the years have had no significant impact. The analysis of variance for the efficiency scores shows that all factors affect them significantly. In the last case, the most substantial effects come from two size measures (6.85 and 9.40%), year (9.03%), and county (4.35%) factors.

**Keywords:** financial performance, profitability ratios, multivariate analysis of variance, Data Envelopment Analysis, food industry.

**JEL codes:** G01, G30, G32, L25.

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### **Introduction**

Today's unpredictable global economic developments have intensified competition among economic actors. The efficient operation of companies is a prerequisite for staying competitive, which requires continuous company performance monitoring. Moreover, managers' decision-making style may influence a company's success. Therefore, competitive firms can only base their decision-making on rational and relevant information. These days, the information provided by annual reports may not be sufficient for well-founded decisions. Performance analysis is also a useful tool for investors and shareholders to measure the value added to their investments. However, the annual financial reports can also provide an adequate basis for a deeper financial analysis of corporate performance.

In contrast to financial data from financial reports, like turnover, earnings after taxes and total assets, financial ratios permit a comparative analysis of companies with different activities or of different sizes. However, researchers faced several problems in their research, so the traditional methods based on financial ratios should be replaced or supplemented with other methods. One shortcoming of the conventional performance analysis based on financial ratios is that it does not accurately represent the financial performance of shareholders and managers (Fenyves et al. 2015). So a new, more adequate approach is needed to judge the financial performance better. DEA could be considered a more suitable method for measuring financial performance than the conventional financial ratios. The performance analysis based on frontier analysis provides benchmarks for managerial decision-making. The great advantage of this method is that it can use more input and output variables simultaneously, and efficiency is defined as the ratio of outputs to inputs (Fenyves et al. 2018).

The main aim of the research is to carry out a performance analysis of Romanian food industry companies. The food industry represents 18% of manufacturing in Romania, which is a significant share compared to other sectors. This suggests that the food industry is an essential contributor to economic growth, and its changes could affect the country's economy. This is the reason why we analysed this sector of the Romanian economy. For a comprehensive analysis of companies' financial performance, we used both profitability ratios and the DEA approach in our research. Fenyves et al. (2020) also used profitability ratios in a comparative analysis of the financial performance of Hungarian and Romanian retail food businesses.

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### **Literature review**

There are many articles on the application of the DEA method in almost every area of the economy and society, including the food industry.

Giokas et al. (2015) used the DEA method to examine the liquidity and sales efficiency of the Food and Beverage firms listed on the Athens Exchange from 2006 to 2012. They revealed that the liquidity efficiency of the firms is higher than their sales efficiency. Over 90% of the firms shifted the efficiency frontier, and 33.3% caught up and improved their productivity by reducing inefficiency. The empirical study reveals that the overall technical inefficiencies of the firms were primarily caused by pure technical inefficiencies rather than scale inefficiencies.

Lukac and Gardijan (2017) studied the competitiveness of over 200 large companies in the food industry from Central and Eastern European (CEE) countries, measuring their efficiency based on the DEA method. They used financial ratios as inputs and outputs. The results showed that some countries were more efficient than others. However, no efficiency patterns could be recognised in the food industry sub-sectors. The DEA method revealed sources of inefficiency on a national level.

Machmud et al. (2019) determined and analysed the efficiency level of the Indonesian food industry using the DEA method. The findings of the study showed that the use of production factors is not yet optimal in the Indonesian food industry, which was confirmed by DEA efficiency values of less than one. The main reason for the suboptimal result is the bad condition of materials and labour.

Guzman et al. (2021) analysed the Colombian dairy industry to identify efficient companies using the DEA method with the VRS (Variable Returns to Scale) model oriented to inputs and outputs. The input variables analysed were current assets, property, plant and equipment, non-current liabilities, and equity, while the output variables were revenue and profit. Findings revealed that seven DMUs were efficient in the input and output orientation. In addition, companies of different sizes and with or without quality certifications were efficient in the sample analysed.

Kedzo and Lukac (2021) analysed small food and beverage companies in the selected European Union countries and estimated their financial efficiency using raw financial variables. The relative efficiency was determined using the DEA method. The results show that the number of efficient small companies varied in the analysed period. Furthermore, the number of efficient companies was

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variable within countries and in the food and beverage industry. Around 23% of food producers were relatively efficient, and the proportion of efficient beverage producers increased from 20% to 23%.

Náglová and Pechrová (2021) focused on evaluating the technical efficiency of food and beverage companies to find its determinants in the Czech Republic. They found out that foreign-owned companies had a stronger position, but their efficiency was comparable with Czech-owned companies. The results confirmed that the company's size influences technical efficiency. The highest efficiency was shown in the bakery and milk processing sectors, and the lowest efficiency was in the fruit and vegetable processing sector.

## **Research methodology**

### ***Research database***

The analysis of food companies' performance is based on the financial statements of Romanian enterprises. The companies included in the study operate in different sub-sectors of the food industry. The enterprise data were collected from the official website of the EMIS database between 2018 to 2020. This study runs an empirical analysis of firms' performance using the enterprise data mentioned above. The distribution of the companies included in the investigation by sub-sector is shown in Table 1.

**Table 1. Distribution of selected Romanian food companies by sub-sector**

<b>Sub-sectors</b>	<b>Number of companies</b>
Production and processing of meat and meat products	252
Processing of fruits and vegetables	57
Manufacturing of vegetable and animal oils and fats	110
Manufacturing and processing of milk and dairy products	120
Flour and semolina production	5
Manufacturing of bakery and farinaceous products	680
Fish processing	15
Manufacturing of other food products	187
Feed production	39
Sector total	1,465

*Source:* Own editing

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### ***Data Envelopment Analysis***

Data Envelopment Analysis (DEA) is a widely used method for the relative analysis of corporate efficiency. DEA is a data-oriented approach to evaluating and improving performance. Nowadays, there is a growing interest in DEA methodologies and their applications. Formally, Data Envelopment Analysis (DEA) is a method directed to frontiers rather than central tendencies. In the case of DEA, one develops a linear surface on top of the observations. Because of this perspective, DEA can uncover relationships between the entities that remain hidden from other methods. For example, what does one mean by efficiency, or what does one mean when they say that one DMU (decision-making unit) is more efficient than another DMU? DEA accomplishes this straightforwardly and does not require expectations and conditions from various models (Cook–Zhu 2005).

The ‘DEA’ function of the ‘Benchmarking’ package of the R statistical system was used to calculate the efficiency coefficients. A presentation of the theoretical foundations of the DEA method and a detailed description of the ‘Benchmarking’ package can be found in the book by Bogetoft and Otto (2011).

## **Results and discussion**

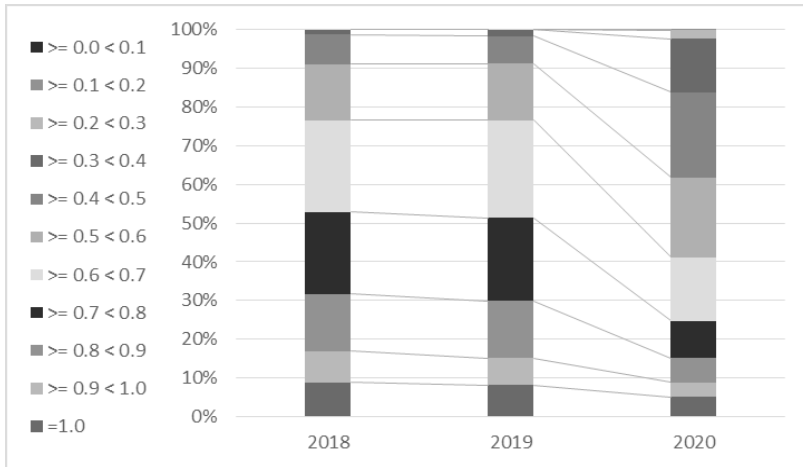
### ***Efficiency of the Romanian food industry***

First, in line with the main aim of the research, we determined annual efficiency scores there were determined efficiency scores of Romanian food companies annually. The Data Envelopment Analysis was applied to calculate the efficiency coefficients. This method determines which investigated enterprises have optimal output if we define the input as reused resources (inputs). So it becomes clear to us what proportion of selected inputs is used to maximise outputs. This means that we are looking for the input-output combination in which the ratio is the smallest. Enterprises with this characteristic assign an efficiency value of 1, and the other enterprises will have values between 0 and 1.

First, an analysis was performed for the whole investigated database. The enterprises were grouped on a decile scale based on efficiency coefficients and all the efficient companies were put in a separate group. The 11 groups created were plotted on a yearly bar chart (Figure 1). The results show whole efficiencies (with value 1) for around 8-9% of investigated food enterprises in the first two years. In 2020, the number of whole efficient companies reduced, and only 5% of the analysed companies reached this value. However, it can also be seen that

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the share of least efficient enterprises is the lowest in this group. Over 90% of the enterprises investigated achieved at least a 50% efficiency in the first two years, and this rate was around 60% in 2020.



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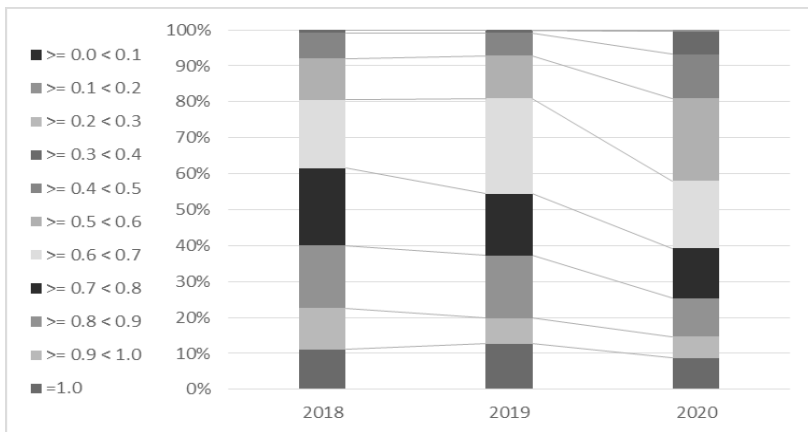
**Figure 1. Performance analysis results for the food industry using DEA**

In 2018, 60% of the examined enterprises had an efficiency coefficient between 0.6 and 0.9, which increased to 61% in 2019. This rate dropped, and only 32% of food companies were included in this efficiency range in 2020. These tendencies are most likely due to the negative effects of the coronavirus epidemic that affected most sectors of the world economy. This performance decline was also reflected in the average performance of food companies, which was above 70% in the first two years, and then it fell to 58% in 2020. Overall, except the last year, the efficiency of food companies is higher than the average. The different distribution between efficiency groups may be caused by the fact that the investigated food industry companies are quite diverse in terms of used technologies, production processes and factors, and used resources. It is not easy to compare the technology and production process of a bakery products company and those of companies processing and preserving fish and crustaceans.

Because of the significant differences between the sub-sectors within the food industry, some sub-sectors with a larger number of companies were also analysed

separately. According to the classification of the National Institute of Statistics, the Romanian food industry can be divided into nine sub-sectors. Among these, we chose four sub-sectors: production, processing, and preservation of meat and meat products (252 firms); manufacture of vegetable and animal oils and fats (110 firms); manufacturing and processing of milk and dairy products (120 firms); and manufacturing of bakery and farinaceous products (680 firms). The selected sectors represent around 80% of the total sample.

Meat processing companies represent 17.20% of the investigated enterprises. Compared to the whole sample chart, the efficiency classification groups show a different distribution in the case of meat processing companies. The upward shift in the efficiency groups has resulted in the disappearance of the least efficient groups (Figure 2).

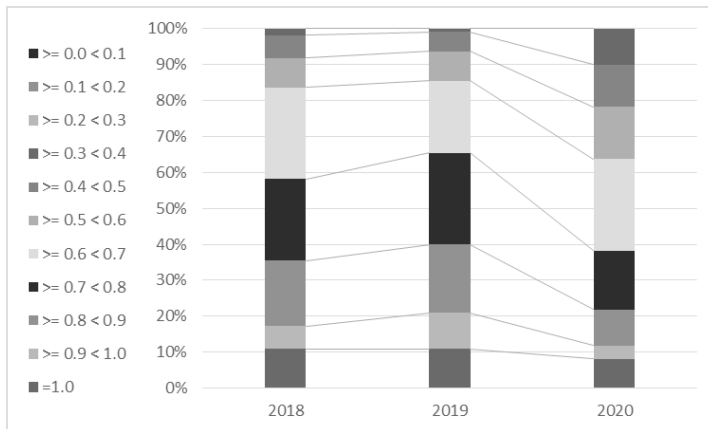


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**Figure 2. Performance analysis results for meat processing companies using DEA (2018 - 2020)**

In the first two years, around 11-12% of meat processing companies achieved efficiency coefficients of 1. In 2020, the number of high-performance companies (efficiency coefficient = 1) fell to 8.7%. Over 92% of meat processing enterprises achieved at least a 50% efficiency level in the first two years. In 2020, companies' efficiency weakened. Only 81% of the analysed companies fell into this efficiency score range. Nearly 55% of enterprises fit into an efficiency range of 0.6 to 0.9, after falling within a 0.5-0.8 efficiency range in the previous two years. Last year,

the average efficiency coefficient fell from 74% to 66% in the meat processing sub-sector.

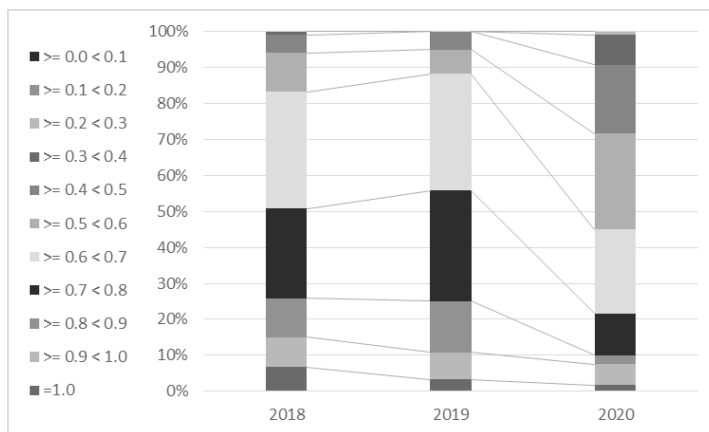


Source: Own editing

**Figure 3. Performance analysis results for vegetable and animal fat manufacturing companies using DEA (2018 - 2020)**

Vegetable and animal fat manufacturing companies represent 7.51% of the investigated companies. Compared to the efficiency scores of meat processing companies, we can observe a different distribution and various tendencies (Figure 3). In 2019, the proportion of companies with an efficiency level of at least 0.5 (93%) increased and then significantly decreased to 78%. The share of high-performance companies (efficiency score = 1) also decreased from around 11% in 2018 and 2019 to 8% in 2020. Despite the negative impact of the coronavirus crisis, in this sub-sector, the results suggest that firms can maintain their efficiency. This means that this sub-sector is less sensitive to external economic shocks. Overall, the average efficiency of this group increased to 76% in 2019 and then decreased to 66% in 2020.

Milk and dairy manufacturing and processing companies represent 8.19% of the investigated enterprises. However, the share of high-performance companies steadily decreased in the analysed period from 6.67% in 2018 to 3.33% in 2019 and to 1.67% in 2020 (Figure 4).



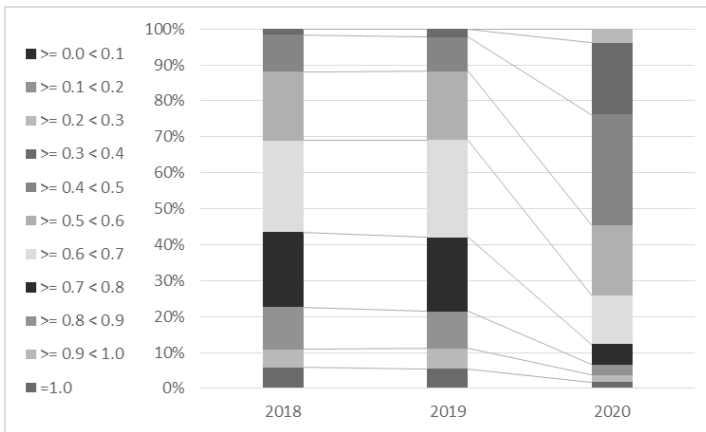
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**Figure 4. Performance analysis results for milk and dairy manufacturing and processing companies using DEA (2018 - 2020)**

It can be seen from Figure 4 that, in the first two years, over 94% of milk and dairy processing enterprises achieved at least a 50% efficiency level. In 2020, the share of companies with this efficiency level decreased to 72%. This efficiency decline is visible in the chart as a downward trend in the greater value ranges. The average efficiency coefficient slightly increased (2%) in 2019, then it decreased sharply to 60% in the case of milk and dairy manufacturing companies.

Bakery and farinaceous product manufacturing and processing companies represent 46.42% of the investigated enterprises. Compared to other sub-sectors, the group of high-performance companies (efficiency score = 1) is much smaller in the case of this sub-sector (5.88% in 2018, 5.44% in 2019), and a downward trend can also be observed in the examined period (1.76% in 2020). In the first two years, the proportion of companies with an efficiency level of at least 0.5 was relatively constant (88%) and it sharply decreased to 45% in the last year. The declining performance is probably due to the impact of the coronavirus crisis.

The results suggest that firms in this sub-sector are most sensitive and vulnerable to external economic shocks. Overall, the average efficiency of this group was relatively constant in the first two years (69%) and then it decreased to 52% in 2020.



Source: Own editing

**Figure 5. Performance analysis results for bakery and farinaceous product manufacturing and processing companies using DEA (2018 - 2020)**

### Comparison of Romanian food companies using several impacting factors

It was examined whether the selected factors impacted the profitability indicators of food companies (Table 2). The analysis was conducted to determine whether the factors to be used in the efficiency analysis affected the profitability ratios of the companies examined. Based on Table 2, it can be concluded that only the County factor and one of the two size factors (Ranking by Total Assets) have a statistically significant effect on all profitability indicators. However, it can also be stated that if all profitability indicators are included together, the significant effect of all factors can be demonstrated. It can also be seen from the table that all the other factors have a significant impact on both value-added ratios, except for the year factor.

The efficiency coefficients calculated for the Romanian food industry may not only be affected by different financial characteristics but also by different quality factors. Such quality factors may include CAEN codes, counties, workforce categories, company size, and year. A multifactorial analysis of variance was performed to examine the qualitative effects, which are shown in Table 3. Based on the table, it can be concluded that all the analysed factors have a statistically significant impact on efficiency coefficients.



The table also shows that, by decomposing the sum of squares, the examined factors can explain 31.13% of the total variance of efficiency coefficients. Among the selected factors, the total revenue ranking (9.4%) affects efficiency scores at the highest level.

**Table 2. Multivariate and multifactorial analysis of variance of profitability ratios in the Romanian food industry**

Variables	CAEN code	County	Employee category	Ranking by Total Assets	Ranking by Total Revenue	Year
All variables	***	***	***	***	***	**
Operating ROS	***	***	***	***	--	--
Operating ROA	--	***	--	***	***	--
Value added / Total Revenue	***	***	***	***	***	--
Value added / Total Assets	***	***	***	***	***	--
ROS	***	***	**	***	*	--
ROA	--	***	--	***	***	--
ROE	--	***	--	***	***	*

*Source:* Own editing

We can also state that the effect of the year is quite significant (9.03%), just like the other company size characteristic (ranking by total assets) (6.85%). The workforce categories caused the slightest effect (0.23%).

**Table 3. Multifactorial analysis of variance of efficiency coefficients in the food industry**

Factors	SS <sup>+</sup>	Distribution of SS	Distribution of factors' SS	Significance levels
CAEN codes	1.83	1.26%	4.06%	***
Counties	6.30	4.35%	13.98%	***
Workforce categories	0.34	0.23%	0.75%	***
Total assets ranking	9.91	6.85%	21.99%	***
Total revenue ranking	13.61	9.40%	30.20%	***
Year	13.07	9.03%	29.01%	***
Total factors' SS	45.06	31.13%	100.00%	
Residuals	99.68	68.87%		
Total SS	144.74	100.00%		

SS<sup>+</sup> - sum of squares

*Source:* Own editing

### Conclusion

Based on the DEA efficiency analysis of Romanian food companies, we can conclude that more than 50% of the investigated companies operated with at least 50% efficiency in all three years that we examined. While 90% of food enterprises achieved at least a 50% efficiency in the first two years, in 2020, this rate fell to 60% as a negative consequence of the coronavirus epidemic. The results of the sub-sector analysis show that, in the first two years, the average efficiency coefficient was above 0.7 in the case of the three investigated sub-sectors. The weakest efficiency can be observed in the case of bakery and farinaceous product manufacturing companies, in all three years. However, it can also be seen that all sub-sectors were negatively impacted by the coronavirus epidemic, but the above-mentioned sub-sector seems to be the most affected one because the average efficiency fell around 17%. In 2020, the share of companies with an at least 50% efficiency halved. The meat processing companies are less sensitive to coronavirus epidemic shocks, and their average efficiency ratios fell only around 7%.

Beyond quantitative factors, the effect of qualitative factors can be adequately demonstrated with the help of a multifactorial analysis of variance. It can also be seen that company size can significantly impact the efficiency score. The relatively strong annual impact is likely to be due to the COVID epidemic in 2020.

Given the relatively large number of companies, it is advisable to perform analyses in the future using the stochastic frontier analysis and compare the results with those of the DEA.

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# Effectiveness of Covid-19 crisis management strategies in the Eastern countries of the European Union with special regard to fiscal and monetary policy tools

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The publication of statistical data related to the last quarter of 2021 provides an excellent opportunity to evaluate the effectiveness of Covid-19 crisis management. The paper shows four different success indicators. These are the employment rate increase, the difference in the slope of GDP growth prior to and during the Covid-19 pandemic to measure the depth of the crisis, the ratio between the depth of economic decline and the required time to recover the economic output of 2019 Q4. These success indicators are compared with the increase of gross public debt. Eleven Central and Eastern European countries are compared with the EU average. Since the Hungarian economy suffered the second largest decline among the Central and Eastern European countries, but Hungary had the second fastest recovery (with a significant public debt increase) and the highest increase in employment rate, the monetary and economic tools of this country are analysed in detail. If we consider the GDP growth difference, Estonia, Slovenia and Croatia performed better than the EU average, whereas Slovakia, Romania and the Czech Republic performed worse. However, this indicator did not consider the depth of the shock that fiscal and monetary policies had to face. If we consider the second indicator – which is called the “boost” indicator, the most successful countries are in descending order: Lithuania, Poland, Estonia, Hungary, and Slovenia. Generally, the countries that were successful were those which spent a significant amount of money to avoid the credit crunch (lowering interest rate, investment boost) and offer tax relief to dedicated sectors. The general welfare spending (wage support, family subsidies, and longer unemployment benefits, health care) seemed to be inadequate in boosting the economy.

**Keywords:** Covid-19 crisis, fiscal and monetary policy, Central and Eastern Europe.

**JEL codes:** E63, F37, F65.

## Introduction

Two years have passed since the Covid-19 crisis. This gives us enough time to draw some conclusions on how the countries managed the crisis. Several studies examined the effects of the Covid-19 pandemic on the global economy

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(MNB 2021). We do not have a longer timeframe to analyse because the Russia - Ukraine war has created different economic circumstances. This article evaluates the effectiveness of the Covid-19 crisis management strategies in the Eastern part of the European Union based on the recent statistical data provided by Eurostat and the policy tools presented and summarised in the IMF country reports.

This article examines how we can measure the economic success of crisis management strategies and the difference between the tools employed by successful and unsuccessful countries. After introducing some major findings on this issue, the paper presents some indicators for measuring the effectiveness of economic policies. These measures are calculated for eleven Central and Eastern European countries and compared with the EU average. Furthermore, the paper compares the fiscal policy tools of the most and least successful countries. Since the Hungarian economy suffered the second largest decline, but it had the second fastest recovery (with a significant public debt increase), the monetary and economic tools of this country are analysed in detail. Finally, some conclusions are drawn.

### **Literature review**

The Covid-19 crisis is an atypical economic crisis. A typical economic crisis starts with the bankruptcy of an overfinanced economic sector or country. In 1929, it was the security trading in the US; in 1981, it was the indebted South American countries; in 2008, it was the domestic internal market. The significant increase in non-performing loans causes a credit crunch, which turns the fiscal crisis into an economic overproduction crisis. Commodity prices, the employment and private investments fall, which leads to decreasing consumption, which then causes a further decrease in employment and investment, pointing to a vicious cycle (Mattick 2020).

The Covid-19 crisis showed a different pattern (Borio 2020). The crisis disrupted the supply chains, stopped the production and hurt personal services and tourism. It appeared like a lack of supply and led to higher commodity prices. The crisis started with the fall of GDP without the fall of consumption. Even the demand side was boosted by fiscal and monetary policy tools which further increased the prices. The Covid-19 crisis shows more similarities with the oil crisis from 1973 than with other types of crises (Altiparmak 2021), and the answer to the crisis was similar to what they did in the 70s. Pouring money into the economy

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using a special lending scheme, tax reliefs and public expenses. In the 1970s, this led to stagflation and protracted crisis.

Naturally, the first phase of the pandemic was dominated by health care expenses and restrictions. Worldwide, the direct health care policy mix for the crisis can be broadly classified into 16 key responses (Goyal–Howlett 2021). The overall policy mix was dominated by authoritative policy tools – such as curfews and lockdowns, border restrictions, quarantine and contact tracing, and regulation of businesses.

In the countries where the median age is higher (which is very relevant in the case of COVID-19 as it disproportionately affects older patients), the number of hospital beds per capita is lower and GDP per capita is higher, the stimulus is more pronounced (Elgin et al. 2020).

Unsurprisingly, the EU countries relied extensively on fiscal policies to mitigate the harmful consequences of the Covid-19 pandemic for their economies (Haroutunian et al. 2021). A wide range of measures were implemented, from liquidity measures like loan expansion to tax cuts and public expenditure boost. Some targeted specific sectors, like health care spending, other were more general, like welfare spending. Since the Covid-19 crisis hit all the countries mostly in the same way, their fiscal responses in the early stages of the crisis were similar in terms of the instruments used.

Emergency fiscal packages were mostly targeted at limiting the economic decline by protecting firms and workers in the affected industries. Extensive liquidity support measures were introduced in the form of tax deferrals and State guarantees for the firms that were particularly affected by the containment policies to avoid liquidity shortages. In order to support the recovery, general fiscal stimulus tools were implemented, such as government investments. The Next Generation EU package can play a key role in the future.

Three dimensions of fiscal policy responses to Covid-19 show similarities and heterogeneity, namely the size of fiscal spending, the types and targets of fiscal policy responses (Chen et al. 2021). Managing the Covid-19 crisis with transboundary spillovers requires a coherent fiscal and monetary strategy as well as institutionalised mechanisms of coordination and support across levels of government, territorial jurisdictions (Liu–Geva-May 2021).

However, a remarkable part of the European economy remained demand constrained during the Covid-19 pandemic. Globally, the fiscal policy helped offset about 8% of the downturn caused by Covid-19, with a low ‘traditional’

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fiscal multiplier (Gourinchas et al. 2021). But the recovery would put significant upwards pressure on global interest rates which imposes an additional headwind on European recovery. Corporate and sovereign spreads rise when global rates increase, suggesting that public debt financing may face challenging external funding conditions as advanced economies normalise (Gourinchas et al. 2021).

To put the focus now on Central and Eastern Europe (hereinafter referred to as the CEE), the strong reliance on exports has rendered all the countries vulnerable to the international evolution of the Coronavirus-induced economic crisis. Poland is the only exception because of its huge domestic market (Podvrsic et al. 2020). The lockdown implemented in the first quarter of 2020 deeply affected many areas of the service sector (personal social services, transportation, trade, tourism). Considering the countries' credit risk, the S&P rating of Central European countries shows significant differences between the Czech Republic, Slovenia, Estonia (AA+) at the one end and Romania and Croatia (BBB-) at the other (tradingeconomics.com 2021). The three Baltic states, Slovakia and Slovenia are members of the Eurozone, while the Czech Republic, Poland, Croatia and Hungary have their own national currencies.

**Table 1. Annual GDP growth, employment rates and gross public debt/GDP in the analysed countries and the EU average at the end of 2019**

Countries	Abbreviations	GDP growth	Employment rate	Debt/GDP
<b>EU average</b>	EU	1.8	72.9	77.5
<b>Bulgaria</b>	BG	4.0	73.9	20.0
<b>Croatia</b>	HR	3.5	67.5	71.1
<b>Czech Republic</b>	CZ	3.0	80.3	30.1
<b>Estonia</b>	EE	4.1	81.5	8.6
<b>Latvia</b>	LV	2.5	77.6	36.7
<b>Lithuania</b>	LT	4.6	78.3	35.9
<b>Hungary</b>	HU	4.6	77.6	65.5
<b>Poland</b>	PL	4.7	75.7	45.6
<b>Romania</b>	RO	4.2	65.7	35.3
<b>Slovakia</b>	SK	2.6	75.2	48.1
<b>Slovenia</b>	SI	3.3	75.6	65.6

*Source: Eurostat (2022)*

Table 1 shows the initial state of the countries' analysed indicators prior the Covid-19 crisis. In 2019, all Central European countries achieved higher economic

growth rates than the EU average. Since these countries' GDP per capita figures are lower than the EU average, the higher growth shows a growing European cohesion. The employment rate varies between 81.5% (Estonia) and 65.7% (Romania). In the northern and western parts of Central Europe, we see higher employment rates than in the southern and eastern parts. The public debt is over 50% in the southwest part of this area (Croatia, Hungary, Slovenia), Slovakia's debt is average, while the rest of the countries have moderate public debt, which gave them more flexibility in monetary and fiscal ease.

### **Research question and indicators used**

The goal of this paper was to evaluate the effectiveness of Covid-19 crisis management strategies in Central and Eastern European countries. More specifically, it examined the trade-off between some success factors and the public debt increase. The following hypothesis was formulated: *The larger the size of public spending, the greater the success.*

This hypothesis assumes the same effectiveness of public spending. If a government spent less on crisis management, the success was lower, if the spending was significant, the success was higher.

If this hypothesis is rejected because the link between the spending and some success factors cannot be verified, the practices of the most effective countries are worth studying.

The sacrifice of fiscal and monetary policy tools is measured by the increase in gross public debt. The advantages of this indicator are that:

- It is available and downloadable from the Eurostat website,
- The methodology for determining the gross public debt is standardised across the European Union, thus country data are comparable.

The benefits of fiscal and monetary policy tools are measured by four indicators. Since the public deficit is a national level indicator, the benefits are also considered at a national level.

- Employment rate – The most devastating effect of an economic crisis is the decline in activity. People lose their jobs and have to cut their spending, which further deteriorates the economic situation by decreasing the aggregate demand. The uncertainty caused by staggering unemployment presses people to save more and consume less. Falling employment may increase social tensions and the emerging strikes lead to further economic decline. Employment is a crucial
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question since the longer the time spent in unemployment, the less probable and less successful it is to eventually find a proper job. To measure the economic efforts to save jobs, the employment rate changes between 2019 Q4 and 2021 Q4 were chosen as the most important success indicator in the following way:

$$\text{Change} \in \text{employmentrate} = \text{Employmentrateof2019Q4} - \text{Employmentrate2021Q4}$$

- GDP trend difference – The indicator compares the quarterly GDP growth before and after the outbreak of the crisis. A linear trend was calculated from the quarterly GDP figures between 2013 Q1 and 2019 Q4 (this represents the pre-crisis trend) and between 2020 Q1 and 2021 Q4 (this represents the post-crisis trend). The slope of pre- and post- crisis trends measures the average quarterly GDP growth. The difference between the post- and pre-crisis slopes is used as a success indicator. A higher value means a better adaptation of the economy to the crisis.

- Depth of crisis: The limitation of the previously used GDP trend difference in evaluating the performance of fiscal and monetary policy is that the success of adaptation is not only due to economic policy. If the national economy consists of less crisis-sensitive sectors, or the size of the economy is large, or the health restrictions were less rigid in the country, the GDP trend difference may have a positive value, regardless of the quality of fiscal and monetary response. To get a more policy-focused indicator, the depth of crisis indicator was calculated. It is the range between the maximum and minimum quarterly GDP in the period of 2020–2021. If there was a big decline in economic output in the first quarter of 2020, which was compensated by a massive recovery, then the depth will be great, which indicates that the fiscal policy was able to counterbalance the vast negative effects of the crisis. If the depth is moderate, the economy withstood the crisis and there was no need for boosting public spending.

$$\text{Depth of crisis} = \text{MaximumofquarterlyGDP} - \text{MinimumofquarterlyGDP} \quad (1)$$

- Boost: The depth of crisis indicator is determined by the recovery speed, which is identified as the number of quarters required to reach the GDP level of 2019 Q4. This indicator tries to measure the effectiveness of the public spending boost. The greater the depth and the quicker the recovery, the higher the boost indicator.

$$\text{Boost} = \frac{(\text{Depth of crisis})}{(\text{Recovery speed})}$$

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All these four indicators were examined in function of public debt increase, which represents the cost of economic policy.

Naturally, both the examined subject and the research methodology have limitations. Only the Eastern part of the EU was examined and compared to the EU-27 average. Alternatively, the EU-15 average can also be used. All the analysed countries have a lower GDP per capita than the EU average, and the key question here was whether these countries continued to catch up with the European average during the Covid-19 crisis. The EU-27 average is a better indicator.

Only one cost indicator – the public debt increase – was examined. This indicator – whose methodology is clear – has several shortcomings in measuring the public cost of the economic policy. Some of them are presented next. If favourable lending is financed from the private market rather than from public funds, only the total assets of the national bank will rise without any effect on the public debt. However, the potential risk of such lending is that it can cause a future increase in public debt if commercial banks (or the national bank) have to be rescued. Similarly, if the state provides guarantees to a private company rather than subsidies, it doesn't increase the public debt, but the latter may require additional public spending. To sum up, future optional commitments are excluded from the analysis.

Another potential public policy cost is higher inflation. The public spending (and the expensive monetary policy) increases the aggregate demand, but private actors can raise their prices rather than their output. In that case, the spending has an adverse effect. This could be a topic for further discussion.

Only Hungarian monetary and fiscal tools are analysed in detail. In the future, we will search for partners to make cross-country, qualitative analyses.

### **Methodology**

Most of the data come from the Eurostat database. Table 2 summarises the sources of data used.

Since the sample size is small (11 units), the main analytical tool was graphically presented. Scatter plot graphs were used to illustrate the countries. The vertical axis represents the various success indicators; the horizontal axis shows the increase in public debt between 2019Q4 and 2021Q4. Three lines were drawn in each of the scatter plot graph. The first one was the regression line (and the  $R^2$  was written in the top left corner). Two lines were drawn vertically and

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horizontally from the point of the EU average, which separates four areas. The distance of the countries from the EU average was registered and noted.

**Table 2. The source of Eurostat data used**

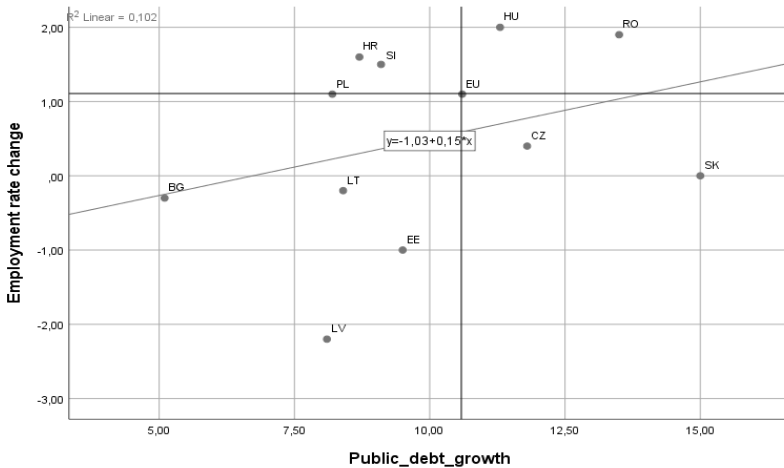
Variable name	Description	Name of Eurostat table	Time period
Employment rate	Employment and activity by sex and age - quarterly data from 20 to 64 years	LFSI_EMP	2019Q4 and 2021Q4
Quarterly GDP	GDP and main components (% of 2010 level)	NAMQ_10_GDP	2013Q1-2021Q4
Gross public debt	Government debt (in % of GDP)	GOV_10DD_EDPT1	2019Q4 and 2021Q4

Source: Eurostat (2022)

**Results**

**Employment rate**

In social perspectives, the employment rate has the highest importance. At first, the change in employment rate was presented in function of public debt increase. Both indicators refer to the difference between 2021 Q4 and 2019 Q4.



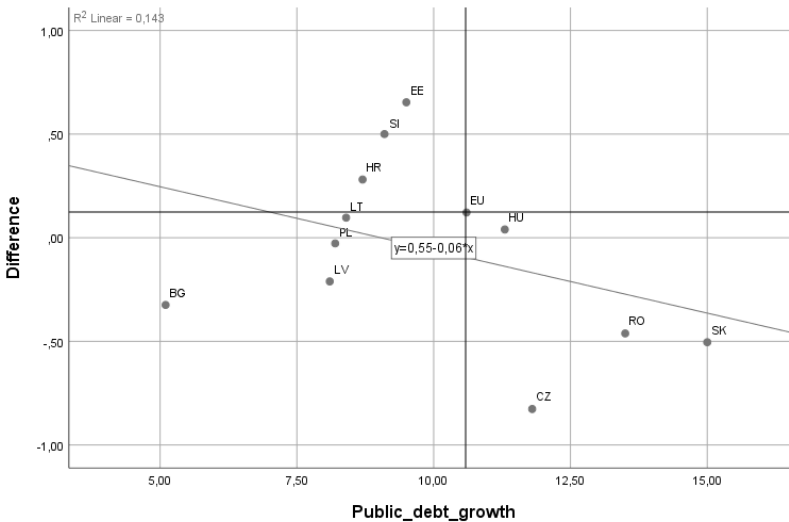
Source: Eurostat (2022)

**Figure 1. The change of employment rate in function of public debt growth among CEE countries between 2021Q4 and 2019Q4**

There is a very weak and non-significant connection between employment rate changes and public debt growth. You can see it from the very low slope of the regression line (0.15) and from the determination coefficient ( $R^2$  in the upper left corner) was only 0.1. It means that the effectiveness of public spending varies among the countries. Successful countries compared to the EU average (employment rate growth, low debt growth – upper left quarter) are Croatia, Slovenia, Poland. Growing employment rates are detected in Hungary and Romania, but with a greater-than-average increase in public debt (upper right corner). Less successful countries with declining employment rates are Latvia, Estonia, Lithuania, Bulgaria, while unsuccessful countries regarding this aspect are Slovakia and the Czech Republic since their employment rates increased less than the average, but their public debt growth exceeded the average.

### *GDP trend difference*

Let us look at the changes caused by the Covid-19 crisis in the trend of economic growth. Economic growth is calculated as the slope of regression line among the seasonally adjusted quarterly GDP values as a percentage of the 2010 GDP. The difference between the post-crisis period and the pre-crisis period was calculated. The country data were demonstrated in function of public debt growth.



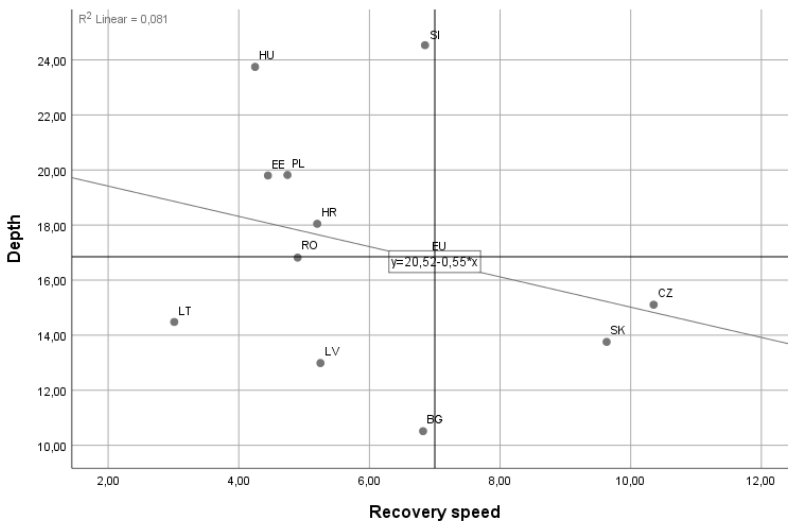
Source: Eurostat (2022)

**Figure 2. The difference in slope of quarterly GDP in function of public debt growth among CEE countries between 2021Q4 and 2019Q4**

There is a weak connection between growth difference and public debt growth since the determination coefficient is only 0.15. Successful countries are Estonia, Slovenia and Croatia, with a high positive difference and low debt growth, while less successful countries (a low difference and low public debt increase) are Latvia, Poland, Lithuania, Bulgaria. Unsuccessful countries are the Czech Republic, Slovakia, Romania, Hungary, where the GDP growth difference is lower than the average and the public debt increase is higher. These countries lagged behind the EU average during the Covid-19 crisis. It is worth mentioning that, except for Slovakia, these countries are using their national currencies rather than the euro, while the successful countries are part of the Eurozone or are close to joining the Eurozone (like Croatia which is in the ERM mechanism). The euro seemed to act as a stabiliser during the Covid-19 crisis.

#### *Depth of crisis versus recovery speed*

Our third success indicator was the magnitude of the quarterly GDP figure from 2019 Q4 to 2021 Q4. The higher the magnitude, the more successful the effort to recover the economy will be. The second aspect of recovery is the time required to return to pre-crisis GDP levels. The recovery time is measured in quarters. These two aspects are presented in Figure 3.



Source: Eurostat (2022)

**Figure 3. Depth of crisis in function of recovery speed among CEE countries between 2021Q4 and 2019Q4**

It seems that there is no link between the depth of crisis and the recovery speed –  $R^2$  is only 0.081. The most successful countries can be found on the upper left corner of this figure; in those countries, the depth of crisis was great, but the economies recovered quickly. The magnitude of quarterly GDP is the biggest here, which indicates that after the fall of GDP in the first quarter of 2020, the recovery and economic growth were very intense. The recovery speed was also better than the EU average. Hungary, Slovenia, Estonia, Poland and Croatia belong to this group, while Romania is at the border. In the case of Lithuania, Latvia and Bulgaria, the depth of crisis was smaller, and the recovery speed was also quick. Slovakia and the Czech Republic can be considered unsuccessful countries since the recovery speed was slow (it takes about 10 quarters to reach the 19 Q4 GDP level) against the moderate depth of crisis (the range of quarterly GDP is about 15%).

Since there is no detectable link between the depth of decline and the recovery speed (a smaller decline doesn't mean a quicker recovery), the effectiveness of policy mix is significantly different.

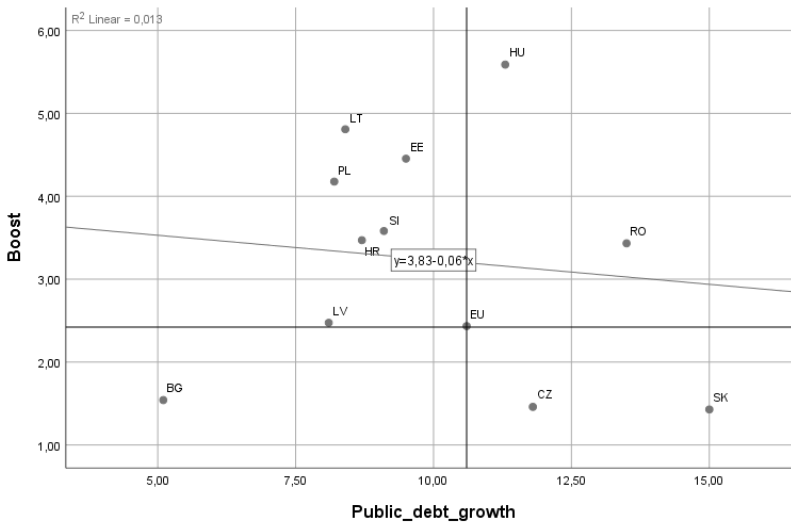
Supposing that the magnitude of quarterly GDP is an exogenous factor since it depends mostly on the nature of economy and the weight of crisis-sensitive sectors like tourism, the automotive industry, transport, but the fiscal policy can significantly influence the recovery speed, we should also consider the ratio between these two indicators as a success factor.

### ***Boost***

The boost indicator can be considered as the measurement of the economic policy's effectiveness. The increase in public debt is used as a proxy variable to the cost of expansive economic policy. The link between these two indicators is graphically presented in Figure 4.

If you consider only the vertical axis, you can see the effectiveness of the policy. Regarding this aspect, Hungary performed the best, while Slovakia had the worst results. Considering the cost of government intervention, you can see that there is no detectable link between the boost and public debt growth (which would mean that a larger public stimulus leads to larger boost), the effectiveness of policy mix is significantly different. If we drew a line from the initial point to the countries and ranked the countries in descending order, we could make a general ranking that takes into account the effectiveness and the cost of the economic intervention.

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Source: Eurostat (2022)

**Figure 4: Boost of recovery in function of recovery speed among CEE countries between 2021 Q4 and 2019 Q4**

The resulting ranking is as follows: Bulgaria, Lithuania, Poland, Croatia, Estonia, Hungary, Slovenia, Latvia, the EU average, Romania, the Czech Republic and, finally, Slovakia.

If we consider the location of the countries compared to the EU average, we can categorise the countries in the following way: Lithuania, Poland, Estonia, Slovenia, Croatia and Latvia (at the border) were successful countries, where the boost was higher and the debt increase was lower than the EU average. Both the boost and the government intervention were low in Bulgaria, while Hungary was more successful than Romania since Hungary reached a bigger boost with a smaller public debt increase than Romania. Unsuccessful countries are once again the Czech Republic and Slovakia.

Summarising the results, there are two countries which performed better than the EU average in all the four analysed aspects. These are Slovenia and Croatia. Both countries are attractive tourist destinations, but they successfully managed the crisis with a relatively small public debt increase. Poland and Estonia were successful on all but one indicator. In the case of Poland, this exception was the

GDP growth difference – Poland’s economic growth was very impressive in the pre-crisis period. In the case of Estonia, the employment rate fell compared to the level of 2019, but Estonia has the highest employment rate among the CEE countries.

At the opposite end, we find two countries, which were unsuccessful on all indicators – these are Czech Republic and Slovakia. These countries had a relatively low GDP growth prior to the crisis, and during the crisis both countries followed harsher health restrictions. Their public debt increase was higher than the average, but their initial indebtedness was relatively low.

The Hungarian case is special. The Hungarian public debt increase was slightly over the EU average, therefore only in one case proved to be a successful country, when we consider the two variables of boost (Beke 2022). One of the possible explanations for this public debt growth is the suspension of EU subsidies (Portfólió 2022b).

If the debt growth were lower than the EU average, Hungary would be as successful as Poland. Hungary is an absolute winner on three of the four success indicators (employment rate increase, boost) and comes in second place in crisis debt (after Slovenia) and second in recovery speed (after Latvia).

Since the Hungarian economic policy was one of the most effective, it is worth examining its elements. Effective crisis management can be the basis for rapid development in the future (Csiki 2021).

## **Policy effectiveness**

### ***Hungary***

The following two tables (Table 3 and Table 4, respectively) show the main fiscal and monetary policy tools employed by the Hungarian fiscal and monetary authorities. In the brackets you can see the estimated cost as % of GDP (Lentner 2021).

The measures are grouped based on two aspects. The instructions can be constant, which means that they remain part of the Hungarian economic system after this period, or they can be interim, which means that they concerned a single event or were valid only for a certain period of time, namely for the last two years. The second aspect refers to the effects on society. General measures affect the broader society, while targeted measures tried to help the most vulnerable sectors.

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**Table 3. Fiscal policy tools in Hungary between 2020Q1 and 2021Q4**

Aspects	General	Targeted
Constant	Decrease of payroll taxes (2%) Lowering taxes for SMEs and farmers (1%) Shorter VAT reclaim period for reliable taxpayers	Personal Tax exemption for vulnerable groups (people under 25 years old, pensioners, mothers with 4 children) (0.5%) VAT decrease for accommodation and new flat buildings (0.3%) <i>New retail trade tax (-0,1)</i> Gradually introducing a 13th month pension (0.6%)
Interim	Suspending liquidation and tax executions Credit moratorium until mid-2021 Personal tax refund for families (1.3%) Great public investment programmes (6.3%) Extraordinary health expenses (2%)	Suspending payroll taxes for personal services, tourism. Increasing cafeteria-spending limits for cultural, sport and domestic tourism spending. Up to 70% wage support for struggling enterprises (1.8%) Prefinancing of EU programmes (4%) <i>New banking tax (-0.2)</i>

Source: IMF (2022), kormanyzat.hu

The new retail tax (among constant, targeted tools) and the new banking tax (interim, targeted tools) counterbalance the expansionary policy to some extent; they are in italics (Terták–Kovács 2020). The general, constant tools tried to maintain or even increase the employment rate by lowering payroll taxes or sole proprietorship taxes. The shorter VAT reclaim period improves the liquidity of reliable taxpayers. Among the constant, targeted instructions you can find a social instruction like the 13<sup>th</sup> month pension, while the other ones lower the taxes paid by vulnerable sectors. So the major tools were not the direct subsidies but tax allowances and tax reliefs. It is worth mentioning that the lowering of direct taxes is a long-term policy of the current Hungarian government, which is only accelerated by the response to the crisis (Nagy 2021).

The general interim actions other than health expenses tried to avoid the credit crunch, improving the liquidity of enterprises and ordinary households. The great public investments directly helped the building industry, while indirectly helping the whole economy. Thanks to the moratorium and the suspension of liquidation, the non-performing loan ratio did not worsen during the crisis.

The targeted, interim instructions were dominated by the pre-financing of EU programmes and the wage support. The lower taxation of cafeterias helped tourism, accommodation, cultural and sport services.

**Table 4. Monetary policy tools in Hungary between 2020Q1 and 2021Q4**

Aspects	General	Targeted
Constant	Reserve rate to 0% (0.05%) Direct purchase of state securities (5%)	Extending the Credit for Growth programme (4%)
Interim	Expanding the currency swap limit to strengthen banks' liquidity (0.3%) Accepting corporate loans as a collateral for refinancing loans (2%)	Corporate bond purchase programme (5.4%) Refinancing of special retail loan programmes to encourage the home building sector (5%)

*Source: MNB (2020)*

The monetary policy mostly increases the funding available for the economy. The National Bank began to directly finance the state (Portfolio 2022), extended the Credit for Growth programmes, which help the domestic-owned SME sector, continued the corporate bond purchase programme, which encourages the development of larger Hungarian companies. The favourable refinancing of special retail loans (mostly for households, but also for SMEs) provides adequate demand for the building industry. The expansion of the currency swap limit strengthens bank liquidity, and the easing of collateral conditions encourages banks to take higher lending risks.

As you can see, the Hungarian policy mix focuses on the following three goals:

- Provide demand for the economy by encouraging the lending of banks, or by issuing corporate bonds, refinancing EU programmes.
- Defend vulnerable sectors and individuals through a credit moratorium, the suspension of liquidation, an increase in health expenses.
- Give direct tax allowances and tax cuts to encourage individuals and companies to work more.

It is also interesting to see what kind of instructions were not used by the Hungarian government.

- It did not increase the duration and size of unemployment benefits.
- It avoided direct subsidies, but rather employed tax cuts.
- It did not increase social aids, except for the introduction of the 13<sup>th</sup> month pension.

In contrast, let us look at the major instructions of successful and unsuccessful countries. The source of information is the website of the International Monetary Fund (IMF 2022), which summarises the main policy tools of its member states.

Let us see the main instructions of the two countries that were unsuccessful on our four indicators. These countries reached moderate results with high public debt growth.

### ***The Czech Republic***

The government introduced a fiscal package of 4% of GDP in 2020 and another one of 6% in 2021. These new compensatory bonuses were selected to support companies and healthcare expenditure. Additionally, 80 percent of the wages were compensated for the employer if the employees were put in quarantine. If the business was closed, the workers received 100 percent of their wages as compensation, while sole proprietors received 60% of their income as compensation. A new compensatory bonus for self-employed persons was approved. If the company suffered a decrease in revenue of more than 50%, it could apply for direct subsidies. The tax reduction was quite insignificant – it allowed for accelerated depreciation and a small reduction of personal income tax and lowering the VAT in vulnerable sectors.

The monetary policy employed measures like lowering the prime rate (by 50 basis points), more frequent repo operations, easing collateral commitment (higher LTV ratio).

### ***Slovakia***

The Slovakian government used similar tools to those employed by the Czech Republic. The main fiscal measures were the following: wage compensation for affected businesses and self-employed persons, subsidies to individuals with no income, enhanced unemployment benefits, and sickness and nursing benefits, rental subsidies. State guarantee schemes were launched, up to a total of 4.4 percent of 2020 GDP, covering both SMEs and large firms.

Households, self-employed persons and SMEs were also entitled to defer loan repayments for up to 9 months. The banks benefited from capital adequacy relief, but no special lending schemes were introduced.

The common characteristic of the tools employed by these countries is that they were mostly based on direct subsidies to the companies and individuals in trouble. Thus, the government solved the problems instead of encouraging legal entities and natural persons to find their own solutions.

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***Croatia***

Croatia and Slovenia were the two most successful countries according to our analysis since they were able to reach high performance without a significant public debt increase. The measures used by these two countries are similar to those employed by the Hungarian government, but their effect in the overall economy was not as extensive as in Hungary.

The major instruction included the deferment of public obligations, free of interest for three months, which can be extended by additional three months if necessary, temporary suspension of payments of selected parafiscal charges; interest free loans to local governments, subsidization of net minimum wages for three months to preserve jobs, which could be extended for another three months; and early refund of taxes for individuals, payment acceleration of some EU Structural and Investment Funds, new extended lending facilities for companies, and state purchase of unsold stocks of finished goods in agriculture, the food processing industry, medical equipment, and similar strategic goods. Later, a significant corporate tax reduction was introduced, and VAT payments were suspended until the customer paid the bill. The government launched a part-time work programme to save jobs in specific sectors. For the activities that were particularly at risk (passenger transport, hospitality, travel agencies and recreation-related businesses, as well as cultural, business and sports events), direct support was provided based on the number of employees if the turnover dropped by more than 60 percent.

The Croatian National Bank provided additional liquidity, supported the government securities market, and temporarily eased the regulatory burden on banks. A three-month moratorium on bank obligations was introduced. Special lending schemes were introduced.

***Slovenia***

The fiscal authorities adopted tax and spending measures, including tax deferrals for up to 24 months or 24-month instalment plans, limited wage subsidies for suspended employees due to pandemic-related closures and for quarantined people, guarantees to struggling companies to help them improve liquidity, new lending facilities for SMEs. Corporate tax and social security payments could be deferred. Electricity prices were cut. Later, selective tax exemptions and the co-financing of social contributions were introduced for vulnerable groups as well as tourism vouchers. In 2021, further instructions were

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made to extend favourable funding and to support self-employed persons and micro companies as well as R&D spending. Part-time employment programmes were subsidised.

A credit moratorium was introduced, and a global guarantee fund was established to cover loans for non-banking corporations. Bank fees were frozen.

Lowered taxes, the moratorium, and lending incentives help companies and individuals to solve their problems. Direct subsidies are supporting these entities and deter them from making significant efforts.

### **Conclusions**

There are big differences regarding the effectiveness of COVID-19 crisis management strategies among Central European countries. The most successful countries based on the four success criteria that we analysed are Slovenia (4), Croatia (4), Poland (3) and Estonia (3), while the least successful countries are the Czech Republic (4) and Slovakia (4).

The absolute winners are the following: employment rate – Hungary; growth difference – Estonia; depth – Hungary; recovery speed – Latvia; boost (debt/recovery speed) – Hungary.

Generally, the countries that were successful were those which spent a significant amount of money to avoid the credit crunch (advantageous loans, lowering interest rate, investment boost) and offer tax relief to dedicated sectors. The general welfare spending (wage support, family subsidies, longer unemployment benefits, health care) seemed to be inadequate in boosting the economy.

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## Symbiosis of CSR and PR: The impact of CSR on employee loyalty enhanced by internal marketing communication tools

LÁSZLÓ JÓZSA<sup>1</sup> – SZILVIA MÓDOSNÉ SZALAP<sup>2</sup> – SZONJA JENEI<sup>3</sup>

This article tackles corporate social responsibility and the relevant internal PR support. A method based on technical practice can assist in providing evidence that employees' consideration of various CSR actions would depend on their demographic features, lifestyle, qualification and, furthermore, that properly chosen PR activities may improve the reputation of certain CSR actions. Employees might have different reactions to PR support. Acceptance and the impact would also depend on employees' demographic features, lifestyle, and qualification. The method used during the investigation may be made suitable for the qualitative research of management concerns if modifications are based on practical findings.

**Keywords:** corporate responsibility, internal PR, employee opinions, increasing loyalty.

**JEL codes:** A13, C46, M14.

### Introduction

This study talks about internal PR activities and social responsibilities of companies. The aim of internal PR activities is to create and increase employees' loyalty, while external Public Relations workflow is aimed at building the company's reputation. Both of them should improve the credibility of CSR actions (Gill 2015). Figure 1 illustrates this connection and even points out the target of this investigation, namely the analysis of the reinforcing effects produced by internal PR. Table 1 has been compiled in addition to this figure, outlining the importance of responsible behaviour towards employees and forming their opinions. The chart primarily draws attention to the necessity of adequate working relations. With regard to PR, it is stated that it must be initiated inside the gates and that also applies to corporate social responsibility.

We are experiencing a period of recession, with many enterprises having to face difficult circumstances due to first the Covid-19 pandemic and then to the military conflict. It is worth drawing conclusions from the previous similar

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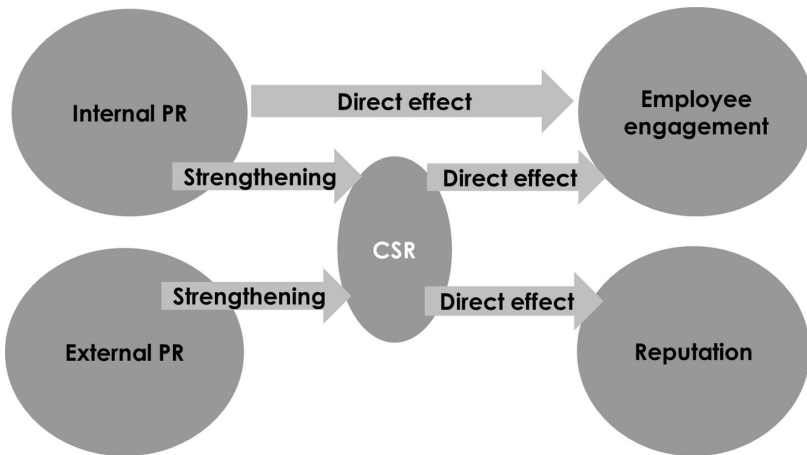
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situations. After the 2007 crisis, it was stated that if the economy failed to prosper then the corporate CSR activity would fade (Braun 2016). Although the intensity of CSR activities has decreased, the economic crisis has forced measures to improve corporate image or affect employee loyalty.

**Table 1. Importance of internal activity and their impact**

Category	CSR	PR
Statement	It was historically a business-oriented idea that companies should voluntarily improve their social and environmental practices (Salvioni–Gennari 2017).	Influence the behaviour of groups of people in relation to each other (Tench–Yeomans 2009).
Separation	Internal and external impacts can be separated.	It can split into internal and external activities.
Consequence	<b>CSR starts inside the gates</b>	<b>PR starts inside the gates</b> (Tench–Yeomans 2009).
Question	How could the company show responsible behaviour towards its environment when it cannot display such behaviour towards its employees?	How could the company’s PR department or expert influence the external stakeholders if they can’t even influence their own employees?

Source: Own editing



Source: Own editing

**Figure 1. Connection between PR and CSR**



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The economy has many sectors where employees' activities have not been standardised, i.e. the magnitude of value creation depends on the behaviour and attitude of the employees. Catering is such a sector which was faced with a critical situation during the pandemic period; in this sector, the employees are the engines of progress and their individual attitude is strongly dependent on internal communication (Verčič 2021). Neglecting the CSR activity will entail a risk for ventures, diminishing their positive image among customers and if there is a lack of media presence, competitors become the focus of public interest. It would therefore be worth proving a responsible way of thinking through practical activities if they can afford it and if financial and labour resources are available. By using internal PR actions, the cohesion among employees increases, thereby creating many more benefits. The advantage is not only for the external stakeholders, but also leads to an increase in the company's productivity.

It is reasonable to make another reference to decreasing CSR activities during the crisis of 2007. A post-analysis study has shown that people started to regard social responsibility with scepticism at that time. Companies – which may not have helped the ones in need in those crucial times or may not have reconsidered their portfolio of supportive actions – were thought to be insincere. After the financial crisis, PR experts started to work out ways to reset the reputation of CSR (Lewen–Nahyun 2021). During the pandemic period, CSR activities should only be avoided if the critical situation makes survival override all ethical considerations. However, we should not ignore that image and fame are important elements of corporate resources (Józsa 2016). Fame can be created by responsible behaviour and properly chosen actions.

### **Portfolio of actions**

Two types of corporate CSR actions are distinguished. If the actions are related to the company's main activities, they can be extremely successful using existing expertise. In our current analysis, only those actions are included that do not depend on the company's main activities, therefore they are suitable for generalization. It's worth mentioning two actions that utilize professional experience. Two examples are worth mentioning. One of them is a positive outcome of responsibility even in our virally affected life. It is about free transportation for health care workers.

The Ministry of Innovation and Technology adopted a new measure (Hungarian Government 2020) which improved the image of public transport

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companies. The initiative also became accepted by the employees. The measure ceased to apply 14 days after the end of the epidemiological emergency.

The other example comes from the energy sector which was said in 2013 to have fewer really responsible energetic companies than companies which were using CSR only as a communication tool (Putzer et al. 2013). It must be added that, in recognition of EON's activities and its sustainability efforts, it received the CSR Hungary 2018 Award. Their sustainability programmes are related to household energy saving solutions; they inspire consumers to cut back on consumption, thereby diminishing short-term utility (EON 2018).

Sector-neutral CSR actions needed to be chosen for this analysis. The specialised literature splits responsible corporate activities into several categories. According to Casado-Díaz et al. (2014), these include environmental protection actions, social charity activities, philanthropic sponsorship and responsible working groups. Thus, the six CSR actions shown in Table 2 were planned based on the viral situation.

Social charity can be categorized into, on one hand, supporting health insurance, and on the other hand, improving individual fortunes. It is the duty of all of us to protect our environment as waste is one of the greatest encumbrances and that is why waste reduction was included in the list of actions. Updated action regarding company pensioners and family workers could be listed out in the category of responsible working relations (see Table 2). The Table couples each sector-neutral action with an idea that helps the employees to better identify with CSR activities. It is worth paying attention to PR ideas like solutions for reducing costs and minimising expenses as they don't require a significant financial sacrifice from the company management.

### **Research purpose and questions**

The goal of our research was to explore employees' opinions regarding the CSR activity in general and PR-supported CSR in particular. The following research questions were formulated for the analysis:

- Does the consideration of various CSR actions depend on employees' demographic features, lifestyle, and qualification?
  - Can properly chosen PR activities improve the reputation of certain CSR actions?
  - Can the method used be made suitable for qualitative research regarding management concerns through practical modifications?
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**Table 2. CSR actions with and without PR support**

Category	CSR without PR support (idea)	CSR with PR support (idea)
<b>Philanthropic sponsorship</b>	The company subsidises the local theatre with a certain amount. It intends to help the institution survive after the pandemic period.	The company provides its workers with virtual tickets (named tickets or moderate amounts) for the next chosen performance at the local theatre (musical, comedy, royal drama).
<b>Social charity</b>	The company collects small gifts from its employees for hospitalised children during the festive season (Christmas, Easter).	Donors will be asked to attach any kinds of personal messages or inspirational letters to the gifts.
<b>Social charity</b>	Management provides the hospital with an adequate sum for purchasing important equipment.	The equipment will be handed over by an employee who was treated in the hospital and is now healthy and thankful for being able to work again.
<b>Environmental protection actions</b>	It would be difficult to set up groups and collect waste together. Workers will be asked to carry out individual and family actions.	Participants will upload pictures taken on the field before and after the cleaning actions. The pictures will compete for a prize.
<b>Responsible working relations</b>	Gifts of computer devices in order to enhance the digital education of workers in need and with large families.	Company workers who are familiar with computer technology undertake to teach gifted children for the educational use of the devices.
<b>Responsible working relations</b>	Providing durable food parcels to company pensioners.	Active workers visit elderly colleagues and undertake to do their shopping. The company will add some gifts to the purchased goods.

*Source:* Own editing

### **Methodology**

Social charity can be divided into two parts: support for institutions and assistance to individuals (Thompson 2018; Alfes et al. 2016). The mathematical background of the process and the method of calculation are contained in scientific works (Pokárdi 2018; Földesi–Monori 2014).

Traditional methods of public opinion research include creating questionnaires and conducting professional interviews. The usual method of collecting employee opinions is through quantitative procedures, however, two aspects call into question the effectiveness of this method:

- The employees are afraid that their opinions will not remain anonymous, therefore - they are hesitant to express their true thoughts in writing.

- They may not pay proper attention to responses even if the questions asked in the questionnaires do not include embarrassing aspects.

We employed the method of paired comparison, which is also applicable in the field of social science and provides a good research foundation. The method of paired comparison consistently forms all conceivable pairs among which a choice needs to be made (Pokárdi 2018).

The first step in collecting information similarly to the questionnaire would be asking for information about the responders. They were notified that their personal identities would be known to us over the entire analysis, but they would remain unidentifiable in the study that would be carried out. The actions worked out with regard to the current CSR situation must be coupled in any possible ways, then the preferences of responders must be questioned. The possibilities were later expanded, thereby enabling the formation of more pairings. Some elements represented CSR actions implemented with PR support, while other elements covered CSR actions executed without PR support. Data collection was partly computer assisted, but personal involvement was sometimes necessary. The purpose of personal presence was not to influence the respondent, but to inspire the completion of the seemingly repetitive and lengthy questionnaire.

Over the special analysis of different cases, we found the demonstration of the entire sequence of mathematical processes to be the most appropriate further to interpreting the data of first responders, while in all the other cases, we focused on the presentation and evaluation of the results.

Techniques were introduced over the first analysis before presenting the situation of the interviewee and her consequent root causes based on data calculations. Table 3 includes the interviewee's responses in relation to charity without PR subsidisation.

**Table 3. Opinion of a lady employed in healthcare, CSR actions without PR support, first section**

Preferred actions	1	2	3	4	5	6	a	a <sup>2</sup>	p	n
Theatre sponsorship							0	0	8%	<b>-1.41</b>
Sick children	1			1			2	4	42%	<b>-0.67</b>
Healthcare	1	1		1	1	1	5	25	92%	<b>0.67</b>
Waste	1				1		2	4	42%	<b>-0.2</b>
Education	1	1					2	4	42%	<b>0.67</b>
Aiding elderly people	1	1		1	1		4	16	75%	<b>0.67</b>
Summary	5	3	0	3	3	1	15	53		-

Source: Own editing

When filling in this chart, a value of “1” is recorded in the case of a preference for altering the activities in the horizontal rows. The sum of “1” values added from the rows appears in column “a”, while the squares are found in the next column. The value “p” can be calculated with the following formula (1), where “N” will be the sum of available options, i.e. 6 in this case.

$$p = (a + 0.5)/N \tag{1}$$

The value “N” is taken from the standard chart of ordinary distribution, where “p” will be the probability of another action which is preferred to the current one. Furthermore, the sum of inconsistent triple numbers (d) will need to be checked by formula (2). A defected circle is found right away.

$$d = \frac{n(n-1)(2n-1)}{12} - \frac{\sum a^2}{2} = \frac{6(6-1)(2*6-1)}{12} - \frac{53}{2} = 1 \tag{2}$$

The next step will be the calculation of the consistency indicator, and supposedly we can accept that the responder has seriously considered the questions asked if consistency exceeds 0.5 in the case of six options. This indicator can be calculated by formula (3) in the case of an even number of elements.

$$K = 1 - \frac{24d}{n^3 - 4n} = 1 - \frac{24*1}{6^3 - 4 - 6} = 0.875 \tag{3}$$

Another chart will be compiled then. Instead of the “n” values in it, we will calculate the acceptance percentage – which can be better interpreted in our opinion – in each row with the help of the following relation (4).

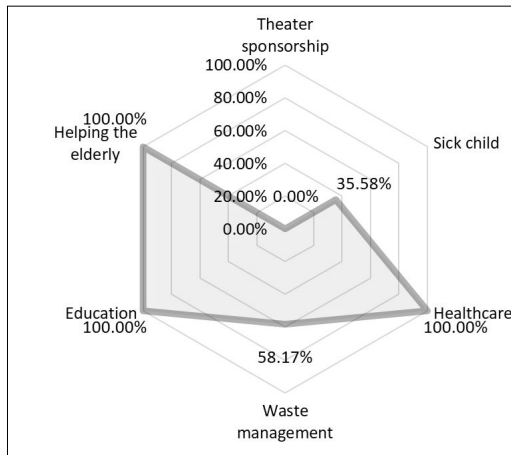
$$Y = \frac{n_i - n_{min}}{n_{max} - n_{min}} \tag{4}$$

The sequence of preferences will appear in Table 4. Providing aid to healthcare facilities will be in the first place, followed by assistance to elderly people, then a triple tie (offering gifts to sick children, waste reduction and aiding the education of employees’ children) and, finally, sponsoring theatres will come in last. The values of this chart can be seen in Figure 2. In the case of other respondents, the results will be demonstrated exclusively with numerical data. We have found the net diagram to be the most insightful one for comparing the six cases (Figure 2). However, this ranking can only be correctly interpreted if the demographic data and personality of the respondents are well known.

**Table 4. Opinion of a lady employed in healthcare, CSR actions without PR support, second section**

Calculation of sequence				
	n	Calculation	Description	Ranking
Theatre sponsorship	-1.41	0.00%	Sponsoring theatre	4
Sick children	-0.67	35.58%	Sick children	3
Healthcare	0.67	100.00%	Healthcare	1
Waste	-0.2	58.17%	Waste	2
Education	0.67	100.00%	Education	1
Aiding elderly people	0.67	100.00%	Aiding elderly people	1

Source: Own editing



Source: Own editing

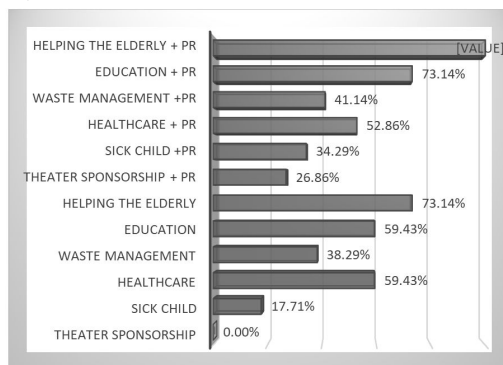
**Figure 2. Opinion of a lady employed in healthcare, CSR actions without PR support**

The first individual included in our investigation is employed in healthcare, but not in the healing sector. She is a blue-collar worker and works as a warehouse employee, being engaged in inventory reception, storage and commissions as required. She is in a cohabiting relationship and has no children. She has a high school degree and a post-secondary professional qualification. She is currently attending advanced technical education. They are renovating their detached house purchased in the countryside and live in the village until the house is finished. She would be ready to commute, however she has little time available due to the renovation and her studies. Plus, their finances are limited.

This lady's preferences indicate that she is committed to the healthcare sector and that she would like the healthcare to receive potential assistance. She took into consideration changing her employment due to financial reasons and the technical degree she will obtain soon will also be taken into account. As per her statement, she would expect her future employer to subsidize healthcare. This example is tremendous but may be irrelevant to her loyalty to the current employer. She prefers helping elderly people as she can see the problems of poorer and lonelier senior citizens in her village. The relegation of support for theaters implies that the respondent has little time for rest and cultural activities.

Overall, 47 inconsistent triple numbers appeared in PR actions and the consistency indicator was 0.33. The option will be more complicated in the case of a twelve-element chart. We will use this value of 0.33 as a limit, we will still analyse it, however we have already had some doubts with regard to its accuracy and to the remark. In the future, we will only explain the assessment of the first and last elements of the ranking. The options will be presented in detail in Table 5. The calculated percentages will be shown in Table 6, and these percentages will be highlighted as a bar chart in Figure 3.

The lady's commitment to healthcare was also evident during the evaluation of the expanded PR activity list. Her most preferred action is the equipment handover by the healed, grateful patient. She did not always favour PR support for CSR activities. She did not favour the idea of supporting the company's pensioners with the active involvement of current employees; however, this opinion might stem from her lifestyle and lack of time.



Source: Own editing

**Figure 3. Opinion of a lady employed in healthcare, CSR actions with PR support**

**Table 5. Opinion of a lady employed in healthcare, CSR actions with PR support, second section**

	n	Calculation	Ranking
Theatre sponsorship	-1.75	0.0%	10
Sick children	-1.13	17.7%	9
Healthcare	0.33	59.4%	3
Waste	-0.41	38.3%	6
Education	0.33	59.4%	3
Aiding elderly people	0.81	73.1%	2
Theatre sponsorship +PR	-0.81	26.9%	8
Sick children +PR	-0.55	34.3%	7
Healthcare +PR	0.1	52.9%	4
Waste +PR	-0.31	41.1%	5
Education +PR	0.81	73.1%	2
Aiding elderly people +PR	1.75	100.0%	1

*Source:* Own editing

### Integrated results

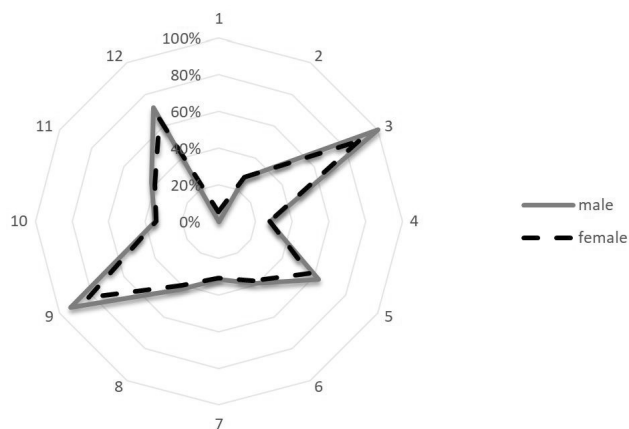
Figure 4 and Table 6 indicate the integration by gender. Healthcare occupies the worthiest position as regards subsidisation for both genders. A noticeable difference is that if theatre performances as traditional elements of culture were subsidised with the involvement of employees, women would find that employer action attractive. Men would prefer doing the shopping for the company's retirees and then would gladly participate in donating. In this case, the PR action is important, reflecting personal attention, reinforcing the sense of community; the men did not find simple food donations to be useful.

**Table 6. Integrated opinions by gender**

Activity	Male	Female
Theatre sponsorship	0%	5%
Sick children	28%	28%
Healthcare	100%	88%
Waste	28%	28%
Education	63%	57%
Aiding elderly people	39%	37%
Theatre sponsorship +PR	31%	31%
Sick children +PR	43%	40%
Healthcare +PR	93%	82%
Waste +PR	35%	34%
Education +PR	43%	40%
Aiding elderly people +PR	72%	64%

*Source:* Own editing

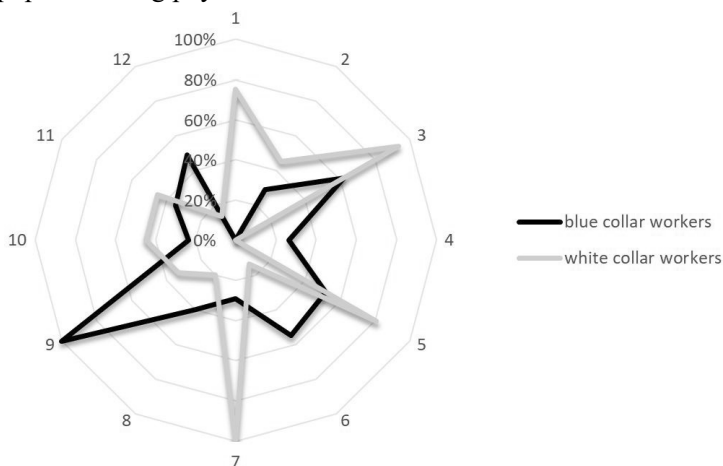




Source: Own editing

**Figure 4. Integrated opinions by gender**

Figure 5 and Table 7 indicate the integration by job position. It is most noticeable that white-collar employees consider donations to the cultural sector important even in times of recession. Physical workers would prefer helping people with their shopping and believe that providing food parcels would not be degrading. Waste collection combined with inter-team competition has become increasingly popular among physical workers.



Source: Own editing

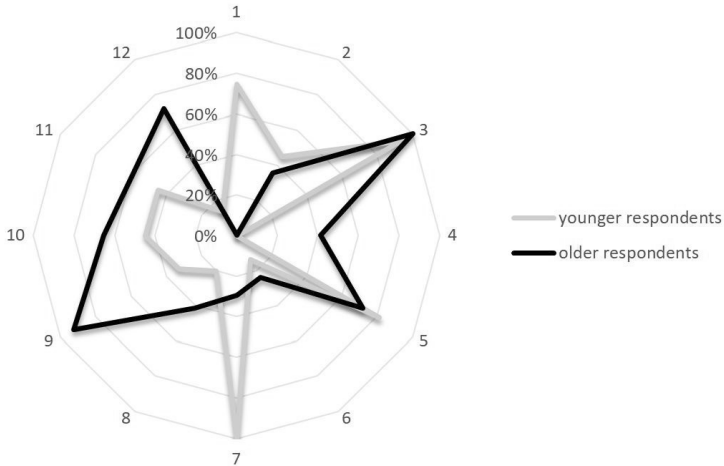
**Figure 5. Integrated opinions by job position**

**Table 7. Integrated opinions by job position**

Activity	Blue-collar workers	White-collar workers
Theatre sponsorship	0%	75%
Sick children	29%	45%
Healthcare	62%	93%
Waste	26%	0%
Education	52%	81%
Aiding elderly people	55%	14%
Theatre sponsorship +PR	29%	100%
Sick children +PR	40%	20%
Healthcare +PR	100%	33%
Waste +PR	24%	45%
Education +PR	34%	45%
Aiding elderly people +PR	49%	14%

Source: Own editing

The mindsets of two different age groups were represented in Figure 6 and Table 8. The ones aged between 28 and 38 have proved to support culture. Aiding the healthcare sector is important to them; however, they find equipment handover by healed patients a bit pathetic. The leading actions are those that robustly mirror the company’s commitment to responsibility, without necessitating extensive personal participation. This might be due to the fact that this age group suffers from constant lack of time. Creating a home and family life take up much of their time. It would be worth measuring the values for the younger and more independent individuals.



Source: Own editing

**Figure 6. Integrated opinion about CSR actions by age group**

**Table 8. Integrated opinions of different age groups regarding CSR actions**

Activity	Younger	Older
Theatre sponsorship	75%	0%
Sick children	45%	36%
Healthcare	93%	100%
Waste	0%	41%
Education	81%	72%
Aiding elderly people	14%	24%
Theatre sponsorship +PR	100%	30%
Sick children +PR	20%	41%
Healthcare +PR	33%	92%
Waste +PR	45%	66%
Education +PR	45%	59%
Aiding elderly people +PR	14%	72%

*Source:* Own editing

## Conclusions

Our first research question looked at whether the consideration of different CSR actions would depend on the demographic features, lifestyle and qualification of employees. As per the integrated spider web diagrams, the gender-based effect cannot be seen as a trend; instead, the job position and age do have effects.

The second research question was intended to investigate whether the properly selected PR activity can improve the reputation of different CSR actions. The elaborate individual analysis will indicate how the ranking would be modified by employees' acceptance of additional, promotional action.

Arguments and counterarguments can be read in the chapter on limitations and opportunities with regard to our third research question concerning the method. It is worthwhile to study the groups formed from the eight respondents, as this could be the basis for generalization. Sampling did not go to plan at first, but as the results started coming in, we found a way of grouping the respondents:

- Four female responders
- Four male responders
- Four white-collar employees
- Four blue-collar employees
- Four persons aged between 28 and 38
- Four persons over 50

The opinions and attitudes of the different age groups regarding CSR and PR topics would deserve an extra analysis. It can be presumed that novice employees and individuals from rural backgrounds have distinct value systems. This phenomenon has the potential to alleviate skepticism and the relentless pursuit of self-interest, while concurrently fostering a sense of loyalty among the workforce.

### **Limitations and future opportunities**

We will first list out the limitations with regard to the analytical method used. This statistical method requires more time compared to SPSS analysis. A computer expert can identify techniques to expedite the process. If this was the case, then the sample size could be extended.

Nevertheless, the production of a greater number of interviews prompts the question of whether the presence of the interviewer is unequivocally indispensable. While such a presence facilitates respondent clarity, it does require a considerable time investment. Depending on the sum of factors to be evaluated and on the commitment of responders, it is worth choosing between in-person interviews and computer-assisted interviews.

If this method was intended to be used by a company for similar goals, then one fact would need to be emphasised. CSR and PR experts would not be advised to initiate planning the actions based on their own etiquette; they would rather need to consider the thinking system of the target group. The investigation must be carried out with the proper research mentality, i.e. by destroying gender and age self-identification (Yeomans 2016).

According to the fourth research question, the method is suitable for addressing particular management concerns. The exploratory research has highlighted the fact that the employees qualify company measures differently. Fewer conflicts occur when employees prioritise measures as opposed to evaluating their accuracy.

Even the opinions of some target group members may help in making decisions that would build trust between the employer and its employees. The employer might sometimes have other interests than its employees, however a correct description of employment contracts and mutual compliance could ease opposite aims. The workplace is a community where common etiquette, goals and effective activities must be secured in different ways.

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## Exploring the role of loan default ratio in the SME sector of Pakistan

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The study examines the impact of the lending decision made by Development Finance Institutions (DFIs) on the growth of SMEs, while analysing the low growth rate in the SME sector of Pakistan and the high default rate in finance facilities from the DFIs. The research employs the archival method of reviewing related literature (theoretical, applied and empirical literature). Data was gathered from the designed sample by using a questionnaire distributed among the selected population. The relationship between the default rate in the SME sector of Pakistan and the lending decision process will be analysed, along with other factors which cause the borrower's inability to repay the debt and the markup on the financed amount. The major contributions and findings of this research include the basic reason for SME default based on problems in the lending decision process, the tools used for analysing the capacity of the borrower, and a critical review of deficiencies in the SME lending decision process. This research focuses on the SME lending decision factors due to which the prospective borrowers may be unable to get finance, while on the other hand borrowers with weak creditworthiness may be selected and finance may be disbursed, causing the default. The main contribution of this research is bringing together most of the available literature, focusing on the major causes of loan default in the SME sector of Pakistan and properly analysing potential customers for disbursement of finance.

**Keywords:** SME sector, lending decision, collateral, markup rate, loan utilization, Pakistan.

**JEL codes:** E5, H81, L26, G32, D25.

### Introduction

The revenue of banks comes from their assets and the prevalence of resources. But it does not mean that all assets create revenue. Bank assets are classified into interest income-generating assets and non-interest income producing assets. Besides this, non-interest income generating assets contain brokerage charges, commissions, fees and return from investment in securities

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and subsidiaries. The main activity of commercial banks is to give loans to borrowers with preferred business areas at a specific interest rate. Loans have been identified as the highest yielding assets of a bank. They provide the largest portion of revenue and stabilise banking operations (Ahmad et al. 2017; Fashina et al. 2020). However, banks also faced a huge liquidity risk when they advanced loans from the funds deposited by customers. In this regard, a higher risk tends to lead to more profitable revenue for the bank due to a higher interest on income. According to Waitherero et al. (2021), a higher volume of loans reveals a higher liquidity risk. Hence, commercial banks need to find a balance between profitability and liquidity. In an earlier study, Rasiah (2010) argues that a higher volume of loans does not guarantee a higher interest income. If the borrower is unable to pay back the loan, then the interest income will not be earned, and this will have a direct impact on bank profitability.

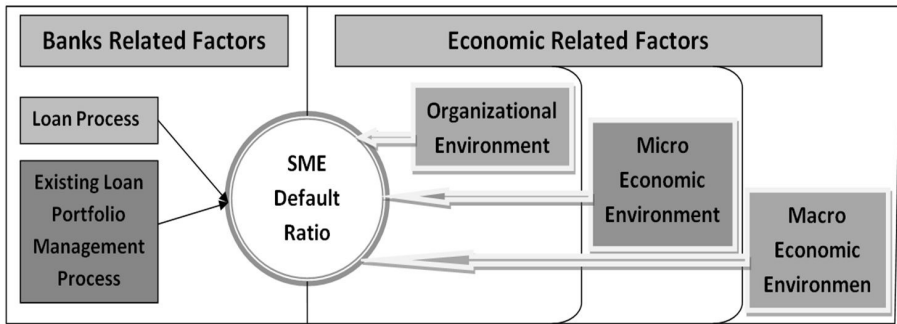
The loan default is recognised as a universal phenomenon in the SME Sector of Pakistan linked with all types of business organisations. The loan default is highly important for banks because the extension of credit is the exclusive business of banking institutions. The borrower's loan default has a direct negative impact on bank profitability as it reduces cash flows. It has been noticed that, if non-performing loans are not checked or examined for a longer period of time, then most probably such loans will lead to the bankruptcy of the bank (Ensaria–Karabay 2014). Therefore, loan monitoring is highly important towards bank roles and responsibilities (Huynh–Dang 2021). The bank deals with other people's money and needs a quick recovery of loans to make viable business operations.

Loans are identified as major assets on the balance sheet, revealing the success of individual banks. In this way, credit risk management aims to reduce a major proportion of non-performing loans. Additionally, asset quality measured by the asset quality ratio that highlights the level of non-performing loans (Thygerson 1995; Hamdillah et al. 2021) is calculated as:

$$\text{Asset quality} = \text{Total non-performing loans} / \text{Total loans}$$

If the ratio of non-performing loans is higher, that reflects an impulsive lending practice as well as poor credit management. This indicates higher threat on the deposits of customers. On the other hand, a lower ratio of non-performing loans is desirable. Thus, loans which become non-performing reduce the profitability of the bank by altering liquidity with a negative impact on bank earnings.

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Source: Own editing

**Figure 1. Onion approach according to Bronfenbrenner (1979)**

To determine the SME default ratio, there are two factors that need to be considered, namely economic factors and bank-related factors. Under economic factors, the organisational environment as well as microeconomic and macroeconomic environments are recognised as determining the SME default ratio (Figure 1). The ‘onion skin’ paradigm work of Bronfenbrenner (1979) explored economic factors such as inflation, unemployment, GDP, government policy, taxes, interest rates and exchange rates. All these factors have a significant impact on the SME lending and default ratio. On the other hand, bank-related factors are the loan process, the management process and the existing loan portfolio, which are strongly linked to the SME default ratio (Ha et al. 2016).

### **Literature review and theoretical background**

The role of SMEs is becoming increasingly dominant in the current era, contributing significantly to the GDP (Veskaisri 2007). SMEs can establish any type of business activity in both rural and urban areas (Khaliq 2011). The role of SMEs is significant towards the economic progress of Pakistan. In Pakistan, 85% of manufacturing companies are recognised as small and medium-sized enterprises, i.e. SMEs. The remaining companies are affiliates of multinational companies. The SMEs’ growth is consistent with the advanced use of the technological environment; therefore it is immensely important for SMEs to identify technological applications to sustain corporate values (Raouf 1998).

The success of SMEs leads to growth in Pakistan’s economy (Saeed–Sameer 2015). According to Khan (2014), SMEs have not only a minor share but also the



Pakistan's whole economy depends on SMEs' pace and productivity. Statistically, approximately 3.2 million (95%) of the enterprises in Pakistan have at least 99 employees in the private industrial sector, which employs 78% of the non-agricultural labour force. Moreover, SMEs economically contribute 25% of the exports of manufacturing goods and 30% of Pakistan's GDP. The growth of GDP is a major driver of economic growth in Pakistan. In this regard, the country's GDP grew by 4.24% in 2015 as compared to 4.14% in 2014. This shows how the economy of Pakistan is growing through investment in the SME sector.

The successive values of small businesses play a dominant role in any country (Yew Wong–Aspinwall 2004). There are numerous factors that lead to the favourable growth of SMEs and to economic growth, reducing poverty and unemployment and increasing the income of financial institutions. In the current research study, the role of the state bank is to provide major insights into the loans granted to SMEs and their recovery actions. For this reason, the State Bank of Pakistan established rules and regulations for SMEs' access to loans in 2003. There are certain constraints in the SME sector on accessing credit based on firm size and growth potential. It is worth mentioning the regulatory framework for SME lending services that are provided by commercial banks (Jasra 2011).

The study reveals the main causes behind loan defaults specifically in the SME sector: hindering obstacles to the collection of loan payments associated with the capital constraints; inability to pay the debt; inexperienced credit risk managers; incompetent management; lack of feasibility reports for SME loans; and inadequate accounting data. Bank-related factors, borrower-related factors and macroeconomic factors are the main causes of loan defaults in the SME sector.

The role of SMEs is in the limelight in different countries, as it enhances economic growth and business sustainability in the long run. In the developing countries, the role of SMEs is quite prominent due to the economic development and the rapid expansion process (Fesharaki 2019). SMEs expansion into several countries illustrates a dramatic process that requires consistent risk mitigation practices (Campos 2016). Regarding the infrastructure development process implemented in various countries, SMEs use different tools to reduce the costs and come up with low-cost products and services for the customers. During this process, these companies contribute to the rapid growth of the economy and

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industries. In addition, almost 97% of the production comes from the operations carried out by SMEs in different countries. In South Asia, there is a vast number of such companies. Despite different issues, such as legal complexities, financial risks, and many other problems, these companies have sustained the business in the developing countries (Quader–Abdullah 2009).

There are several factors regarding the loan default and the expansion process. It is a fact that the size of an organisation can be increased to reduce the default risk. Obviously, if the organisations increase their business operations, there will be a great chance for those companies to gain high revenue streams and profits. As a result, the company will be able to repay the loans to different commercial banks (Qureshi 2012). In addition, the authorities have detected different frauds due to inadequate financial or accounting systems (Bilal 2016).

The financial institutions in the country contribute to economic success, as they advance loans to deserving companies to strengthen the economy and stabilise the growth in the long run. It has been revealed that these financial institutions have different systems for making the companies repay their loans (Hyder–Lussier 2016). The turnover ratio, the current ratio, the leverage ratio, the liquidity ratio and the profitability ratio are prominent ratios which have been considered by small and medium-sized enterprises for growth and development. The most important thing is to improve these ratios, and the role of financial institutions is pivotal in this process. When advancing loans to these companies, financial institutions use their systems and procedures to analyse the business and operating characteristics, as it can help to advance secure loans (McCann–McIndoe-Calder 2012).

Now, in this competitive business era, there is a need for effective risk management strategies along with different implementation plans (Gálová 2014). For different banks around the world, the credit risk has emerged as a big issue, and the management has failed to implement appropriate strategies and plans (CBK 2008). It is important to assess and identify the risk, and this has become one of the main issues considered by financial institutions.

The loan monitoring process which is triggered with the resources is another pertinent tool for the management to examine the process and gain information. Furthermore, credit risk control is also a good tool for the management to mitigate the risks and observe the lending process. Customer information, including residents' income level and financial transactions, is necessary to make relevant

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decisions in the end (Newman 2016). Bank portfolios seem more pertinent if the management examines the financial statements of the companies during the lending process (SBP 2003).

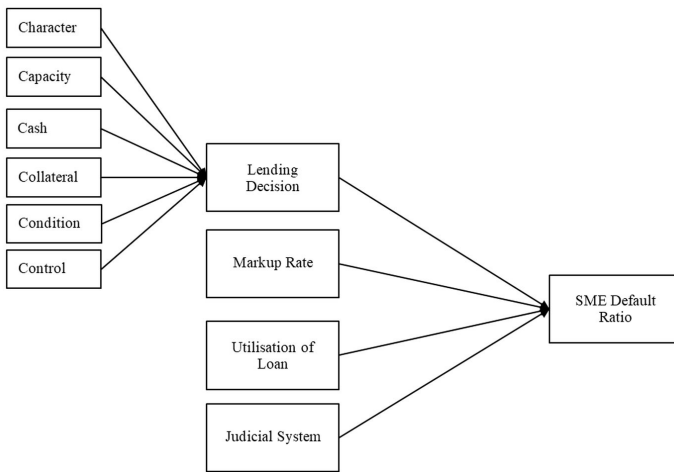
The visibility of non-performing loans in the business environment is due to poor risk management techniques, according to Bindra (1998). Unfortunately, the banks are often not capable of analysing risk factors, and they advance loans to be more lucrative. This is quite destructive for the banks, as bad debts become more visible. According to him, there is a need for professional management systems and techniques for assessing risk factors. To demonstrate the rigor of the investigation process, managers can use the loan monitoring criteria as a pertinent tool for examining information and resource use, just like in the case of performance appraisals - which has not been done, thus far. The bankers have to initiate follow-up plans to speed up the recovery process and reminders for customers to repay their loans on time. Without these important considerations, the banks may fail to sustain the business process in the long run.

### **Theoretical framework**

The lending decision process is based on Peter S. Rose's "Loans in a Troubled Economy" (Rose 1983), advancing the basic theory for lending to industrial clients, including to SME clients. He provided the six C's for lending to industrial clients, namely the prospective borrower's Character, the prospective borrower's Capacity to perform the business activities, the prospective borrower's Cash – including the cash flow of the firm, Collaterals provided by the prospective borrower as security in case of default, Conditions of the industry in which the prospective borrower is currently working, and Control, including the checks of controlling authorities on the prospective borrower and banks (Figure 2).

We formulated the following hypotheses:

- **H<sub>1</sub>**: Creditworthiness factors are the major reasons for the high default ratio in the SME sector of Pakistan.
  - **H<sub>2</sub>**: The Markup Rate offered is the major reason for the high default ratio in the SME sector of Pakistan.
  - **H<sub>3</sub>**: Improper utilisation of the loan is the major reason for the high default ratio in the SME sector of Pakistan.
  - **H<sub>4</sub>**: The weak judicial system of banking courts is the major reason for the high default ratio in the SME sector of Pakistan.
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Source: Own editing

**Figure 2. Theoretical framework**

### **Research design and methodology**

Quantitative research belongs to objectivist epistemology and seeks to develop explanatory universal laws in social behaviours which are assumed to be the static reality, and these are measured by the application of statistical measurement tools. Quantitative research endorses the theory that social and psychological phenomena are objective realities and independent from the subject being studied and that the researcher and the subject under study are independent and separated from each other during the research process (Yilmaz 2013). Our research is a cross-sectional study based upon the different events affecting SME clients who are offered loans from the banks and the data is obtained from the different individuals working in the specialised field of SME financing diversified activities. All the data related to the borrowers' character, capacity, financial position, markup rate offered to the client are collected at the same time.

### ***Study setting and context***

Researchers have proposed that epistemology, methodology, theoretical perspectives and methods are the essentials elements that must be addressed during the research process, while choosing the research approach for the study,

i.e. quantitative or qualitative research (Crotty 1998). Quantitative and qualitative research designs are further differentiated on the basis of epistemological, methodological and theoretical underpins. The quantitative research methodology places emphasis on the measurement and analysis of the causal relationship between isolated variables within a framework which is logical, deterministic and reductionist based on prior theories. This methodology requires the researcher to use a pre-constructed standardised instrument or predetermined response categories which cover participants' varying experiences and perspectives. One of the characteristics of the quantitative research design is that it demands randomly selected samples from the population under study to generalise the findings.

The use of a close-ended questionnaire during research helps the researcher view broader and generalised results and findings and ultimately present these results parsimoniously (Yilmaz 2013). The quantitative research design has dominated the field of social sciences as it uses standard tools and techniques to generate validated and reliable data for research purposes (De Vaus 2001). This research design elaborates observable facts in numbers by constructing the variables that can be measured to explore correlation, connections and cause and effects between variables under study. There are various ways to collect data from the samples, such as self-administered questionnaires, online surveys and phone interviews (Ary et al. 2018). This study can be considered a quantitative study as (self-administered) pre-structured standardised instruments are used to collect data, and numerical data is used for checking the association between variables. The instruments used for data collection look at variables like the SME default ratio, the creditworthiness of the borrower, utilisation of loan, markup rate charges and the judicial system of Pakistan.

### ***Population and sampling***

The population will include the branch networks of the top five commercial banks in Pakistan, i.e. HBL number of branches: 1,643, NBP number of branches: 1,446, MCB number of branches: 1,244, UBL number of branches: 1,320, and ABL number of branches: 1,059. There are 6,712 branches in total. It is impossible to collect data from the whole population, that is why we use judgmental sampling or purposive sampling for the defined population. Sample size: 364 branch officials were selected for collecting data regarding the credit portfolio (Krejcie–Morgan 1970; Monkey survey, Confidence level 95%).

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***Content and face validity***

Content validity is checked through brainstorming sessions with bankers who are diversely experienced in dealing with SMEs. To improve understanding and thematic categorization, all the questions are/were cross-examined, the purpose was established, and any questions with unclear themes were removed/changed. For content validity, a master of English reviewed the questionnaire to ensure there were no grammatical errors.

***Data collection***

For the purpose of data collection, a cross-sectional survey design was adopted, which include the creditworthiness of the borrower, the markup rate offered to the borrower, utilisation of loan, the judicial system of Pakistan and the SME default ratio. The employees were also asked about demographics like gender, current working experience, bank and academic and professional qualification. The 5-point Likert scale was used for constructs like the creditworthiness of the borrower, the markup rate offered to the borrower, utilisation of loan, the judicial system of Pakistan and the SME default ratio.

**Data analysis and results*****Descriptive statistics***

Descriptive or demographic statistics are the first step for data analysis, containing demographic questions to build individuals' interest and get information about the demographic stats of the target audience. According to research type and demand, the present study contains four demographic questions, i.e. respondent's gender, the bank where they are working, education, and experience. For the purpose of data analysis based on these questions, the descriptive frequency analysis was made through SPSS.

Table 1 shows the results of the first section of the questionnaire regarding four demographic questions. The results reveal that, from a total of 270 valid responses, the majority of respondents are male, namely 168 respondents. Next, the employees from the national bank of Pakistan are on top, namely 114 respondents. Thirdly, most of respondents (a total of 186) have a post-graduate education. The last question was about their experience; here, the majority of respondents (37%) fall in the slot of 1-5 years.

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**Table 1. Descriptive statistics**

		Frequency	Percent	Valid Percent	Cumulative Percent
<b>Gender</b>	Male	168	62.2	62.2	62.2
	Female	102	37.8	37.8	100.0
	<b>Total</b>	<b>270</b>	<b>100.0</b>	<b>100.0</b>	
<b>Bank</b>	HBL	34	12.6	12.6	12.6
	NBP	114	42.2	42.2	54.8
	ABL	37	13.7	13.7	68.5
	UBL	42	15.6	15.6	84.1
	MCB	43	15.9	15.9	100.0
	<b>Total</b>	<b>270</b>	<b>100.0</b>	<b>100.0</b>	
<b>Education</b>	Postgraduate	76	28.1	28.1	28.1
	Graduate	86	31.9	31.9	60.0
	Other	108	40.0	40.0	100.0
	<b>Total</b>	<b>270</b>	<b>100.0</b>	<b>100.0</b>	
<b>Experience</b>	1-5 years	100	37.0	37.0	37.0
	6-10 years	77	28.5	28.5	65.6
	11-15 years	61	22.6	22.6	88.1
	16-20 years	32	11.9	11.9	100.0
	<b>Total</b>	<b>270</b>	<b>100.0</b>	<b>100.0</b>	

*Source:* Own editing

### ***Reliability and convergent validity***

The reliability of the construct has been assessed by using Cronbach's Alpha, rho\_A and composite reliability values to measure the internal consistency of data. Its value should be greater than 0.7. In our research, the values for all constructs met the threshold value of Cronbach's Alpha, but as its composite reliability meets the criteria to be reliable, satisfaction can be considered a reliable construct. In our research, the values for all constructs met the threshold value of Cronbach's Alpha (Table 2), so we consider it a reliable and valid construct.

Convergent validity determines all those confluences of pointers that show how a construct compares the items evaluating the other constructs. Convergent validity is evaluated by means of item indicator reliability and the factor loading value. It is also evaluated by a measure known as Average Variance Extracted (AVE), proposed by Fornell-Larcker (1981). The variable inter reliability, also known as factor loading value, has to be greater than 0.6 (Hair et al. 2014), whereas the AVE values need to be greater than 0.5 for the acceptability of the

convergent validity. Convergent validity can be defined as a degree to which all the compound items of the model are being used to evaluate and assess the very same concept (Surienty et al. 2014). For this purpose, you can take a look at the outer loading shown in Table 3. The threshold value for convergent validity in outer loading should be greater than 0.6.

**Table 2. Reliability statistics**

	<b>Cronbach's Alpha</b>	<b>rho_A</b>	<b>Composite Reliability</b>
<b>Judicial System</b>	0.907	0.941	0.915
<b>CWa</b>	0.893	0.898	0.916
<b>CWb</b>	0.874	0.878	0.905
<b>CWc</b>	0.943	0.947	0.953
<b>CWd</b>	0.862	0.919	0.896
<b>CWe</b>	0.709	0.939	0.802
<b>CWf</b>	0.847	0.865	0.907
<b>Markup Rate</b>	0.800	0.847	0.868
<b>SME Default Ratio</b>	1.000	1.000	1.000
<b>Utilisation of Loan</b>	0.809	0.982	0.858

*Source:* Own editing

Indicator reliability is being measured through outer loading. It explains the degree of indicators' consistency regarding what they intend to measure. Henseler et al. (2009) argued that minimum 50 percent of indicator variance of measure must be explained by the latent variable. Chin (1998) claims that factor loadings should be significant at the 0.5 level and ideal above 0.7. On the other side, lower values, such as 0.45, are acceptable for exploratory research (Lewis et al. 2005). The analysis shows outer loading values after deleting unreliable questions. JS1 to JS8 show that the questions are reliable and they create the construct for the reflective variable Judicial System as the values are above the threshold figure. Similarly, the questions for CWa1 to CWa7 show that the questions are reliable and they create the construct for the formative variable Character; the questions from CWb1 to CWb6 show that the questions are reliable and they create the construct for the formative variable Capacity. All these questions have satisfactory values to meet the criteria.



**Table 3. Reliable outer loadings**

Judicial System	CWa	CWb	CWc	CWd	CWe	CWf	Markup Rate	SME Default Ratio	Utilisation of loan
JS1	0.785								
JS2	0.758								
JS3	0.846								
JS4	0.795								
JS5	0.793								
JS6	0.714								
JS7	0.655								
JS8	0.695								
CWa1	0.780								
CWa2	0.843								
CWa3	0.823								
CWa4	0.725								
CWa5	0.655								
CWa6	0.840								
CWa7	0.793								
CWb1		0.754							
CWb2		0.837							
CWb3		0.812							
CWb4		0.778							
CWb5		0.744							
CWb6		0.772							
CWc1			0.864						
CWc2			0.817						
CWc3			0.824						
CWc4			0.925						
CWc5			0.825						
CWc6			0.935						
CWc7			0.847						
CWd1									
CWd2				0.761					
CWd3				0.741					
CWd4				0.740					
CWd5				0.890					
CWd6				0.840					
CWe1					0.779				
CWe2					0.691				
CWe3					0.688				
CWe5					0.886				
CWf1						0.905			
CWf2						0.834			
CWf3						0.884			
MUR1							0.730		
MUR2							0.707		
MUR3							0.891		
MUR4							0.820		
SMEDR								1.000	
UL1									0.918
UL2									0.662
UL4									0.787
UL5									0.722

*Source: Own editing*

**Table 4. Average Variance Extracted**

	<b>Average Variance Extracted</b>
<b>Judicial System</b>	0.574
<b>CWa</b>	0.612
<b>CWb</b>	0.614
<b>CWc</b>	0.746
<b>CWd</b>	0.635
<b>CWe</b>	0.578
<b>CWf</b>	0.765
<b>Markup Rate</b>	0.625
<b>SME Default Ratio</b>	1.000
<b>Utilisation of Loan</b>	0.605

*Source:* Own editing

Average Variance Extracted (AVE) basically supports the results of convergent validity (Joseph et al. 2014). The value of each variable should be greater than 0.5 and all variables in our research met the minimum value requirement, except Image which shows an insignificant value. From the results of the average variance extracted shown in Table 4, we can see that the value for the variable Judicial System is 0.574. The average variance extracted for the formative variables of Creditworthiness is as follows: for Character (CWa) it is 0.612, for Capacity (CWb) it is 0.614. for Cash (CWc) it is 0.746, for Collaterals (CWd) it is 0.635, for Conditions (CWe) it is 0.578, for Control (CWf) it is 0.765. The average variance extracted for the markup rate is 0.625, the average variance extracted for the SME default ratio is 1.00 and the average variance extracted for utilisation of loan is 0.605. All the results for average variance extracted clearly show that the value is above the threshold level, so this proves the convergent validity of the construct.

### ***Discriminant validity***

#### *Fornell-Larcker validity*

Discriminant Validity (DV) is defined as the degree to which the pointers of several latent variables (constructs) are dissimilar to each other (Urbach–Ahlemann 2010). In the PLS approach, DV can be evaluated by two measures, i.e. cross-loadings and the Fornell-Larcker criterion (Fornell–Larcker 1981). In order to attain cross-loadings, the score of each construct is being correlated with the rest of the indicators (Chin 1998). DV can be defined as when the loadings of an indicator are higher for the construct measured as compared to

any of the other constructs and also each of the constructs loads the highest of the value with the allocated indicators. Fornell-Larcker criteria entails that a construct comprehends added variance with its assigned indicators as compared to any other construct. For the sake of this, the AVE of each latent variable must be more significant than the construct's utmost squared correlation with any other construct.

**Table 5. Fornell-Larcker criteria**

	JS	CWa	CWb	CWc	CWd	CWe	CWf	CW	MUR	SME DR	UOL
<b>JS</b>	<b>0.758</b>										
<b>CWa</b>	-0.002	<b>0.782</b>									
<b>CWb</b>	0.124	0.819	<b>0.783</b>								
<b>CWc</b>	-0.062	0.099	0.097	<b>0.864</b>							
<b>CWd</b>	0.122	0.060	0.032	0.106	<b>0.797</b>						
<b>CWe</b>	0.038	-0.646	-0.502	-0.053	0.018	<b>0.761</b>					
<b>CWf</b>	0.013	-0.032	-0.004	0.053	-0.040	-0.008	<b>0.875</b>				
<b>CW</b>	0.046	0.711	0.738	0.493	0.139	-0.393	0.475	<b>0.714</b>			
<b>MUR</b>	0.050	0.957	0.847	0.099	0.051	-0.594	-0.005	0.134	<b>0.790</b>		
<b>SME DR</b>	-0.119	0.149	0.148	0.097	0.019	-0.032	0.093	0.236	0.132	<b>1.000</b>	
<b>UOL</b>	0.231	0.057	0.136	0.004	0.134	-0.019	-0.160	0.007	0.048	-0.038	<b>0.778</b>

Note: JS= Judicial System, CW= Creditworthiness, MUR= Markup Rate, SME DR= SME Default Ratio, UOL= Utilisation of loan

Source: Own editing

According to the threshold, the value of Fornell-Larcker should be equal to or greater than 0.708 and, according to the analysis, all the independent variables like Creditworthiness, including all its formative variables, Character value is 0.782, Capacity value is 0.783, Cash value is 0.864, Collaterals value is 0.797, Conditions value is 0.761 and Controls value is 0.875 with other independent variables Markup rate value is 0.790, Utilisation of loan value is 0.778 and Judicial System value is 0.758 shows higher values then threshold which again tells the loadings that the rest results are valid (Table 5).

### ***Cross-loading***

Cross-loading is fundamentally being used to show that the loading value of one indicator is the highest with its own construct and lower with the other constructs/variables.

Table 6. Cross-loading

	JS	CWa	CWb	CWc	CWd	CWe	CWf	CW	MUR	SME	DR	UL
JS1	<b>0.785</b>	0.018	0.082	-0.083	0.089	0.049	0.000	0.023	0.043	-0.134	0.137	
JS2	<b>0.758</b>	-0.052	0.097	-0.069	0.130	0.100	-0.078	-0.027	0.000	-0.059	0.204	
JS3	<b>0.846</b>	0.021	0.139	-0.017	0.098	-0.009	0.043	0.086	0.068	-0.115	0.212	
JS4	<b>0.795</b>	-0.006	0.096	-0.043	0.107	0.016	-0.002	0.029	0.036	-0.082	0.181	
JS5	<b>0.793</b>	-0.049	0.051	-0.005	0.106	0.035	0.020	0.024	-0.010	-0.043	0.221	
JS6	<b>0.714</b>	0.012	0.083	-0.008	0.085	-0.006	0.088	0.079	0.070	-0.030	0.228	
JS7	<b>0.655</b>	-0.023	0.122	0.053	0.132	0.039	0.091	0.121	0.032	0.016	0.240	
JS8	<b>0.695</b>	-0.016	0.116	-0.045	0.053	0.034	0.073	0.062	0.038	-0.036	0.183	
CWa1	0.053	<b>0.780</b>	0.607	0.029	0.018	-0.579	-0.064	0.516	0.662	0.101	0.106	
CWa2	-0.132	<b>0.843</b>	0.597	0.103	0.111	-0.552	-0.077	0.569	0.700	0.200	0.046	
CWa3	-0.113	<b>0.823</b>	0.595	0.088	0.034	-0.526	-0.031	0.537	0.693	0.103	0.013	
CWa4	0.032	<b>0.725</b>	0.596	0.037	-0.001	-0.419	0.029	0.535	0.730	0.087	-0.031	
CWa5	0.175	<b>0.655</b>	0.545	0.112	0.088	-0.372	0.009	0.496	0.707	0.075	0.077	
CWa6	0.043	<b>0.840</b>	0.752	0.068	0.065	-0.471	-0.031	0.627	0.891	0.134	0.061	
CWa7	-0.051	<b>0.793</b>	0.754	0.103	0.011	-0.603	-0.007	0.592	0.820	0.108	0.042	
CWb1	-0.051	0.493	<b>0.754</b>	0.103	0.011	-0.603	-0.007	0.592	0.820	0.108	0.042	
CWb2	0.053	0.801	<b>0.837</b>	0.082	0.049	-0.533	-0.044	0.641	0.789	0.169	0.119	
CWb3	0.068	0.713	<b>0.812</b>	0.067	-0.014	-0.450	0.019	0.627	0.751	0.146	0.029	
CWb4	0.233	0.507	<b>0.778</b>	0.051	0.039	-0.249	0.001	0.523	0.538	0.042	0.126	
CWb5	0.143	0.458	<b>0.744</b>	0.096	0.010	-0.248	0.034	0.516	0.499	0.055	0.178	
CWb6	0.174	0.514	<b>0.772</b>	0.053	0.057	-0.208	-0.019	0.552	0.528	0.167	0.162	
CWe1	-0.033	0.062	0.066	<b>0.864</b>	0.118	-0.063	0.024	0.404	0.053	0.099	-0.023	
CWe2	-0.039	0.097	0.049	<b>0.817</b>	0.087	-0.035	0.050	0.401	0.096	0.090	0.007	
CWe3	-0.075	0.115	0.097	<b>0.824</b>	0.153	-0.022	0.073	0.441	0.119	0.068	0.014	
CWe4	-0.076	0.095	0.123	<b>0.925</b>	0.090	-0.061	0.068	0.481	0.101	0.094	-0.002	
CWe5	-0.050	0.077	0.065	<b>0.825</b>	0.058	-0.021	0.033	0.381	0.074	0.030	0.027	
CWe6	-0.047	0.112	0.090	<b>0.935</b>	0.072	-0.059	0.030	0.464	0.105	0.130	0.010	
CWe7	-0.050	0.034	0.088	<b>0.847</b>	0.060	-0.056	0.036	0.395	0.038	0.065	-0.006	
CWd1	0.063	0.001	-0.038	0.037	0.455	0.074	-0.019	0.021	-0.007	-0.021	0.070	
CWd2	0.129	0.007	-0.041	0.091	<b>0.761</b>	0.029	0.017	0.073	0.016	-0.049	0.093	
CWd3	0.042	0.091	0.105	0.069	<b>0.741</b>	0.019	-0.173	0.101	0.085	0.037	0.050	
CWd4	0.070	0.062	0.085	0.064	<b>0.740</b>	0.057	-0.193	0.064	0.061	0.018	0.082	
CWd5	0.129	0.055	0.027	0.092	<b>0.890</b>	-0.002	-0.020	0.142	0.041	0.050	0.142	
CWd6	0.100	0.034	-0.011	0.098	<b>0.840</b>	0.004	0.077	0.134	0.021	0.001	0.133	
CWe1	0.048	0.308	0.223	-0.061	-0.017	<b>0.779</b>	-0.082	0.083	0.301	-0.038	0.176	
CWe2	0.037	0.259	0.225	0.007	0.013	<b>0.691</b>	0.079	0.162	0.251	-0.019	0.060	
CWe3	0.068	0.273	0.236	-0.040	0.010	<b>0.688</b>	0.087	0.155	0.289	-0.039	0.078	
CWe5	-0.094	0.710	0.534	0.087	-0.035	<b>0.886</b>	-0.053	0.434	0.633	0.067	-0.026	
CWf1	-0.047	0.005	0.020	0.086	-0.060	-0.012	<b>0.905</b>	0.475	0.032	0.123	-0.177	
CWf2	0.060	-0.052	-0.041	-0.005	-0.003	-0.001	<b>0.834</b>	0.355	-0.034	0.076	-0.125	
CWf3	0.037	-0.046	0.000	0.045	-0.034	-0.006	<b>0.884</b>	0.404	-0.022	0.039	-0.113	
MUR1	0.032	0.725	0.596	0.037	-0.001	-0.419	0.029	0.535	<b>0.730</b>	0.087	-0.031	
MUR2	0.175	0.655	0.545	0.112	0.088	-0.372	0.009	0.496	<b>0.707</b>	0.075	0.077	
MUR3	0.043	0.840	0.752	0.068	0.065	-0.471	-0.031	0.627	<b>0.891</b>	0.134	0.061	
MUR4	-0.051	0.793	0.754	0.103	0.011	-0.603	-0.007	0.592	<b>0.820</b>	0.108	0.042	
SMEEE	-0.119	0.149	0.148	0.097	0.019	-0.032	0.093	0.236	0.132	<b>1.000</b>	-0.038	
UL1	0.204	0.054	0.139	0.022	0.123	-0.055	-0.162	0.007	0.041	-0.042	<b>0.918</b>	
UL2	0.080	0.007	0.121	0.020	0.124	0.036	-0.058	0.039	0.018	0.000	<b>0.662</b>	
UL4	0.177	0.029	0.088	-0.017	0.112	0.066	-0.079	0.022	0.029	-0.025	<b>0.787</b>	
UL5	0.208	0.067	0.084	-0.020	0.083	-0.044	-0.158	-0.028	0.063	-0.013	<b>0.722</b>	

Source: Own editing

Cross-loading is used to compare the value of each element with its own construct as well as with other constructs. Here, the value of an item should be the highest with its own variable and lower with other variables; in our research, all items met the requirement. The results show that all the questions have the highest values for their own variables and lower values with other constructs (as shown in Table 6).

### ***Collinearity statistics***

The Variance Inflation Factor (VIF) measures the extent to which the variance of the estimated regression coefficients is enhanced as comparatively to the situation when the predictor variables are not being linearly related. The VIF of the outer model is known as Outer VIF. It depicts the correlation amongst the elements, and it should have a value of less than 5 (Hair et al. 2014). According to the threshold value, VIF should be less than 5, hence all the results show significant values (Table 7).

**Table 7. VIF**

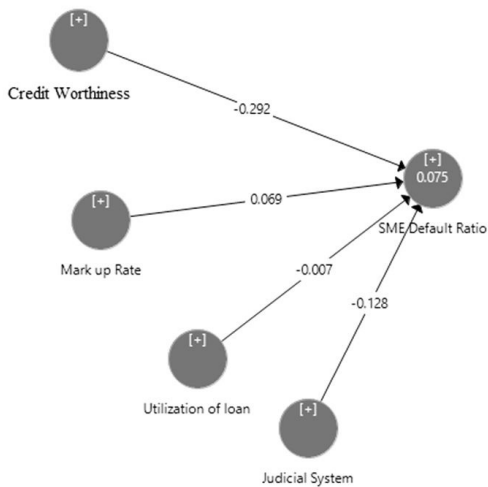
	<b>VIF</b>
<b>Judicial System</b>	1.059
<b>CWa</b>	3.957
<b>CWb</b>	3.057
<b>CWc</b>	1.025
<b>CWd</b>	1.022
<b>CWe</b>	1.735
<b>CWf</b>	1.009
<b>Lending Decision</b>	2.042
<b>Markup Rate</b>	2.046
<b>SME Default Ratio</b>	1.000
<b>Utilisation of Loan</b>	1.060

*Source:* Own editing

### ***PLS-SEM Structural Model***

The impact of the independent variable Creditworthiness on the SME Default Ratio has a value of -0.292, which shows an inverse relationship (Figure 1). The model indicates that if Creditworthiness increased by 100 percent then SME default ratio will decrease by 29.2 percent. From all the independent variables, creditworthiness has the highest impact on the SME default ratio. The impact of the independent variable Markup Rate on the SME Default Ratio has a value of +0.069, which shows a positive relationship. The model indicates that if markup rate is increased by 100 percent then SME default ratio will increase by 6.9 percent.

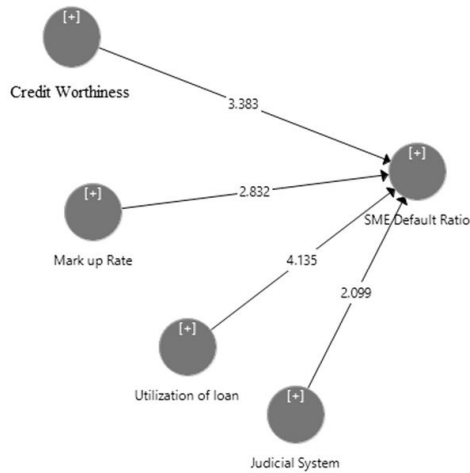
The markup rate is the only independent variable which has a positive relationship among all the variables. The impact of the independent variable Utilisation of Loan for its specific purpose on the SME Default Ratio has a value of -0.007, which shows an inverse relationship. The model indicates that if the utilization of the loan increased by 100% then the SME default ratio would decrease by 0.7%. The SME default ratio with the value of -0.128 indicates if the Judicial System in respect of recovery of default amount performs better by 100 percentage then SME default ratio is decreased by 12.8 percent. The judicial system for loan default recovery has the second largest impact on the SME default ratio.



Source: Own editing

**Figure 3. Structural Model**

After bootstrapping, the impact of the independent variable Creditworthiness on the SME Default Ratio has a value of 3.383 (Figure 4). The impact of the independent variable Markup Rate on the SME Default Ratio has a value of 2.832. The impact of the independent variable Utilisation of Loan for its specific purpose on the SME Default Ratio has a value of 4.135. For the last variable, Judicial System for loan default recovery, the impact on the SME Default Ratio has a value of 2.099. After bootstrapping, all the values are above the acceptable range. The highest value is for utilisation of the loan for the purpose for which the loan was requested.



Source: Own editing

**Figure 4. Bootstrapping**

**Table 8. Path Coefficient**

	Original Sample	Sample Mean	T Statistics ( O/STDEV )	P value
Judicial System -> SME Default Ratio	-0.128	-0.125	<b>2.099</b>	<b>0.036</b>
Creditworthiness -> SME Default Ratio	-0.292	-0.286	<b>3.383</b>	<b>0.001</b>
Markup Rate -> SME Default Ratio	0.069	0.067	<b>2.832</b>	<b>0.006</b>
Utilisation of Loan -> SME Default Ratio	-0.007	-0.007	<b>4.135</b>	<b>0.003</b>

Source: Own editing

For hypothesis acceptance the T value should be greater than 1.96 and the P value should be less than 0.05. Results presented in Table 8 show that for the Judicial System, T statistics are 2.099 and P value is 0.036; for Creditworthiness, T statistics are 3.383 and P value is 0.001; for the Markup Rate, T statistics are 2.832 and P value is 0.006; and for Utilisation of Loan, T statistics are 4.135 and P value is 0.003. All the results of independent variables are within the acceptable range. This indicates that hypothesis  $H_1$  is accepted and  $H_0$  is rejected.

### Conclusion

The construct regarding the lending decision and the SME default ratio is valid and reliable based on the analysis of multiple statistical tools, as shown in the above-mentioned results. The lending decision process consists of four variables:

Creditworthiness, Markup Rate, Utilisation of Loan and Judicial System. There is a correlation between all independent and dependent variables. Creditworthiness and the judicial system have a major impact on the SME default ratio. All the independent variables have an inverse correlation with the SME default ratio, except the markup rate. The markup rate has a positive correlation with the SME default ratio. In the lending decision process, creditworthiness has the highest impact on the SME default ratio; it includes its formative variables: character of the borrower, capacity to repay the loan, cash related to the financial soundness of the borrower, collaterals offered by the borrower, conditions of the industry and control regulated by the authorities specific to the borrower.

### **Managerial implications**

The current findings revealed the various factors which influence the SME default ratio in dealing with lending decisions. This type of study is not only fruitful for financing companies, i.e. microfinance banks, but also beneficial for practitioners in the SME sector. The findings indicate that creditworthiness is the most significant factor. This seems as practicing while making decisions about financing in debt or equity. This factor should also be considered by microfinance banks when disbursing loans.

### **Limitations and future directions**

This study provides a solid foundation for future research. Every study has some limitations due to various factors, mainly due to human thinking patterns. These limitations can be utilised by researchers to consolidate the existing research and add value to literature. The current research has some limitations as well. Firstly, as far as contextual factors are concerned, the current research targets only the SME sector of Pakistan, which could be a hurdle for the global generalizability of the results. Secondly, the study didn't consider the factors strengthening or weakening the relationship between the lending decision-making elements. It is recommended that future research should also consider risk factors while replicating the current model in other cultures and contexts. Lastly, the current study utilises a structured close-ended questionnaire, which could deter the respondents from fully expressing their perceptions regarding the lending decision. Therefore, future research should consider focus group discussions with business experts and should use qualitative research methods.

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