

THE ROLE OF NATIONAL (LEVEL) DEVELOPMENT BANKS IN ENHANCING THE COMPETITIVENESS AND RESILIENCE OF MICRO, SMALL AND MEDIUM-SIZED ENTERPRISES

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ABSTRACT

The Visegrad Four countries ('V4 countries') have a lot in common regarding crisis management, based on the measures introduced to manage the 2008/2009 crisis. This paper aims to introduce how the economic crisis caused by the global pandemic of coronavirus disease 2019 ('COVID-19 pandemic') affected the performance and position of the national development banks of the V4 countries within their financial ecosystems with particular attention to the banking operation of the Hungarian Development Bank (MFB).

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Keywords: COVID-19 pandemic, national-level development bank, V4 countries

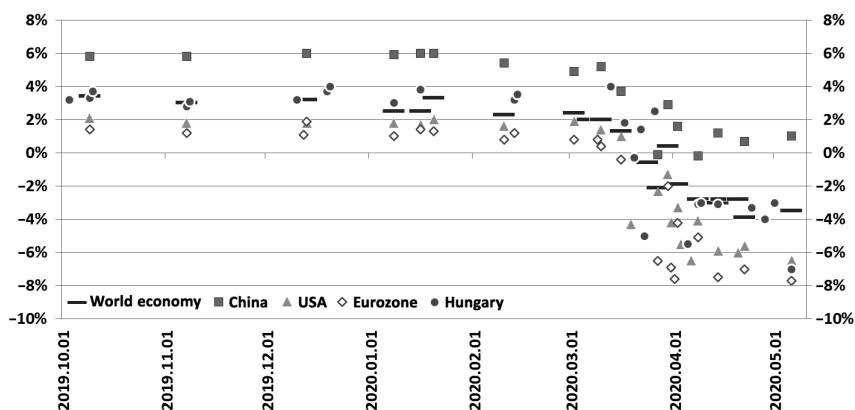
1 INTRODUCTION

The coronavirus disease 2019 (COVID-19 pandemic), a highly dangerous unknown epidemic appeared in China in December 2019 and spread across the world as wildfire thanks to the highly interconnected global economy. As a result, countries went partially or completely into lockdown, global supply chains collapsed, and millions of enterprises found themselves in a hopeless situation. Some authors (*Botos, 2020:385–388*) pointed out that 'a situation could occur in the developing countries in which people might die of hunger as a result of unemployment caused by the crisis' as experienced in the economic crisis of the 1930s. According to some estimations, the present crisis can push as many as 420-580 million people or, according to others even 690 million people (WHO, 2020), into extreme poverty. The economic impact of the pandemic is illustrated well by the 2020 forecast of the European Commission which projected an economic

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recession of 7.7 per cent for the euro-zone and 7.4 per cent for the whole of the European Union (European Commission, 2020a) fully coinciding with the calculations of IMF experts (IMF World Economic Outlook Database, 2020). Analysts suggested the expected reduction of real GDP might exceed that of the 2009 crisis. Analysts typically projected a subdued economic recovery, since crisis-related uncertainties might linger, business and consumer confidence might not improve, monetary markets might shrink because of investors' lower risk tolerance, and the changed behaviour of enterprises and households might become permanent once the pandemic is over. (IMF World Economic Outlook Reports, 2020). On the other hand, one could expect asymmetric recovery, i.e., of different size and pace, of the Member States in 2021, which is likely to hinder the whole of the European Union from returning to its earlier level of economic development (MKIK, 2020).

Figure 1
GDP forecasts for 2020 (1 October 2019 – 6 May 2020)



Source: MFB Periscope, May 2020

As the pandemic continued, for instance during its second wave, the European continent and in particular the Member States of the European Union became its epicentres. As the virus evolved into a pandemic and a global challenge, it became increasingly clear that, in addition to national measures, common, European and global responses to the social and economic challenges are also necessary – although opinions still differ regarding their methodology and size (Muraközy, 2011:794–795).

2 ECONOMIC AND SOCIAL CHALLENGES FACED BY THE EUROPEAN UNION TODAY

A series of crises have plagued the European Union over the past decades, such as the 2008/2009 monetary crisis, the migration crisis, Brexit, or the current COVID-19 pandemic. Under these circumstances, it is no surprise that as the centre of global economy has shifted, the competitiveness of the EU have started lagging behind its main counterparts, namely the US, China, and Japan. In addition to socio-economic challenges (such as disagreements within the EU and ageing societies), major anomalies of competitiveness also undermine the global influence of the EU. As a result, the pandemic crisis has been weakening the resilience of the EU economy temporarily. Statistics prove that economic output dropped due to the pandemic in one quarter year in China, three quarters in the US and five quarters in the EU (Hungarian Central Statistical Office, 2022). The reasons for Europe's stuttering recovery are manifold such as the continuing disruption of production and supply-chains, the significant increase in energy and raw material prices, which is partly exacerbated by rising demand after the economic downturn and partly by supply-side problems. The outbreak of the pandemic caused a particularly large downturn in France, Italy and Spain, and the German economy, which was not shrinking at the time, is struggling to recover.

Despite its globally significant research and development (R&D) framework programmes, Europe has not taken over the role as 'the world's most competitive economy by 2010' as envisioned in the Lisbon Strategy. Europe's innovation performance exceeded that of the US in 2019 (for the first time since the 2000s) (European Commission, 2019), however, it was too early to make a proper judgement. Today, the EU performs better than China, Brazil, South Africa, Italy, or India, but South Korea, Canada, Australia, the US, and Japan are still ahead of it in this regard (European Commission, 2021). In addition to the above phenomenon, which is widely known as 'the innovation paradox', major regional-economic differences are evident in the EU, mainly in terms of west versus east, centre versus periphery and capital city versus countryside (Nagy, 2019). Today, one sixth of the population of the EU, nearly eighty-three million people, live in peripheral regions (European Commission, 2017). Most of them live in the Eastern Central European Member States that are jointly characterised by 'weak economic growth, long-term high unemployment, difficulties in economic transition and increasing social segregation' that have been present for decades in certain cases (Kengyel, 2016:195). Although the COVID-19 pandemic did not result in a global monetary crisis, unlike that of 2008–2009), 'financial bubbles have appeared everywhere in the global economy, the balance of central banks has swollen, sovereign debt and budget deficit have increased, while the dynamism of economic recovery drives

inflation' (MNB, 2021). It is easy to see that due to the inflationary pressure affecting the global world economy, the primary task for national governments is to restore the economy as quickly as possible, especially in the EU, which has still not fully recovered from the previous crisis (Acharya, V.–Engle, R.–Steffen, S., 2020). The question is, of course, what political measures, and institutional systems must be implemented, and above all, at what sacrifices can this be achieved?

3 PANDEMIC AND CRISIS MANAGEMENT IN THE EUROPEAN UNION IN 2020

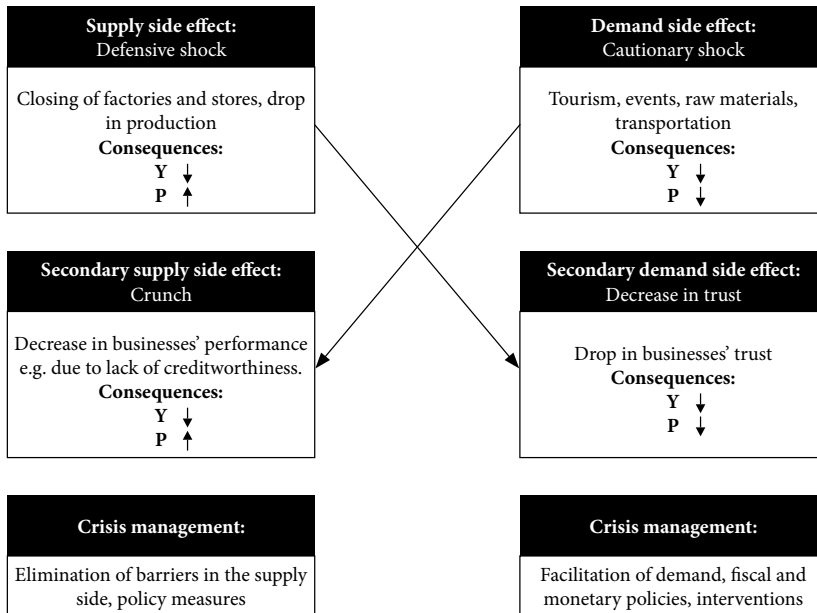
Prior to the outbreak of the pandemic, small and medium-sized enterprises (SMEs) were the backbone of EU's economy. As it is known, twenty-four million micro, small and medium-sized enterprises accounting for almost 99 per cent of overall EU businesses contributed to more than half of the gross value added (GVA) produced in the European Union (European Commission, 2020a). In addition, most European SMEs, about 95 per cent, are deemed micro enterprises. According to a survey conducted by the European Commission and the European Central Bank from April to September 2020, the financial prospects of European businesses have deteriorated significantly as a result of the pandemic. Data published by EUROSTAT illustrate that the pandemic effectively halted a third of the economy of the European Union in 2020. There was a considerable decline in all sectors except for the pharmaceutical industry, internet services and food trade. Compared to the last pre-pandemic year (2019), the most affected sectors included the automotive industry performing at 17 per cent, travel agencies at 14 per cent and the European aviation industry at 10 per cent, which together reduced the economic output of the euro zone by approximately 34 per cent. Micro enterprises were clearly the victims of the pandemic since an overwhelming majority of them operated in the sectors primarily hit by the pandemic. Employment statistics of the European Union demonstrate that 5.7 million jobs had been lost in the European Union by the middle of 2020 (Eurofound, 2021). European countries are especially sensitive to the trends of international trade and the uninterrupted operation of global supply-chains, so the depth of the recession different member states would have to face had become the most critical pandemic-related issue.

To counter the adverse economic impact of the above processes, the Member States of the European Union took several budgetary, liquidity and policy measures in 2020 – with success – to provide aid to natural persons and economic branches particularly hit by the crisis. The Member States reinstated border control at their air and land borders, banned entry or ordered strict quarantine related to entry and introduced periods of lockdown in 2020 (Gyenyey, L.–Szabó, M., 2021). The

COVID-19 pandemic and the adverse economic effect of the restrictions introduced led to an economic crisis that drove a large part of European enterprises to the edge of insolvency. During the management of the pandemic it became clear that there are industries (such as accommodation, catering, transport and retail, in addition to industry and leisure, art and other services) where the crisis would have a strong negative impact both in the short and long term (*Terták, E.–Kovács, L.*, 2020:369–370), while in other industries (such as the pharmaceutical industry) there might be cautiously optimistic expectations. On the other hand, certain industries (e.g., IT, including the wide spread of digital solutions) had become the ‘winners’ of the COVID-19 pandemic, think, for instance, of home office, distance learning or telemedicine.

It became clear that instead of the previous economic policy that stimulated consumption through austerity (*Hayek, 1995; Keynes, 1936*), an interventionist and stimulating approach, very similar to the 2008–2009 crisis management, emerged victorious. Building on the experiences of crisis management in 2008–2009, theoretical reflections did not delay the intervention this time, in which an activist economic concept clearly remained the dominant approach. On the other hand, the lockdowns and closings due to the coronavirus should be interpreted as a decline in demand, i.e., as a negative demand, which in the long term, during the expected economic recovery – be it a U or V-shaped rebound – called for further economic policy interventions in terms of the resilience of European SMEs. In the short run capacities had to be retained so that demand could increase after the restrictions were lifted. However, an initiative-taking approach was necessary to restructure the economy eventually, so that it could evade, to a certain extent, repeated breakdowns in demand (*Czeczeli, V.–Kolozsi, P.–Kutasi, G.–Marton, Á.*, 2020:3; *Kovács–Zsigmond, 2020:262*). The COVID-19 pandemic may be described as a unique combination of demand and supply side shocks értelmezhető (*Baqae–Farhi, 2020; Shastri, 2020; Bekaert et al., 2020*). The production process of countries with greater exposure to infected regions may collapse. In addition to production, supply is also affected due to the reduction in labour supply (UNIDO, 2020). According to Bekaert et al. (2020), the separation of demand and supply shocks is particularly important because the crisis management of negative demand and supply shocks on the fiscal and monetary side require completely different interventions and solutions.

Figure 2
The channels of the economic impact of the pandemic



Source: own edition, based on Madár, I. (2020): 'Will the COVID-19 pandemic cause an economic crisis?' [online] (cit. 13.08.2020).

Consequently, **the recovery and restoration of the European economy necessitated an innovative approach** although the market economies and fiscal policies of some Member States did not operate in the same way in terms of their institutions or processes (Hall, P. A.–Soskice, D., 2001; Farkas, 2017). Thus, the crisis management responses given by the European Commission can be best described as a series of different healthcare crisis management measures introduced by the Member States and ad hoc immediate measures introduced at EU level (Szijártó, 2020). It is worth mentioning that the crisis management in the Member States went through similar phases, both in terms of healthcare systems and the economy. Member States have gradually developed their initial measures of crisis management.

3.1 Re-start of European economy – options offered by national (level) development banks

An unprecedented crisis management package composed by national and EU level measures has been created by now that covers healthcare, economy, travel, transport, research, and civil defence as well as fighting disinformation (see the official website of the European Commission). In the beginning, one of the cornerstones of EU crisis management was to finance research programmes aimed at developing vaccines, new treatments, diagnostic tools and medical systems aimed at preventing the spread of the coronavirus. Subsequently, the restrictive rules on budget deficit and state subsidies were lifted and an investment instrument covering 37 billion euros was created, which provided immediate and flexible liquidity for the Member States. In addition, the European Central Bank launched an asset purchase programme of 120 billion euros, which could provide the European financial system with almost uninterrupted liquidity. Finally, the European Commission earmarked a total of 37 billion euros from the EU budget to serve as guarantee for an 8 billion euros' worth immediate funding to SMEs by the European Investment Fund. In parallel, in December 2020, the Pan-European Guarantee Fund, managed by the European Investment Bank and with a budget of 25 billion euros, was created to help businesses affected by the pandemic (Resolution of the European Economic and Social Committee, 2020). During the past decade, the role of the European Investment Bank and the national development banks that closely cooperate with it has been gradually transformed. Today, the European Investment Bank acts as the climate bank of the European Union, while the mandate of the national development banks has expanded with new operational characteristics. *Mertens, D.-Rubio, E.-Thiemann, M.* (2020) different from their previously assumed role (*Miller et al., 2021*). Their role and judgment may change over the next few years if they fail to deal with the economic difficulties associated with the pandemic (*Bilal et al., 2020*).

3.2 Economic weight of national (level) development banks

A lively dialogue commenced in the European Union following the 2008-2009 monetary crisis with the goal of **rethinking the role of national (level) development banks**. As a result, national (level) development banks have gradually become the institutions micro, small and medium-sized enterprises could obtain long-term financing from. They have also become the main financing partners of long-term investments into infrastructural projects. Several Member States have restructured their national (level) development banks over the past decade, while others have set up new organisations or established new national (level) develop-

ment banks. All this was encouraged by the European Strategic Investment Fund (European Parliament and the Council, 2015) established in 2015, during which **the establishment of partnership with national (level) development banks guided the decision-makers to promote the implementation of investments and support growth along investment platforms. Consequently, the role of national (level) development banks is unquestionable today in the EU and within national financial ecosystems.**

4 NATIONAL (LEVEL) DEVELOPMENT BANKS – CHARACTERISTIC FEATURES AND OPERATIONS

The exact definition of national (level) development banks was initially limited to the *development* type, i.e., (mostly) state-owned financial institutions operating in and aiding developing countries. Today, however, as a result of the growing international interest in national development banks and development financing institutions (Sobreira, R., 2009), the term ‘*promotional*’ is becoming more and more widespread, which specifically refers to growth within the European Union and includes financial institutions facilitating access to funds.

Micro, small, medium, large, and mega development banks can be distinguished based on their size and total assets. The ten most capital-intensive development banks of the world include Caisse des Dépôts et Consignations (CDC) in France (#5), Bank for Reconstruction (KfW) in Germany (#8), Cassa de Depositi y Prestiti (CDP) in Italy (#9) and the European Investment Bank (EIB) (#7) (Xu, J.-Marodon, R.-Ru, X.-Ren, X.-Wu, X., 2021). Out of 527 development banks and development finance institutions operating today, 108 are micro, 152 small, 33 medium-sized, 13 large and 8 mega-sized. Concerning financing, they are typically engaged in the provision of loans, equity, and guarantee.

Overall, national (level) development banks can be considered those ‘*financial institutions that are established for the purpose of strengthening economic development, taking into account the aspects of social and regional integration. These financial institutions provide long-term financing for projects generating positive externalities*’ (Eperjesi, 2013; Panizza, U.-Levy-Yeyati, E.-Micco, A., 2004).

4.1 National (level) development banks in the European Union

The national (level) development banks operating on the territory of the European Union cannot be considered homogeneous based on their level of development, scope of activities and operating model. Typically, all of them are majority or exclusively (100%) owned by the state, but differences can be observed in terms

of the geographical distribution of their financing activities. Partly thanks to the Juncker plan, starting from 2014, the activities of some national (level) development banks were expanded by supporting developing countries outside the EU, which, although separate from each other, are practically implemented within one organization (for example, EIB, KfW and in the case of CDB). High-level policy negotiations are still ongoing, the institutional structure ensuring the financing of the EU's international development policy – i.e. a complex EU institutional structure including the European Investment Bank (EIB), the European Bank for Reconstruction and Development (EBRD) and financial instruments managed by the European Commission – is possible in future. In it the above national (level) development banks are planned to play a prominent role. (Bilal, S., 2021). All national (level) development banks play a prominent part in distributing central government resources that can be called upon within the framework of the European Structural and Investment Funds, however, the method and characteristics of this (management of non-refundable subsidies or refundable instruments) differ from Member State to Member State.

Their operating model can mostly be categorized according to when and under what economic conditions they were established, as well as the quality of relationships they have developed within their financial ecosystems since then. The financing activities of relatively older national (level) development banks, such as Germany's Reconstruction Credit Institute (KfW) or Italy's Italian Development Bank (CDP), include both for-profit and non-profit characteristics. In addition, they play an active role in supporting international market penetration by and expansion of domestic enterprises, with the help of their diversified export financing activities. Thanks to this, they have an extensive branch network (for example, BPI France in France or KfW in Germany), including foreign representative offices (Finnvera in Finland). In the course of their financing activities, the national (level) development banks of Western Europe allocate significant resources to innovative, forward-looking projects, and have enthusiastically started digitising their own banking activities and greening their product range (green finance) (Finance in Common, 2020; Riaño, M. A.–Boutaybi, J.–Barchiche, D.–Treyer, S., 2020; Riaño, M. A.–Attridge, S.–Bilal, S.–Keijzer, N.–Erforth, B.–Fattibene, D.–Hege, E.–Evans, M.–Olivie, I.–Barchiche, D. (2021). In that respect they are role models for national (level) development banks in Eastern-Central Europe for their operations and the expansion of their scope of activities.

4.2 National (level) development banks in the V4 countries

The national (level) development banks located in Eastern-Central Europe established in the 1990s typically followed a different path. Copying the pattern of their counterparts in Western Europe, they carry out ‘*classical development banking*’ functions, i.e., they help enterprises by providing loan, equity, and guarantee products on a non-profit basis. In addition, the financing of market niches plays a prominent part in their scope of activities, due to their national development banking function. The national (level) development banks operating in the Visegrád countries only provide financing for economic actors with domestic headquarters. Among the national (level) development banks in Eastern-Central Europe, only the Croatian Reconstruction and Development Bank (HBOR), the Slovenian Export and Development Bank (SID), and the Estonian Fund Kredex are engaged in export financing activities. In other countries, export financing is provided by a separate organisation or agency (for example, EXIM Bank in Hungary). Unlike national (level) national development banks in Western Europe, they have no extensive nationwide branch networks; setting them up has not been in the focus of economic policy efforts to date. The Hungarian Development Bank (MFB) can be considered a special case, which, in the absence of a branch network, carries out its financing activities in cooperation with commercial credit institutions and financial intermediary enterprises.

The national (level) development banks in all V4 countries followed the model portrayed by Germany’s KfW. Among the national (level) development banks of the V4 countries, Poland’s BGK stands out, which, in terms of its history, belongs to the national (level) development banks founded before 1945, together with the national (level) development banks of France and Italy. In contrast, the national (level) development banks in Hungary, Slovakia and the Czech Republic were established later, as means of economic restructuring and catching-up after the change of the regime. In terms of their operating models, in recent years all national (level) development banks operating in the V4 countries have undergone a certain degree of organisational restructuring, which mainly affected capital requirement and the number of organizational units (for example: MFB, SZRB). The operation of the Hungarian MFB is also permeated by the need for so termed ‘*additionality*’, which means the organization’s contribution to domestic GDP growth.

Table 1
Comparison of national (level) development banks active
in V4 countries (2020)

National (level) development banks	BGK (PL)	MFB (HU)	ČMZRB (CZ)	SZRB (SK)
Year of establishment	1924	1991	1992	1991
Number of employees (FTE)	1,859	380	238	156
Balance sheet total (2020, in national currency)	PLN 100,604.250 million	HUF 2,068.731 million	CZK 30,057 million	EUR 549.632 million
Balance sheet total (2020, in EUR*)	EUR 22,063.78 million	EUR 5,685.04 million	EUR 1,145.38 million	EUR 549.632 million
ROE (%)	0.14	-4.00	0.52	0.14
ROA (%)	0.09	-0.40	0.08	0.09

Note: *Conversion using currency converter of the European Central Bank at the 31 December 2020 exchange rate (<https://sdw.ecb.europa.eu/curConverter.do>).

Source: own edition, based on the annual reports of the national (level) development banks analysed (2021).

The national (level) development banks operating in the V4 countries are 100 per cent state-owned. Their legal status, operation and management are governed by separate legislation. Bank group-like operation can be observed in Hungary, Slovakia, and Poland, which leads to the conclusion that **there has been a shift in the role of the given bank within the national economy and financial ecosystem compared to the past**. In terms of their size, the national (level) development banks of the V4 countries can be considered small (their average annual staff measured in FTE is around 200 people), the only exception to this is BGK in Poland. However, it is important to note that size alone does not give a clear picture of the importance the given bank has within its own financial ecosystem. Some activities, such as micro-lending or business advisory, are not significant in terms of numbers, but nevertheless have a significant impact on the economy. Based on total assets, Polish BGK is the most powerful, followed by Hungarian MFB, as well as by the Czech and Slovak development banks. A similar trend can be observed regarding the employment data mentioned above. The return on equity (ROE) indicator, calculated as the ratio of the profit after tax to equity, indicates the volume of placement activities carried out in 2020 and the effectiveness achieved by the development banks of the V4 countries.

In terms of products, the role of loan and guarantee products linked to classical development banking activities is prominent, typically in the context of facili-

tating micro, small and medium-sized enterprises' access to subsidized financial products. Municipal loan programmes also play an important role in their financing activities. The main driving force behind this is the government's lack of experience in the area. MFB is the only exception, as it suspended that activity following government intervention aimed to reduce the indebtedness of local governments. Large corporate financing is carried out exclusively within the framework of structured lending, from this point of view the activities of MFB and BGK can be highlighted. Thanks to their operation as banking groups, the placement of equity-type products has also increased in the case of all banks in recent years.

Regarding funding sources, all national (level) development banks in the V4 countries obtain their sources on the capital markets, however, the distribution of EU funds assume outstanding importance for all of them. In addition, they provide business advisory services co-financed by the European Investment Bank (EIB). They underwent a successful pillar assessment for the 2021–2027 programming period to manage the sources of the InvestEU programme as well as to ensure the level of protection of EU financial interests. Like traditional commercial banks, they have large branch networks, except for MFB in Hungary, which carries out the distribution of EU sources with the involvement of commercial banks. In a separate way, BGK, ČMZRB and SZRB have strong relations with commercial banks. As regards their international relationships, all V4 national (level) development banks actively liaise with the European Investment Bank (EIB) and the European Investment Fund (EIF).

5 RESEARCH OBJECTIVES AND HYPOTHESES

The main objective of this research is to reveal **how the economic crisis caused by the COVID-19 pandemic transformed the role of the national (level) development banks of the Visegrad countries within their financial ecosystems, in particular, the operation of the Hungarian Development Bank (MFB) in Hungary.** The study was prepared solely based on the data available for the financial year of 2020.

In the frame of the research, the following main questions as well as the hypotheses below will be analysed:

1. **Question 1:** What are the specific features of the crisis management programmes and measures applied by national development banks in the European Union?

Related hypothesis: The COVID-19 crisis management programmes contain increasingly complex financial instruments (in addition to credit products, guarantee products) in parallel with the growth of the development of the Member State concerned.

2. **Question 2:** Can the main hallmarks of successful crisis management be determined, which can serve as best practice for the effective management of a similar economic-social or even a subsequent financial crisis?

Related hypothesis: The COVID-19 crisis management programmes in the V4 countries proved to be the more successful, the more decisive a role the given national development bank had within the financial ecosystem during crisis management.

3. **Question 3:** To what extent were these programmes able to guide the above businesses towards ‘digital transition’ to strengthen their competitiveness and economic resilience?

Related hypothesis: The COVID-19 crisis management practices of the V4 countries proved to be the more successful, the more strongly the effects of the digital transition prevailed in the respective regions and countries.

5.1 Literature review

Research on the crisis management practices and operating models of the V4 national (level) development banks can be considered as a niche area. Papers published were addressed to the socio-economic effects of the new COVID-19 pandemic and their regional consequences (Koós, B.–Kovács, S.–Práger, B.–Uzzoli, A., 2020; Czecezi et al., 2020) as well as to new methods for the better alignment of the instruments of monetary and fiscal policies in order to manage the emergency caused by the pandemic (Posgay, I.–Regős, G.–Horváth, D.–Molnár, D., 2020; Nagy, 2021; Kádár, 2021). Recent studies – in general – place emphasis on the analysis of the effects of the COVID-19 pandemic on industrial sectors (Balogyi, L.–Tóth, L., 2021) and on the Member States of the European Union (Daniel, Z.–Molnár, B.–Molnár, T., 2021; Kovács, Á.–Zsigmond, T., 2020). Publications released after the appearance of the pandemic typically focused on the industrialised countries, such as Europe, the US and China (Jurd De Girancourt et al., 2020; Quayson et al., 2020).

Another significant trend of research analysed the employment effects of the COVID-19 pandemic geographically (Béresné, B.–Maklár, E., 2021; Túróczi, I.–Mester, E.–Zéman, Z., 2020); and from the point of view of corporate performance (Köllő, J.–Reizer, B., 2021) – extending the investigation to anomalies in global

supply chains (Szalánczi-Orbán, 2021). Research aimed at presenting the cross-sectoral effects of the COVID-19 pandemic appeared as one of its subfields. Finally, although as a subfield, many studies have been conducted to explore the effects of monetary policy measures of the COVID-19 pandemic on employment (Drabancz, Á.–El-Meouch Nedim, M.–Lang, P., 2021).

Perhaps one of the most interesting research areas concerning the coronavirus pandemic focuses on its long-term effects on corporate and banking digitalisation (Marcu, 2021; Korobeynikova, O., Burkaltseva, D.–Dugina, T.–Kozenko, T.–Shaldokhina, S., 2020; Korzeb, Z.–Niedziółka, P., 2020). Although stemming from an emergency situation, the sustainable development of micro, small and medium enterprises (Bai, C.–Quayson, M.–Sarkis, J., 2021) can also be considered the most significant driving force. On the other hand, relatively few academic works have been published on the part played by national (level) development banks in crisis management and its economic consequences (Mertens, D.–Rubio, E.–Thiemann, M., 2020).

Most research interprets the role of national (level) development banks as a ‘tool’ among crisis management measures (World Bank, 2021; Gutierrez, E.–Kliatskova, T., 2021). Nevertheless, other publications highlight their role in promoting decarbonisation (Dikau, S.–Volz, U., 2020; Mazzucato, M.–Semieniuk, G., 2017; FiC 2020; UNCTAD 2019), in which they can act as catalysts for channelling new and innovative financing solutions (Campiglio et al., 2017; Carney, 2015; Scott et al., 2017; UNCTAD 2019). However, there is a lack of research that would put sufficient emphasis on the organisational challenges of national (level) development banks regarding crisis management, including their human resource requirements, which in some cases – especially during the period burdened with initial restrictions and lockdowns – could have forced the majority of the development banks into adopting a new operating model and strategy.

5.2 Research methodology

In the frame of the research, three hypotheses were identified based on the literature review. In the context of the first hypothesis – **the COVID-19 crisis management programmes contain more and more complex financial instruments in parallel to the development of the affected Member State (in addition to loan products, also guarantee products)** – I applied a two-sample expected value (t-test) calculation to analyse the extent to which it determined the diversity of the crisis management programmes, the degree of economic downturn in each Member State, and the most successful financial instruments throughout the management of the COVID-19 crisis in 2020. One of the key issues of the explanation was the use of resources intended for crisis and economic re-

covery, i.e., understanding how strongly individual Member States, especially the V4 countries, relied on the guarantee programme of the European Investment Bank in addition to national and EU resources, as well as what recovery measures and priorities were set within their Recovery and Resilience Plans. In addition to the EU-level overview, from the point of view of the analysis, I prioritised the characteristics of the economic rescue packages and measures used by the Czech Republic, Slovakia, Poland, and Hungary to alleviate the crisis. I carried out the analysis in two steps. Firstly, I calculated the direction and strength of the relationship between the level of the economic development of the Member States of the European Union (real GDP per capita, based on data table SDG_o8_10) and the following per capita variables for the year 2020, including final consumption expenditure of households by consumption purpose (based on data table NAMA_10_CO3_P3), government revenues (based on data table GOV_10A_MAIN\$DEFAULTVIEW), government expenditures (based on data table GOV_10A_MAIN\$DEFAULTVIEW), among the unit costs (per capita) of the crisis management programmes launched in 2020.

Next, I examined the direction and strength of the relationship between the financial resources allocated to the management of the COVID-19 crisis and the 2020 mortality statistics of the Member States (based on the DEMO_GIND data table), as well as the number of employed people (based on the LFSI_EMP_A data table). To eliminate the negative effects of inflation in each Member State, the level of economic development was measured using real GDP datasets. To filter out the demographic differences between the Member States and the resulting distortions, I calculated all the examined explanatory variables per capita and performed the calculations with that value. In doing so, I used the EUROSTAT database for 2020 to determine the population. For the preparation of the analysis, statistics on mortality related to the COVID-19 pandemic were not available for the year 2020, so the general mortality statistics of EUROSTAT (based on the DEMO_GIND data table) were used as simplification during the analysis.

For the sake of comparability, the official datasets by EUROSTAT and the individual data collection performed by NEFI (Network of European Financial Institutions for SMEs), voluntarily published by the national (level) development banks were applied. Given the self-declared nature of the data collection, the data series are incomplete, fragmented, or questionable in some cases regarding certain Member States, such as Belgium, Denmark, Greece, Cyprus, Latvia, the Netherlands, Portugal, and Romania (each marked with the ‘*’ sign). Given that the first registered deaths in relation to the coronavirus pandemic were officially published in March 2020, datasets from 2020 were applied only.

During the examination of the second hypothesis – **the COVID-19 crisis management programmes in the V4 proved to be the more successful, the more de-**

cisive a role the given national development bank had within its financial institution system during crisis management. Using structural in-depth interviews, I examined what impact they had in the wake of COVID-19 pandemic-launched crisis management programmes on the operating model and management structure of the national (level) development banks of the V4 countries, as well as their place within their financial institutions.

My initial assumption for the analysis was that the national (level) development banks of the V4 countries have many similarities, for example, the year of their establishment, their size, the institutional model applied (based on a German model) and their position within their financial ecosystems at national level. During the analysis, on the one hand, I highlighted their main measures used during crisis management, reviewed their main programmes, as well as their organisational challenges that appeared in connection with resource management (changes in the number of employees, capital increase, distribution of EU financial instruments, progress and trends regarding their relationships with financial intermediaries).

The in-depth interviews only served to clarify the relationships revealed in the first and third hypotheses. It is important to point out that the development bank employees participating in the in-depth interview expressed their own opinions only (in accordance with internal policies), so it cannot be considered the official position of the examined development banks, and they are not held responsible for what was said.

During the analysis of the third hypothesis – **the COVID-19 crisis management practices of the V4 countries proved to be the more successful the more strongly the effects of the digital transition prevailed in the given regions and countries** – I used cluster analysis to examine how the individual Member States responded to the economic crisis after the COVID-19 pandemic depending on how heavily they invested in ‘digital transition’. I performed the analysis using hierarchical cluster analysis by means of SPSS statistical – econometric software.

In my research, I tried to identify certain groups of countries that can be considered homogenous concerning the economic policy measures of Member States (the value of financial resources allocated to the protection of the economy vis á vis the economic programmes to eliminate the negative economic impact of the pandemic in 2020) and their performance in 2020 based on the Digital Economy and Society Index (DESI). For the research, I used DESI scorecard data normalised with minimum and maximum based on indicators of interconnectedness (dimension 1), digital skills (dimension 2) and integration of digital technologies (dimension 4), which can be deemed decisive concerning the set of conditions and incentives of the digital maturity of enterprises. Regarding the statistics on financial resources allocated for economic protection and economic recovery, cal-

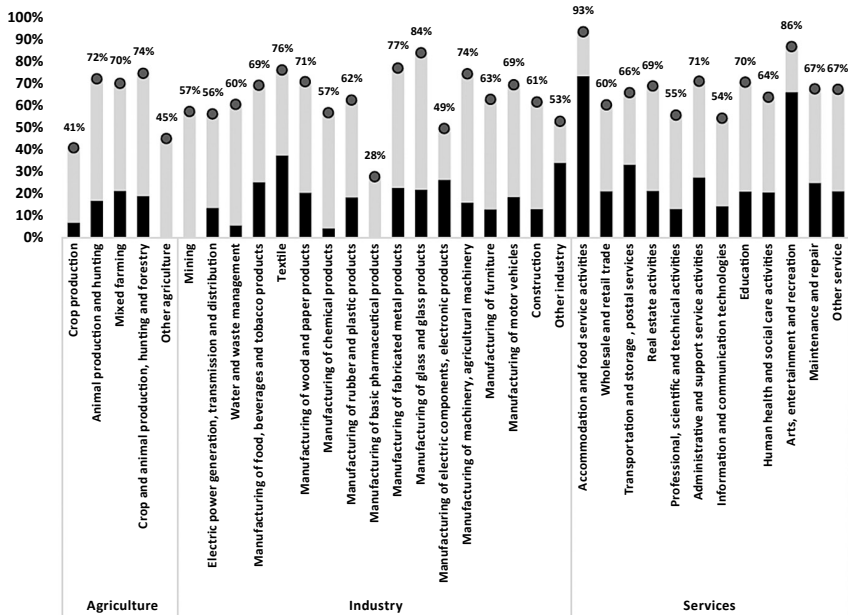
culations were only performed where data were available. The datasets are accessible at the official website of the European Commission and those collected by NEFI (Network of European Financial Institutions for SMEs) voluntarily shared by national (level) development banks.

5.3 Geographical justification of the research

At the beginning of the pandemic, many believed that the Eastern Central European Member States, including the V4 countries, could be the epicentres of the second wave of the epidemic, given their low vaccination coverage compared to Western Europe. Visegrad countries have a very similar economic structure, which is why the COVID-19 pandemic affected their economic structure in a very similar way.

According to a non-representative survey (n = 2077) conducted in March 2020 by MFB in Hungary (MFB Periscope, 2020), the pandemic **severely hit 31 per cent of enterprises**, as they had had no financial reserves. Over 50 per cent of companies in 31 out of 33 sectors answered the pandemic had an adverse effect on their businesses. **Major challenges included the total shutdown of the sector, limited operation caused by pandemic-related measures and liquidity problems.** Micro enterprises typically had no reserves, while over half of them (55%) had reserves for not more than 9 months. Company responses were manifold, comprising of **the delay in already planned investments and developments, reduction of manufacturing or provision of services and 'home office' working schemes for employees.** The respondents believed that, from the point of view of their business activities, **reductions in tax and contribution payments, external financial support to retain employees and simplified guarantee conditions could be a relief.**

Figure 3
Ratio of enterprises affected adversely
and highly adversely by national economy sectors (2020)



Legend: gray (adversely affected enterprises); black (highly adversely affected enterprises)

Source: MFB-INDICATOR survey 2020 (n = 4549, projected multitude = 237 676)

The above measures could be seen in all V4 countries that defined the nature of the crisis management and economic restart programmes, in general. In contrast to the economic crisis of 2008-2009, the COVID-19 pandemic did not find the countries of the region with weakened economies in the first months of 2020. On the contrary, in them 'real wages increased, inflation was low, budgets were tight, and indicators of the current account remained positive' (Pásztor, 2021, p. 2). From an economic point of view, the V4 countries were prepared for the pandemic. Accordingly, many similarities can be discovered in their crisis management practices. Its reasons are the following:

- The first cases linked to the outbreak of the coronavirus appeared in all countries at almost the same time, only a few days apart – in the Czech Republic, three confirmed cases of the coronavirus were announced on 1 March 2020, two were registered in Hungary on 4 March, only one case on the same day in Poland and the first case of coronavirus also appeared in Slovakia on 6 March (Kovács, 2021);

- Hundreds of thousands of jobs were lost – the governments of all four countries reported hundreds of thousands of lost jobs – they tried to reduce the number of lost jobs with various measures and support packages (*Kapicka, M.–Rupert, P.*, 2020);
- Tourism, catering, and related services suffered enormous losses;
- The construction industry was in a difficult situation due to the border closures, as well as a shortage of construction materials due to the slower delivery of goods;
- Recession – GDP decline occurred (*Bartik, A. –Bertrand, M.–Lin, F.–Rothstein, J.–Unrath, M.*, 2020).

Contrary to previous assumptions, it can now be seen that the economies of Eastern-Central Europe performed well during the crisis. Based on EUROSTAT data (EUROSTAT European Statistical Recovery Dashboard), the lowest point of the economic downturn can clearly be seen in **the second quarter of 2020**, when on average the decrease in the GDP of the EU Member states was 11.3 per cent, 13.5 per cent in France, 17.7 per cent in Spain, and 12.9 per cent in Italy. Similarly, the German economy, the driving force of the European economy, fell by 10 per cent. Since European and global economies had been closely interconnected, the negative impact was heavy on the Eastern-Central European countries including the V4 countries (the Czech Republic, Slovakia, Poland and Hungary), in which a decrease of 8.9 per cent (CZ), 7.2 per cent (SK), 9.2 per cent (PL) and 14.4 per cent (HU) respectively occurred in the same period.

The economic difficulties caused by the COVID-19 pandemic also resulted in changes in the structure of corporate financing needs. In one year, the preservation of liquidity became a key factor, the proportion of people seeking liquidity loans and working capital loans increased, and the demand for investment loans decreased. Eastern-Central European countries, such as the V4 countries, typically specialise in one manufacturing sector. It can be concluded that their most significant manufacturing industrial partner is Germany, which experienced a less favourable 21.3 per cent decline in the second quarter of 2020 (especially in April 2020) compared to the average 19.2 per cent decline in the European Union because of the COVID-19 pandemic. Thanks to the interconnectedness of the supply chains, **the production specialisation of the V4 countries (i.e., the specialisation of the manufacturing industry) follows the trends of the German manufacturing industry.** As a result, in April 2020, the volume of industrial production in the V4 countries experienced a significant drop due to the COVID-19 pandemic. The industrial production of the Czech Republic, Slovakia, Poland, and Hungary saw a drop of 24.3 per cent (CZ), 26.5 per cent (SK), 21 per cent (PL) and 29.8 per cent (HU), respectively. Also in the same

period, the founding of new businesses reached its lowest point, which shows a 23 per cent decrease at the EU level, while entrepreneurship decreased by 17.1 per cent in Germany, by 24 per cent in Slovakia, and by 28 per cent in Poland (such data are not available for the Czech Republic and Hungary for comparison).

Finally, the number of corporate liquidations and bankruptcy proceedings have shown significant volatility since the beginning of the pandemic, which was initially mitigated by state rescue packages, the moratorium and robust economic recovery, but after the pandemic, an increase can be observed again due to the reduction of the role of the state, as well as new challenges such as an increase in raw material prices, disruptions in global supply chains and inflation.

6. FINDINGS

6.1 First hypothesis

The Member States of the European Union have taken measures since March 2020 to curb the spread of the COVID-19 pandemic and to help their enterprises (KRTK Világgazdasági Intézet, 2020). The Member States allocated major financial resources through their national development banks to aid firms in difficulty by providing preferential loan schemes, and guarantee schemes. Data show (NEFI, 2020) that a total of 2,223,587 enterprises were involved in rescue programmes aimed to mitigate the negative economic impact of the COVID-19 pandemic and allocating a total of EUR 123,789.76 million to loan programmes and an additional volume of EUR 143,021.80 million to guarantee schemes (data is based on the voluntary disclosure made by national development banks). In terms of territorial distribution, the most significant programmes were introduced in Germany, Spain and France. According to the data provided by the V4 countries, their national development banks provided guarantees exceeding EUR 7 819.80 million to 87,097 enterprises and loans that amounted to EUR 2 066.09 million to approximately 22,148 enterprises. The number of enterprises supported reached 97,623 enterprises, which corresponds to 2.3 per cent of all operating enterprises (including micro, small and medium-sized ones) based on data from the last available year (EUROSTAT, 2019). In 2020, the EIB European Investment Bank started the creation of an EUR 25 billion Pan-European Guarantee Fund to mobilise EUR 200 billion of funding in addition to alleviating liquidity difficulties for Europe's small and medium-sized enterprises. By the end of 2020, a total of 21 Member States had joined the Guarantee Fund (European Commission, 2020d), including Poland and Slovakia. The calculation related to joining the guarantee fund was made based on Commission information of 14 December 2020.

As step one in analysing the success of crisis management in the Member States, the degree and nature of the relationship (correlation) between the level of economic development of each Member State (measured by real GDP per capita) as well as data on per capita government revenues, per capita government expenditure, per capita private consumption, the resources of crisis management loan programmes per capita and accession to the Pan-European Guarantee Fund were identified. The value of ' r ' can range from -1 to $+1$, the absolute value of the indicator shows the tightness of the relationship, and its sign ($+$ versus $-$) indicates the direction of the relationship. The stronger the relationship between two variables is, the closer the absolute value of the correlation coefficient falls to 1. If the value of ' r ' is 0, the relationship of the two variables under consideration can be called uncorrelated, that is, there is no linear relationship between the variables. The methodology has certain limitations, so it was not possible to reveal a causal relationship, i.e., the variables can be influenced by other random effects and the outliers needed to be filtered out, as well as a special method had to be taken into account due to the small sample size (Kovács, E., 2014). Looking at the level of economic development of the Member States in 2020, we can conclude that there is a negative and medium-strong correlation between the impact of the coronavirus outbreak on the economy (economic downturn) and the resources of crisis management programmes. All this suggests that a rapid, targeted, and sufficient allocation of resources can be identified as one of the defining elements of successful crisis management. Filtering out demographic differences between Member States shows that crisis management programmes vary considerably between Member States in their volume per capita. The most significant resources were allocated in Germany, France, and Malta. A common feature of Member States with successful crisis management is that their resources for COVID-19 crisis management are diversified, i.e., they include guarantees in addition to preferential loan products. Their effects, in turn, spill over into the entire economy, preparing the foundations for government revenues and for consumption. Among the factors examined, the effects of joining the Pan-European Guarantee Fund are the most notable, as there is a positive and medium-strong correlation between government revenues, government expenditure and residential consumption, and the availability of guarantee schemes. It is important to point out that accession to the guarantee scheme was affected, among other things, by the conditions, size, and accessibility of the guarantees already available in some Member States. When interpreting data, it is important to take into account that, typically, those Member States did not join the Pan-European Guarantee Fund, that, even before the crisis, had already provided funds to their enterprises on favourable terms or on terms more favourable than those being made available by the guarantee fund (under State guarantee).

Figure 4
Crisis management in EU Member States (Pearson's correlation coefficients)

	GDP per capita (2020)	Government revenues per capita (2020)	Government expenditures per capita (2020)	Residential consumption per capita (2020)	Budget of COVID-19 rescue programmes per capital (2020)	Participation in the Pan-European Guarantee Fund (2020)
GDP per capita (2020)	1.0000					
Government revenues per capita (2020)	0.9294	1.0000				
Government expenditures per capita (2020)	0.9383	0.9959	1.0000			
Residential consumption per capita (2020)	0.9214	0.9670	0.9721	1.0000		
Budget of COVID-19 rescue programmes per capital (2020)	0.0267	0.0272	0.0429	0.0730	1.0000	
Participation in the Pan-European Guarantee Fund (2020)	0.3813	0.3713	0.3843	0.4715	0.1155	1.0000

Source: own edition, based on EUROSTAT database and NEFI data

In addition to conditions already described the size of the allocation of funds for COVID-19 crisis management differs across Member States. There is a positive and strong correlation between the loan products available to the businesses mostly hit by the coronavirus outbreak and the employment and death events that have occurred because of the pandemic, suggesting that the more pressure was placed on the labour market and healthcare system in a given Member State during 2020, the more resources were allocated by that Member State to crisis management. Carrying out the above examination exclusively for the V4 countries, we can conclude that the resources of the loan programmes for crisis management determined the success of crisis management to a much greater extent than those in the Western European Member States. On the other hand, due to the nature of the State guarantee already available, there is a negative and medium-strong correlation with real GDP development. Overall, it can be concluded that the COVID-19 crisis management loan and guarantee programmes can clearly be seen as the determinant of economic performance.

Considering the effects of the COVID-19 pandemic on the labour market and healthcare system, it can be concluded that in the case of the V4 countries, much more significant correlation can be observed between mortality datasets and employment over time than in Western European Member States. In addition, there is a much closer, negative correlation between the performance of the economy and the volume of resources allocated to crisis management. Consequently, in the V4 countries there were typically fewer resources available for crisis management,

which was primarily driven by the evolution of mortality statistics and the size of the available state resources.

Figure 5
The relationship between the economic and demographic characteristics of the V4 countries

	GDP per capita (2020)	Employment (2020)	Mortality (2020)	Budget of COVID-19 rescue programmes per capita (2020)
GDP per capita (2020)	1.0000			
Employment (2020)	-0.4924	1.0000		
Mortality (2020)	-0.5470	0.9977	1.0000	
Budget of COVID-19 rescue programmes per capita (2020)	-0.7553	-0.1462	-0.0793	1.0000

Source: own edition, based on EUROSTAT database

As step two in the analysis of the success of Member States' crisis management, I wondered to what extent the economic development of each Member State (measured by real GDP change) played a part in the success of crisis management programmes. Within the correlation calculation table, the following variables had a moderately strong to strong correlation between economic development and the resources of the Pan-European Guarantee Fund as well as the crisis management loan programmes. Consequently, between these variables, I further investigated the existence or absence of a function-like relationship, in accordance with the following hypotheses:

- **Null hypothesis (H_0):** There is no correlation between economic development and the total volume (budget) of financial resources allocated for crisis management (Pan-European Guarantee Fund, crisis management loans).
- **Alternative hypothesis (H_1):** There is a functional relationship between economic development and the total volume (budget) of financial resources allocated for crisis management (Pan-European Guarantee Fund, crisis management loans).

Using regression analysis, I studied the functional relationship between economic development and the other variables included in the review.

Figure 6
Regression statistics for testing the hypothesis

Regressziós stratégia	
value of , r '	0.94101277
value of , r square'	0.885505033
corrected value of , r square'	0.858244327
standard deviation	6599.526948
sample size	27

Source: own edition, based on EUROSTAT database

Based on the results obtained, the explanatory power of the model is relatively high at 88.5 per cent (r^2), so that with the help of the variables studied, almost the entire range of the actual aspects of the relationship between the economic development of the Member States and their crisis management practices was covered. Based on the results of the analysis (the relationship of the values of α and p to each other), it can be concluded that **the statement contained in the hypothesis (alternative hypothesis) is correct**, that is, based on the results of 2020 alone, it can be concluded that there is a functional relationship between the success of crisis management in each Member State and the diversity of financial products used (loan and guarantee programmes).

6.2 Second hypothesis

The operation of the national (level) development banks of the V4 countries was determined by the effects arising from the economic situation due to the COVID-19 pandemic during 2020. In addition to mitigating the economic damage caused by the crisis, the basic goal of national (level) development banks in 2020 was also the optimal and rational use of state assets. The recession caused by the crisis fundamentally affected the performance of banks in 2020, namely the profit and loss, the size of, direction of, type of and distribution channels of placements applied. All national (level) development banks have made financing (rescue) packages available to businesses through coordinated loan, equity, and guarantee programmes to counteract the negative economic impact of the coronavirus outbreak and to help restart the economy.

Regarding their financial results (profitability) in 2020, the main conclusion is that all national (level) development banks in the V4 countries achieved positive results (surplus), except for MFB. However, in terms of their performance and size, the national (level) development banks of the V4 countries – except for the Polish BGK

– were not sufficiently prepared for the increased commitments regarding the distribution of financing to businesses as well as for the heavy workload caused by the COVID-19 pandemic. Since the beginning of 2020, those banks have become key players in their national epidemic and crisis management programmes. Those programmes were focusing on solving the liquidity problems of enterprises, preserving jobs (for example, in the case of ČMZRB and MFB), encouraging investments and developments as well as preserving the ownership of enterprises in domestic hands. The main target groups of the financing programmes were the service sector and industry in all cases, while agriculture was supported with the help of revised loan programmes (for example, in the case of MFB) and extended guarantee conditions (for example, in the case of BGK). As a result of the large-scale decline of the tourism sector, helping businesses in difficult situations involved in the tourism sector played a central role in all countries studied (for example, in the case of SZRB and ČZMRB). All programmes concerned, the main focus was on services and the industry. Since tourism significantly declined, supporting enterprises active in the agricultural sector has been a priority in all V4 countries (for instance, SZRB and ČZMRB). The new type of loan and equity programmes provided support to businesses in difficulty due to the unexpected circumstances arising as a direct consequence of the epidemic. Those were typically micro and small businesses, which had no or only limited access to external financing because of the decline in their business performance. The legal background of the loan and guarantee programmes introduced in the V4 countries is similar, and they were typically introduced in spring 2020. Financing was backed partly by the national governments, and partly by resources being made available under the temporary framework of the European Union. The largest comprehensive rescue programme (comprising of 19 sub-programmes in total) was introduced by Poland, which complemented the already existing guarantee programmes, and specific loan programmes available for innovative small and medium-sized enterprises aimed at improving the continuous supply of loans to the SME sector. BGK's programmes also included guarantee, liquidity- and interest support facilities as well as factoring instruments based on own funds and EU funds, in addition to the thematic funds. This was followed by MFB's programmes (including 9 programmes), which, in addition to the above, also helped companies in difficulty resulting from the epidemic situation with dedicated equity programmes. It is particularly worth to mention MFB's ability to respond quickly, relatively soon after the announcement of the crisis, as in April 2020, programmes to strengthen the resilience of businesses were already published. Programmes and solutions of almost the same type have been drafted in Slovakia (with 2 programmes) and the Czech Republic (with 4 programmes). The practice of the Czech National Development Bank with regard to the programmes called COVID I/II/III and Prague is noteworthy, as it offered

a very favourable, interest-free loan scheme in terms of its conditions that helped businesses in trouble quickly with an advance payment up to 90 per cent of the total ticket size.

In the case of the countries examined, it can be concluded that the elaborated loan and guarantee programmes included 100 per cent interest-rate subsidy for the entire duration of the loans and/or 100 per cent guarantee fee subsidy for the entire duration of the guarantee, and their target groups were specifically in connection with the epidemic situation (as per Commission Regulation 654/2014/EU, Section 18) mostly micro, small, and medium-sized 'enterprises in difficulty'. The products of the SZRB, which were accessible to micro, small and medium-sized enterprises without limitations, deserve special attention. The use of the range of guarantee products also increased, almost all loans were backed by an automatic state surety, ranging from 80 per cent to 100 per cent. From this point of view, the Slovak practice stands out. It provided a 100 per cent guarantee in the case of certain programmes. To ensure more favourable pricing of the products concerned, a framework agreement was established in Hungary and the Czech Republic between the national development bank and the central bank. In addition to all this, different solutions were set out in each country. While in the Czech Republic the central bank decided to reduce the interest rate and the rate of the countercyclical buffer (CNB, 2021), in Hungary (MNB, 2020) it decided to widen the bond purchase programme of the central bank together with Poland (NBP, 2021). Slovakia benefited from the European Central Bank's new quantitative easing scheme. All these measures facilitated fiscal policy measures, including the intervention of national (level) development banks. The central banks of the V4 countries almost without exception provided significant refinancing to the entire banking system. A unique 'co-operation model' has emerged in Hungary between the central bank (MNB), the state and MFB, in which MFB played an integrator, so called 'bridge maker' role. As part of this, the central bank launched the Funding for Growth Scheme Go! ('NHP Hajrá') providing funds of HUF 3,000 billion (as part of refinancing) to the actors of the Hungarian banking system. In addition, the central bank wanted to ensure, among other things, the sterilisation of the surplus liquidity resulting from the NHP Hajrá schemes with the preferential deposit instrument (4 per cent interest rate). As part of the solution, the banks on the credit supply side received extra interest on their preferential deposits held at the central bank on some loans issued under the umbrella of NHP Hajrá, thus improving their profitability and encouraging them to use NHP Hajrá. The refinancing loan provided by MFB made it possible within a unique sales channel, which is exceptional among the V4 countries, that is, financial intermediary enterprises obtained funding at a negative interest rate (-0.5 per cent). The 3 per cent risk cost of financial intermediary enterprises was thus able to be covered

by the generated ‘margin’. These resources enabled to finance micro, small and medium-sized enterprises whose financing needs could not be met by any commercial credit institution for some reason. As a result, they could not have access to adequate financing to remain competitive and to ensure their continuous development, at all or under significantly less favourable conditions. In addition, MFB was also committed to take over non-performing transactions related to the products covered by state surety from financial intermediary enterprises and to act on its own behalf towards the NAV National Tax and Customs Office. In terms of the use of the established guarantee programmes, it can be stated that in all countries examined, trade, industrial production activities and the construction sector, while in terms of loan programmes, industrial production activities, trade and transport sectors received the largest proportion of the resources compared to all the sectors concerned. In general, evidence shows that the main reasons for any un-submitted applications are to be found in the lack of eligibility, inadequate level of own contribution available, and the relatively high risks associated with the repayment concerning the enterprises concerned (MFB, 2021). On the other hand, the companies that submitted applications highlighted the advantages of the products such as typically low transaction costs, favourable product conditions, and the wide scope of eligible activities supported by the available products.

Table 2
Absorption of crisis management and economic restart loan and guarantee programmes (2020)

	BGK (PL)	MFB (HU)**	ČMZRB (CZ)	SZRB (SK)***
Overall programme budget, (2020)*	EUR 11,842.88 million	EUR 4,671.74 million	EUR 1,791.02 million	EUR 40 million
Number of loan contracts signed (pc)	n.a.	2,154	165	n.a.
Total amount of disbursement (loans, in million)	EUR 10,074 million	EUR 423 million	EUR 35.3 million	EUR 40 million
Number of guarantee contracts signed (pc)	1,626	25,915	6,598	n.a.
Total amount of disbursements (guarantee, in million)	PLN 3,191.64 million	EUR 2,387 million	EUR 1,106 million	EUR 20.4 million
Level of surety (in per cent)	60 to 80 per cent	90 per cent	70 to 90 per cent (Subject to type of beneficiary and loan amount requested)*	80 to 100 per cent

Notes: *Conversion has been performed with the use of the currency converter of the European Central Bank (<https://sdw.ecb.europa.eu/curConverter.do>) at the exchange rate of 31 December 2020.

**MFB Zrt. also concluded 139 equities transactions that have not been indicated in the table above.

***Regarding SZRB, the funds allocated doubled during the year. The statistics include the transactions drawn down from the extended funds.

Source: own data collected (2020 annual reports)

Regarding Polish BGK and MFB, loan programmes co-financed by the temporary framework of the European Union as part of the crisis management and economic relaunch programme, have been implemented as measures addressed to promote technological innovations for companies. In Poland and Hungary, direct agricultural payments have become particularly important, given the relatively large size of their agricultural sectors. Overall, it can be concluded that thanks to European Union support, Poland would post a budget of 29.6 billion euros, the Czech Republic of 8.6 billion euros, Hungary of 6.4 billion euros and Slovakia of 6.3 billion euros by 2023. Based on relative indicators, calculated on a 2019 basis, Slovakia may expect the largest European Union payment (6.7 per cent of GDP in 2019), followed by Hungary (6 per cent of GDP in 2019), Poland (5.6 per cent of GDP in 2019), while the Czech Republic may earmark cc. 2.9 per cent (*Astrov, V.-Holzner, M.*, 2021). In order to mitigate the negative economic impact of the COVID-19 pandemic on the national economies, a moratorium on corporate and household loan instalments has been imposed – out of which, the Czech loan repayment moratorium ended first at the end of October 2020. Regarding the duration of moratorium on corporate and household loan instalments, a moratorium of 15 months in Hungary, of 6 months in the Czech Republic and Slovakia, and of 3 months in Poland was introduced, compared to an average of 7.2 months in the Member States of the European Union. Currently, there is no other moratorium in place in the European Union than the 15-month-long one applied in Hungary. Applications to participate in the moratorium were managed by MFB.

The expansion of business activities led to an increase in the capital requirements of national development banks that in certain cases resulted in capital increases (for example, in the case of MFB, SZRB and ČMZRB) in the form of owners' paid-in capital. Regarding the role that national development banks play within their financial ecosystems, evidence shows that the Polish, Hungarian, and Czech development banks have established strong co-operation ties with the actors in their ecosystems. Polish BGK, Czech ČMZRB and Slovak SZRB were able to reach the businesses concerned with the help of their branch offices relatively easily, however, their operation was still heavily criticised at the beginning of crisis management (mainly in the case of ČMZRB and SZRB). MFB, on the other hand, distributed the financial resources assigned to crisis management to the final beneficiaries without having a network of branch offices, with the involvement of commercial banks. Nevertheless, despite the above special circumstances, MFB achieved an exceptionally high level of placements during 2020, exceeding the financial results of 2019. Consequently, the national development banks of the V4 countries, mainly due to the organisational changes applied along the 2008-2009 crisis, were prepared for the uncertainties in the banking environment caused by the COVID-19 pandemic. Therefore, they were able to reorganise their operations

faster. As part of this process, to preserve operational security, organisational changes have also occurred in many banks. At the Slovak national (level) development bank, a new organisational unit was established (Marketing Directorate), while elsewhere the organizational units dealing with product development and lending were expanded. Compared to 2019, a change in the size and composition of the Boards of Directors also happened.

Table 3**Organisational changes at national (level) development banks in 2020**

	BGK (PL)	MFB (HU)	ČMZRB (CZ)	SZRB (SK)
Change in the size or composition of the Board of Directors in 2020 (base: 2019, FTE)	The size of the Board of Directors remained unchanged, totalling 6 people (changes in the composition)	The size of the Board of Directors decreased by 2 people from 7 to 5 (2 ↓)	The size of the Board of Directors increased by 1 person from 5 to 6 (1 ↑)	The size of the Board of Directors decreased by 2 people from 5 to 3 (2 ↓)
Change in the number of people employed compared in 2020 (base: 2019, average staff number / FTE)*	The number of people employed decreased from 1,708 to 1,859	The number of people employed increased from 356 to 359	The number of people employed increased from 135 to 154	The number of people employed increased from 160 to 238

Source: own data collection (2020 annual reports and in-depth interviews conducted with the representatives of national development banks)

Regarding national development banks, changes in the number of people employed were mainly due to the increasing demand for financial products, which directly affected the number of staff engaged in lending and in customer services, as well as because of internal re-organisation leading to improved efficiency in banking operations. National (level) development banks in all the V4 countries adopted operating models in support of customer relationship management that enabled quick response to change as well as the flexible allocation of available staff at the times of heavy workload. All that has become an accepted value as part of 'workplace culture'. The changes also affected the operations of both the core (business) and supporting areas. In addition to processes, the changes also affected the systems applied including the scope of IT system developments. In contrast, the reason for the increase in the number of employees in the case of ČMZRB was the expansion of banking activities as well as a government decision to integrate new areas into banking. In parallel to crisis management, all the development banks concerned have strengthened their efforts to apply digital

solutions and to establish environmental management systems (including green finance and related financial products) at both strategic and operational levels – motivated by the guidelines issued by the European Central Bank and the European Investment Bank. Even though national promotional banks, in general, fall outside the scope of the CRR Regulation (575/2013/EU Regulation) and of the CRD Directive (2013/36/EU) given the fact that development banking activities are on the exception list, green finance and related ease in capital requirements regardless of internal or external circumstances, significantly affect their activities. Banks have taken significant steps to review overall banking operations and to transform lending activity in relation to climate change and sustainability challenges (from an ESG perspective). Among these, the operation of ČMZRB stands out, which was the first bank in the Eastern-Central European countries to re-organise its lending activities in this regard, and currently its good practice is also being studied by MFB with the involvement of the Czech PwC. On the other hand, BGK's achievement in the field of digitalisation (BGK, Strategy 2021-2025), which permeates the entire banking operation, is noteworthy. Finally, the activities of MFB in Hungary, which is considered a pioneer in addressing the impacts of ESG with its annual ESG survey, a so termed sustainability framework has been put in place, which does not only cover the bank but also the banking group members, focusing on the corporate governance system, the assessment of sustainability performance, financing activities as well as the various aspects of internal operations.

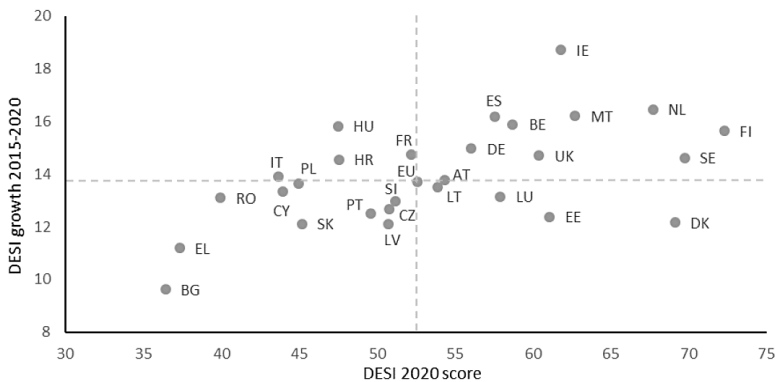
Based on the results of the analysis carried out, one can conclude that **national development banks had a decisive role in the economic recovery of the V4 countries**. Consequently, **the statement laid down in the hypothesis is correct**, i.e., limiting the analysis to the financial year 2020, it leads to the conclusion that there is a correlation between the success of the coronavirus crisis management and economic restart programmes as well as the role of the respective national promotional bank within its respective financial ecosystem.

6.3 Third hypothesis

The COVID-19 pandemic has effectively illustrated how important digital tools are for Europe's economy as well as how networks and internet access, data, AI, and supercomputing, basic and advanced-level digital skills jointly support the economies and societies of the Member States by allowing operations to continue, by monitoring the spread of the virus and by accelerating pharmaceutical and vaccine research. Digital technologies are expected to play a central role in post-pandemic Europe; the European Council and the European Commission made a commitment in 2020 to promote recovery from the pandemic in the form of a

‘dual transition’ addressing aspects of both climate neutrality and resilient digital transformation. Therefore, my assumption was that the economic, historical, and social attributes of the V4 countries including the operating model of their national (level) development banks were like each other. Accordingly, supporting their digital transformation was equally significant for the successful recovery from the crisis. Digitalisation also did not leave the banking sector behind; banks were seriously preparing to provide customers with internet borrowing, chatbot services and operating in a new kind of ecosystem. So, my assumption was that the importance of digital transformation was already clear for the V4 countries in 2020, which determined their crisis management and economic restart efforts. Looking closely at the performance of the V4 countries in the period between 2015 and 2020, Hungary was a forerunner of digital transformation showcasing the highest growth rate followed by the Czech Republic, Slovakia, and Poland. The V4 countries are still behind their Western European counterparts, but the pace of their catching-up is promising.

Figure 7
History of DESI index between 2015 and 2020



Source: European Commission, rankings of the digital economy and society of the Member States of the European Union, 2020 annual report, available at: https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=67086.

Regarding the performance of the V4 countries based on the DESI indicators of 2020 (as per the 2021 annual report), it is obvious that the V4 countries faced major challenges in terms of digitalisation. By their digital performance, the Czech Republic had the highest score, while Hungary, Slovakia and Poland had lower scores (quite like each other). According to the DESI index of the EU, the performance of all V4 countries was less favourable than the EU average; the Czech

Republic was ranking number 17, Hungary was ranking number 21, Slovakia was ranking number 22 and Poland was ranking number 23.

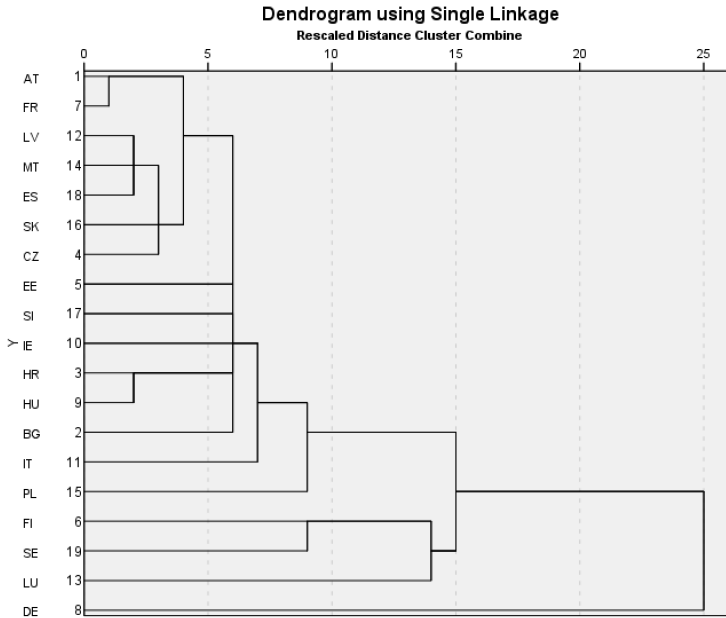
Applying cluster analysis as a methodical consideration allowed me to identify groups of the Member States as ‘(using the nearest neighbour approach) entities most similar to each other within a given set’ (Kovács, E., 2014:57). In view of the sample size of Member States (< 100), I carried out a hierarchical cluster analysis, in which a merging (agglomerative) hierarchical procedure initially considered each of the ‘n’ elements as a separate class, and then one coupling was performed step by step.

I performed the merger in (n-1) steps, which in the end incorporated all member states. 4 clusters have been generated in that way, while sections of 3 and 2 clusters display the exact position of a member state in a cluster. The calculations were made as the series of three steps:

- I made a similarity or distance matrix out of the initial data,
- I interpreted the proximity of individuals and groups to each other,
- I illustrated the merger process.

Using the nearest neighbour method, I visualized the results using a dendrogram (tree) based on a square Euclidean distance to illustrate the revealed system of relationships. However, it is important to note that no matter how carefully I chose distance measures (in our case, 5 units) and clustering procedures (merging hierarchical procedure), however I compared dendrograms, I did not get a definitive answer to the question of how many groups the studied data set can be divided into. This method of structure exploration is suitable for explorative purposes only. Based on the figure, a hypothesis can be formulated for groups of the Member States. Furthermore, the dendrogram was an effective tool in revealing extreme values (e.g., in the case of Germany), since the unique nature of the observations at the high distance level and/or later in the coupling stage is striking.

Chart 8
Clustering (grouping) of Member States
regarding digital transformation on a dendrogram



Source: own calculation, using SPSS Statistical Analysis Software

As the chart above illustrates, among the V4 countries the Czech Republic and Slovakia closely resemble each other in terms of the development of their digital economies and the financial resources spent on re-launching their economies. All these facts verify the assumption of the second hypothesis, namely, the V4 countries applied similar economic recovery measures in practice in 2020 in addition to the scale of the resources. At the same time, both Hungary and Poland can be considered as separate 'islands' that, at the second and third steps of the clustering process respectively, are integrated into the logical system of European Union countries together with the Czech Republic and Slovakia. Besides the volume of the financial resources allocated for the economic relaunch, the characteristics of the management and organisational characteristics of their national (level) development banks in 2020, can be also explained by the fact that these institutions had a more stable, well-developed IT infrastructure than their peers, and their businesses recognised the potential of digital transformation at different times. Slovakia, the Czech Republic, and Hungary have more in common according to the results, and Poland is at the gateway to an expansion of digitalisation.

Based on the above explanation, the hypothesis examined is **correct**, i.e., national (level) promotional banks that are open to the opportunities offered by digitalisation have typically achieved better results in crisis management. To interpret the results, it is important to note that at European Union level, Sweden and Finland are situated in the second cluster, based on the results of the analysis, while Germany is located in the third and Luxembourg in the fourth cluster.

7 SUMMARY

The crisis management of the V₄ countries shows many similar features, relying on measures already tested and validated in the frame of the 2008-2009 crisis management such as the increase in government support provided to economic actors in need as well as the expansion of the scope of credit insurance (*Csiszárík-Kocsir, Á.–Fodor, M.*, 2013). In the past two decades, the economic weight of the V₄ countries has more than doubled within Europe. As part of this, the governments placed increasing emphasis on strengthening and reorganising their national (level) development banks. A common feature of crisis management measures is the use of credit-based crisis management, i.e., the introduction of a moratorium aimed at suspending repayments, state guarantee programmes that offset the reduction of banks' risk appetite, and credit programmes that encourage the increase in banks' lending activities. In addition, the strengthening of individual institutions within their financial ecosystems also played a role in their successful crisis management practice, through which the reduction of the rate of unemployment and support to the rapid recovery of the industry from the crisis – including the stimulation of the construction industry – were at the forefront of longer-term measures. However, differences can be observed between the crisis management and economic recovery programmes of the countries concerned.

In Poland, which serves as an example for MFB, several concrete measures were announced as part of a monumental rescue package, executed by BGK, but at the same time, the package also contained several medium- and longer-term measures that had not been set out by the time they were announced. In Hungary, in close co-operation with MFB, economic restart stages were announced, focusing first on re-opening and then on re-starting the economy. In all cases, European Union funds (RRF, MFF) also co-financed a certain share of the economic restart, but during 2020, the Hungarian government refused to get engaged in further EU borrowing, so it did not participate in the establishment of the Pan-European Guarantee Fund.

Further, in Hungary, a law on protection against the coronavirus was introduced by the Parliament, which gave the government the authorisation to rule-by-decree

and tightened the ban on scaremongering (*Magyar Közlöny*, 2020). As a result of the fiscal and economic policy adjustments and measures applied by the V4 countries, the countries analysed responded to the first wave of the COVID-19 pandemic in a more prepared manner than their Western European counterparts.

It is now evident that Hungary's crisis management and economic restart can be regarded as successful. Based on the statistics, the loan, capital, and guarantee products developed by the MFB Group can be considered effective tools for crisis management. As of today, MFB has taken over only one transaction from financial intermediary enterprises due to non-performance. Consequently, the conclusion can be drawn that the characteristics of the financial products and the credit evaluation process overall can be called sufficiently well-elaborated and thorough, despite the urgency of the time and political/public pressure. In addition, the background of successful placements is the establishment of unique distribution channels originating in the structure created in the 2007–2013 European Union programming period. Then, MFB established strong cooperation ties with financial intermediary enterprises that played a considerable role in promoting access to finance to less prosperous, riskier enterprises underserved by commercial banks in general.

Co-operation with commercial banks (serving mostly the more successful SME segments) and financial intermediary enterprises (serving mostly the less successful SME segment) can serve as a model for national (level) development banks in the V4 countries in the absence of branch offices, especially when revising the sales channels applied by ČMZRB and SZRB. To date, those development banks serve their customers through a small number of regional offices, while MFB has a system in place consisting of 41 financial intermediary enterprises and 642 MFB Points (a network of commercial bank branches with nationwide coverage).

Finally, one can note that without the rapid and targeted intervention of MFB, thousands of Hungarian enterprises would have gone bankrupt or suffered serious losses. Thanks to its role in the governmental institutional system and the ministry responsible for supervising state-owned institutions, MFB can influence government decisions effectively, quickly and on a well-founded basis. Compared to the national (level) development banks of the V4 countries, MFB's crisis management and economic restart programmes commenced quickly and targeting sectors in need, and their results appeared already at the end of 2020, exceeding the results of the surrounding countries by an order of magnitude. MFB also succeeded in developing a flexible, adaptable organisation that, despite the unprecedented challenges, was able to bring about a noticeable change for businesses facing difficulties due the COVID-19 pandemic, without a significant increase in the number of employees, with the help of the rapid mobilisation and optimised use of available resources. The unique processes and systems developed within MFB,

the commitment and professionalism of the management jointly present a good example to counter the negative effects of a potential, forthcoming economic or financial crisis requiring considerable financial resources, either in Hungary or in Europe.

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