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# FINANCIAL AND ECONOMIC REVIEW

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The Growing Importance of the Economic  
Role of the Corporate Bond Market

Attila Bécsi – Gergely Bognár – Máté Lóga

Climate Change in the Capital Markets: A Study  
of Actively Managed Green Bond Funds

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Financial Exclusion in the Digital Payment Space

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Elemér Terták

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## **FINANCIAL AND ECONOMIC REVIEW**

**The address of the Editorial Office: H-1013 Budapest, Krisztina körút 55.**

**Phone: +36-1-428-2600**

**Fax: +36-1-429-8000**

**Homepage: <https://en-hitelintezetiszemle.mnb.hu/>**

### **Editorial Staff:**

**Dániel Palotai** Editor-in-Chief: [szemle@hitelintezetiszemle.hu](mailto:szemle@hitelintezetiszemle.hu)

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# Contents

Vol. 20 Issue 4, December 2021

## STUDIES

**Attila Bécsi – Gergely Bognár – Máté Lóga:**

The Growing Importance of the Economic Role of  
the Corporate Bond Market ..... 5

**Emilia Németh-Durkó – Anita Hegedűs:**

Climate Change in the Capital Markets: A Study of Actively  
Managed Green Bond Funds ..... 38

**Márta Somogyvári:**

Financial Exclusion in the Digital Payment Space ..... 65

**Gabriella Grosz – Evelyn Herbert – Gábor Izsák – Katinka Szász:**

Issues Relating to the Creation of a Central Database to Support  
Statistical Property Valuations ..... 86

## OUR VISION

**György Szapáry:**

Centripetal and Centrifugal Forces in the European Union ..... 118

**Elemér Terták:**

Reflections on the Essay ‘Thoughts on the Dilemma of When to  
Introduce the Euro in Hungary’ by Péter Gottfried ..... 130

## FEATURE ARTICLES

*Challenges of the 21st century*

**András Balogh:**

What Causes Inflation? – The Relationship between Central Bank  
Policies and Inflation ..... 144

**Zsolt Becsey, Jr. – Áron Máté:**

Successful Convergence in the Visegrád Region: the Example  
of Czechia ..... 157

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### **Market megatrends**

#### **András G. Szabó – Koppány Nagy:**

Situation and Financing Capacity of the Hungarian Insurance Market . . . . . 170

### **BOOK REVIEWS**

#### **Géza Salamin:**

Urban Planning in an Economic Approach

(Edward Glaeser: Triumph of the City: How Our Greatest Invention

Makes Us Richer, Smarter, Greener, Healthier, and Happier) . . . . . 180

#### **Bence Varga:**

The “Old Lady of Threadneedle Street” – The Bank of England  
and the Development of the British Banking System

(Richard D. Richards: The Early History of Banking in England) . . . . . 186

### **CONFERENCE REPORTS**

#### **Ferenc Tóth – Pál Péter Kolozsi – Balázs Lóránt – Katalin Juhász:**

Report on Discussions at the 2021 Annual Congress of the  
Hungarian Economic Association on Finances, the Euro,

Green Finance and Competitiveness . . . . . 192

#### **Veronika Mikes – Györgyi Puhl:**

Central Bank Digital Currency and the Role of the Renminbi after

the Covid-19 Pandemic – Report on the Budapest Renminbi Initiative

Conference . . . . . 207

# The Growing Importance of the Economic Role of the Corporate Bond Market\*

Attila Bécsi – Gergely Bognár – Máté Lóga

*The role of corporate bonds has expanded globally in the past decade, as they are an ideal financial instrument both for diversifying the liability structure of issuing companies and managing investors' portfolios. An adequately developed, liquid corporate bond market has a beneficial effect on the functioning and transparency of the market mechanisms of the economy and can also strengthen the crisis resilience of the financial system. Several studies have shown that – in addition to the normal functioning of companies – the issue of corporate financing is also important in crisis management, as uncertainty during a crisis has a negative impact on the liquidity of bank lending, limiting companies' funding options. In such a situation, it is therefore vital that companies can also rely on other forms of financing. Recognising this in the aftermath of the 2008–2009 economic crisis, central banks in a number of countries launched bond purchase programmes in order to start supporting the expansion of the corporate bond market. Thanks to the Bond Funding for Growth Scheme (BFGS) of the Magyar Nemzeti Bank (the Central Bank of Hungary, MNB), the Hungarian corporate bond market now offers a realistic financing alternative to bank loans for a wide range of companies.*

**Journal of Economic Literature (JEL) codes:** G01, E52, E58, G15

**Keywords:** corporate bond market, asset purchase programme, economic and financial crisis, monetary policy

## 1. Introduction

The 2008–2009 global economic and financial crisis highlighted a number of structural problems in the financial system that need to be addressed in order to make markets more resilient in the event of another crisis. These include

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\* The papers in this issue contain the views of the authors which are not necessarily the same as the official views of the Magyar Nemzeti Bank.

Attila Bécsi is an Analyst at the Magyar Nemzeti Bank. Email: [becsia@mnbb.hu](mailto:becsia@mnbb.hu)  
Gergely Bognár is an Analyst at the Magyar Nemzeti Bank. Email: [bognarg@mnbb.hu](mailto:bognarg@mnbb.hu)  
Máté Lóga is a Director at the Magyar Nemzeti Bank. Email: [logam@mnbb.hu](mailto:logam@mnbb.hu)

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the importance of diversifying corporate funding, since means of financing that provide alternatives to bank loans, such as bond issuance, create additional opportunities for companies to access finance even in the event of reduced bank lending liquidity. Corporate bonds provide companies with predictable, long-term financing opportunities and also offer a number of additional benefits: funds raised through bonds do not necessarily require collateral and a specific debt purpose, and presence in the bond market demonstrates the transparency of the company that places the securities on the market, which may also be the first step towards a subsequent equity issue. In light of these advantages, this study assumes an increase in the value of the corporate bond market after the 2008–2009 crisis, and that the more diversified market emerging can show the extent to which the management of the Covid-19 crisis may be more effective compared to the previous crisis. In many economies, an advanced, liquid bond market can contribute to mitigating the effects of the economic downturn caused by the Covid-19 pandemic, especially if the central bank also appears on the buyer side.

The importance of the corporate bond market in financing is influenced by a number of factors, such as economic development, the efficiency of the capital market, the financial literacy of companies or even the regulatory and institutional environment that also provides for the protection of investors. By shaping the characteristics of a series of securities, a bond issue can be an extremely flexible financing instrument to achieve an optimal funding structure at the level of individual companies, while the spread of corporate bonds also has a positive macroeconomic impact. The corporate bond purchase programmes operated by central banks in major economies also demonstrate the importance that monetary policymakers attach to this instrument. *Section 2* of the study describes the general role of corporate bonds, followed by a report in *Section 3* on the state of play in global and regional bond markets, with a special emphasis on regional markets. *Section 4* examines central banks' corporate bond purchase programmes, while *Section 5* describes in detail the Hungarian corporate bond market and the Bond Funding for Growth Scheme. *Section 6* provides a summary of the main findings of the study.

## 2. General role of corporate bonds

### 2.1. Features of corporate bonds

A bond is a type of debt security with which various market participants (states, companies, banks) can raise funds for specific purposes. Under the terms of the bond agreement, the holders purchasing the security are entitled to the capital which is lent, the related nominal interest payment (*coupon*), and if the bond is transferable, they also have the right to sell it. The term to the maturity of a bond is called the maturity period, and is typically longer than that of bank loans. The debtor pays interest on predetermined dates as per the bond agreement, whereas principal repayments can either start on dates before maturity (*amortising bonds*), or occur at the maturity date in a single amount (*bullet bonds*). In general, there is a wide spectrum of bonds in the corporate bond market, but while less developed markets tend to be dominated by bonds of the simplest structure (*plain vanilla*), in more developed capital markets more complex products featuring a variety of options are also common.<sup>1</sup> In terms of the type of interest, a distinction is made between bonds issued with a fixed rate coupon and floating rate bonds.<sup>2</sup> In the latter case, payments on interest payment dates are made according to a reference rate and the associated *spread*.

The design of the features and parameters of bonds can make bond issues remarkably flexible and therefore attractive for companies, allowing them to raise funds in the way that is the most effective way for them individually.

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<sup>1</sup> Bonds incorporating options (call, put) provide the possibility of redeeming or repurchasing securities at a predetermined price. Mention should also be made of *convertible bonds*, which can be converted into shares at certain times during the maturity period of the bond at a predetermined price, usually at the discretion of the bondholder.

<sup>2</sup> In addition, there are bonds with special interest rates, such as “*step-up*” bonds (with the initial rate fixed in advance, allowing subsequent variations during the maturity period), while a “*cap*” (maximum) and a “*floor*” (minimum) may also be used for payments of interest due. In bond markets, “*pay-in-kind*” bonds represent a special product, whereby, particularly for companies with lower credit ratings and in difficult financial situations, coupon payments are not made in cash, but by issuing new bonds at the company’s discretion.

<b>Table 1</b>	
<b>Main benefits associated with bond financing</b>	
<b>Aspect</b>	<b>Benefit offered by bonds</b>
Investor base	The bond market attracts a broad range of domestic and foreign investors, allowing companies to raise a larger amount of funds compared to bank loans, without being restricted by banks' large borrower limits.
Collateral	An issuer may arrange for unsecured or secured funding; in the latter case the investor pool may typically be widened further.
Maturity period	Compared to (unsecured) bank loans, maturity periods tend to be longer, which supports longer-term, sustainable finance. <sup>3</sup>
Debt purpose	Bonds are usually not subject to a restricted debt purpose, and the funds can be used freely by the issuer.
Company size	Bond issues tend to be relied on by large corporations in their mature stage, but can also help a number of companies in their growth phase to realise their potential.
Pricing	Pricing on the corporate bond market can be an attractive alternative to bank loans. If competition develops between markets that ensure the supply of funds to firms, corporate sector funding costs may decline further.
Bank relationships	The bond market provides an opportunity to optimise bank relationships and to ease dependence on banks.
Crisis management	The bond issuer can access liquidity even when bank lending dries up. Funding may become faster, especially when a central bank enters the corporate bond market as a buyer.
PR considerations	A bond issue can improve the perception of the issuer on the stock exchange as it demonstrates more transparent operations, and therefore can, in practice, be considered as the antecedent to entering the equity market.
Rights	In the case of a call option, the company has the right to repurchase its bonds, which is ideally done when interest rates fall.
Retention of ownership and voting rights	In contrast to an equity issue, investors will not acquire ownership and voting rights when funds are raised through bonds, and therefore the profits and dividends of the company will only benefit its owners at the time.

As *Table 1* shows, there are a number of arguments in favour of bond issues for companies, but these can only be leveraged if the supply of the bonds to be issued meets investor demand. Investors often diversify their portfolios with corporate bonds, as in many cases this enables them to achieve an asset composition that is better suited to their investor profiles in terms of risk and return. Bonds can be an ideal financial instrument for those seeking to finance companies directly, as bond financing typically involves lower risks compared to providing finance via the equity market. *Distenfeld – Shah (2014)* argue in favour of this assumption, asserting that if US high-yield bonds were held in a portfolio at a rate of 25 per cent with the remaining three-quarters composed of shares represented by the S&P 500,

<sup>3</sup> In 2020, less than half of Hungarian corporate loans denominated in HUF matured over periods longer than 5 years, and even with loans denominated in EUR, loans with a maturity of more than 5 years accounted for only 50–60 per cent. By contrast, all of the corporate bonds issued under the MNB's Bond Funding for Growth Scheme had an original maturity of at least 7 years, and the average maturity weighted by total nominal value was 9.3 years.

the annual risk would be reduced from 15.2 per cent to 12.8 per cent, while yields would decrease only minimally, from 10.9 per cent to 10.7 per cent, based on data from July 1983 to December 2013.

In the case of bonds, investors' interest earnings and capital payments can be calculated more accurately, which is favourable from the perspective of financial stability considerations. Investors' risks mainly consist of bond price movements resulting from changes in market yields, since investors will incur a loss on the bond if the expected yield in the financial market increases. Another possible risk factor is when a bond is unsecured: by law, the holders of such bonds are classified in a lower rank of seniority compared to those of securities covered by collateral. Credit risk refers to the likelihood that the issuer will fail to repay the debt in full and on time. In more advanced markets, the creditworthiness of issuers and the credit risk of their bonds are assessed by credit rating agencies, classifying instruments into different categories. A fundamental difference exists between investment-grade bonds and speculative *high-yield* bonds. Many large institutional investors are only allowed to trade the former, and most of the pre-2020 central bank bond purchase programmes were primarily focused on the market for investment-grade bonds, which may result in a significant difference between the market liquidity of the two categories and the cost of raising funds with them.

Due to their nature, bonds may involve other types of risk such as foreign exchange risk, the risk arising from option features and liquidity risk; information on these risks can be gathered by the investor, inter alia, from the documentation of the bonds. Of these, liquidity risk is the risk that is most frequently addressed in the literature. Several surveys have pointed out the deteriorating trend of liquidity in secondary markets. US and European investment experts participating in a survey by the *CFA Institute (2016)* identified banks' capital and liquidity requirements as the main source of the problem and called for policy measures to remove market barriers to provide a remedy. By contrast, according to Asian respondents, encouraging small investor participation may be more important than improving the institutional investor market. *Hill et al. (2019)* primarily attribute decreasing liquidity to the legislation in force and extraordinary monetary policy action, while emphasising the phenomenon of undermining the market-creating liquidity model and arguing that it was chiefly explained by the increased capital requirements of brokers and traders. The problem of poor liquidity is not new. Even before the crisis, *Gyntelberg et al. (2005)* addressed the illiquidity of Asian secondary markets, identifying a narrow circle of investors, inadequate microstructures and lack of information on issuers as the causes.

## 2.2. Importance of the corporate bond market in the emergence of a diversified financial system

The corporate bond market is an important element of a sufficiently diversified, efficient financial market, as the demand for alternative methods of funding complementing bank lending has increased significantly over the past decade. Even before the 2008 global crisis, *Luengnaruemitchai – Ong (2005)* found that the diversification of corporate funding was a favourable process, especially in the event of banking crises, and primarily in some emerging countries. The favourable effects of the corporate bond market were also examined by *Hakansson (1999)*, who found an advanced bond market to have a strong positive impact on the economy, given that the excessive prominence of bank credit in financing may reduce the return on invested capital due to lax lending criteria, which may ultimately lead to an increase in non-performing loans. Where the banking system and the bond market are balanced, market processes can function better, which reduces systemic risks and the risk of a potential crisis emerging. Examining corporate bond issues of the past 30 years, *Tendulkar and Hancock (2014)* concluded that the role of the bond market in the real economy had become increasingly important in recent decades, and since the crisis, bonds had been decisive in filling the gap between bank lending and long-term financing. According to the study, in the low-yield environment, the search for yield supports the liquidity of the bond market, but changes in the yield environment may produce both losers and winners. Addressing corporate bonds, a study by *ICMA (2013)* found that a wide range of market participants (investors, companies, governments) required the existence of an advanced, liquid bond market, given the potentially favourable effect it may have on economic growth by enabling production companies of primary importance to the real economy to find a stable, reliable channel of funding in the bond market, and allowing investors to generate predictable revenues. While smaller companies may be more active in domestic corporate bond markets, large corporations can also take advantage of the opportunities offered by the international bond market, which involves a wider range of institutional investors.

*Lund et al. (2018)* also see the growth of the corporate bond market as a positive phenomenon, with particular regard to its role in increasing transparency and improving market efficiency, as well as in risk management. Analysing the corporate bond market for property developers in Poland, *Gostkowska-Drzewicka (2014)* also underlines the advantages of bond issues: the issuer can raise significant funds via multiple bondholders, and this form of finance is particularly well suited for development projects, as the schedule of repayments and maturity are determined by the issuer, allowing it to redeem the bond using the revenues from investments which have already been completed. Another advantageous feature of bonds is that

the cost of capital may be lower compared to bank loans, especially when other clauses, such as the option of conversion into equity, are associated with the bond.

### **2.3. Importance of the bond market in the financial crisis**

A sufficiently liquid, developed corporate bond market can play a meaningful role in the event of a financial crisis through its ability to dampen the crisis and shorten the recovery period. *De Fiore and Uhlig (2015)* found that declining bank liquidity due to the crisis drove non-financial corporations from the previously dominant bank loan financing to bond issues, although the costs of both forms of financing increased. Using a DSGE model, the authors concluded that, in a crisis, the most severe economic downturn occurs where bank financing is not able to provide a sufficiently flexible service to companies, and the capital market is simultaneously not available. The study argues that the potential negative impact of a crisis on the real economy, spilling over from the financial sector, can be mitigated if companies have flexible financing options and are able to choose between different methods of funding.

*Gyntelberg et al. (2005)* provide insight into the evolution of another region's bond market through the Asian financial crisis, analysing the situation of the Asian market, which shows significant variations from country to country. According to the authors, since the 1997 Asian financial crisis the bond market has been a high priority for policymakers, who often see markets for local-currency bonds as a means to avoid a subsequent crisis, whereby the risks arising from individual currencies and maturities may be reduced. Differences can be observed in terms of the openness of bond markets: while some primary markets are open to foreign issuers, others (such as China, India or New Zealand) rely on quasi-government issuers. *Gormley et al. (2006)* claimed that in the 1998 South Korean crisis, the funds raised from the bond market accounted for almost all corporate financing, helping to allow households to participate in funding companies directly. The authors compare the role of the corporate bond market during the crisis to that of a spare wheel, although they emphasise that the funding opportunity provided by the bond market was primarily available to large corporations, resulting in a market that was much more concentrated than the credit market. Drawing lessons from the crisis, from the early 2000s onwards, policymakers in many Asian countries started to take notice of corporate bonds, recognising that a strong financial system needed a variety of funding channels in which banks and other types of investors compete for borrowers. As demonstrated by the Asian financial crisis, a lender panic hits short-term credit markets, whereas the corporate bond market can provide significant long-term financing to the economy, which has led to a necessary and significant growth in the primary market for corporate bonds.

The dynamic expansion of the bond market observed after the crises also raised the issue of sustainability. *Lund et al. (2018)* examined the continuous growth in the global stock of debt from 2008. Corporate bond issues increased 2.5 times over the preceding decade, creating a wider, deeper market in many countries. As other studies have shown, since the financial crisis many large corporations worldwide have moved towards bond financing because commercial banks have been holding back on lending. At the time of the publication of the research, about 20 per cent of global corporate debt was held in the form of bonds, almost double the ratio from 2007. According to the authors of the study, the deepening of the corporate bond market and the diversification of corporate financing have a positive effect on global financial markets, but also pose risks, as the stock of non-investment grade bonds almost doubled between 2007 and 2017, reaching USD 1.7 trillion for companies in developed countries. The study also highlighted the fact that between 2018 and 2022 a record-setting volume of bonds will mature, and thus rollover risk may reach an unprecedented level. The study also examines whether the size of the global corporate bond market will continue to grow following a turnaround in the credit cycle and the rise in interest rates. While the overall picture is nuanced by a number of risks, there is considerable room for further growth, but both credit institutions and the creators of regulatory frameworks need to adapt to changing circumstances in order to achieve this. Banks that have so far focused on lending to large corporations can now focus more on SMEs and individuals, while they also need to improve their subscription and credit assessment capabilities, and increase their cost-effectiveness. By way of a recommendation, as it were, the study argues that policymakers and regulators should encourage a shift towards electronic trading platforms, require transparency in corporate reporting and monitor potential systemic risks.

### **3. Global and regional situation of the corporate bond market**

#### **3.1. Situation of the international bond market**

After presenting the theoretical background, it is appropriate to examine the extent to which economies of global importance support the statements made in the studies, i.e. what processes can be inferred from the evolution of the international corporate bond market in the past decades. By the end of 2020, the stock of bonds issued globally by non-financial corporations reached a historic record of USD 17 trillion, according to BIS data. This dynamic growth has been ongoing since the global financial crisis of 2008, with a total increase of nearly USD 3.4 trillion in 2019 and 2020. The process was supported substantially by bond purchase programmes, incorporated in leading central banks' set of monetary policy instruments both for market-building purposes and for crisis-management following the Covid-19 crisis.

At the same time, a significant stock of debt also poses hazards, as pointed out by *Çelik et al. (2020)*, with four negative trends identified in the current debt structure: lower average bond quality, higher refinancing risk, longer maturity and weaker investor protection. The changed composition of the stock of debt, particularly the economic downturn due to the coronavirus pandemic, can cause global problems in the corporate sector. On the one hand, one emerging question is the extent to which bankruptcy risks may increase if the current low-yield environment changes, while on the other hand, the increase in the share of emerging markets in the global stock of corporate bonds may lead to a further deterioration in average bond quality. There is naturally a close positive correlation between average credit rating and bankruptcy rates. *Vazza et al. (2019)* underline that while no defaults occurred for AAA, AA and A rated bonds between 2009 and 2018, and the bankruptcy rate observed for BBB rated instruments was only 0.06 per cent, while in 2018 0.98 per cent of B rated bonds and 27.2 per cent of CCC/C rated bonds were non-performing.<sup>4</sup> The connection is further reinforced by the fact that in 2018, all defaulting bonds rated by S&P belonged to the speculative non-investment grade, with 87.5 per cent awarded ratings of B– or lower at the beginning of the year.

Viewed in that light, it is particularly striking that while at the beginning of the 2000s the ratio of BBB rated bonds was around 30–35 per cent (within the BBB+ and BBB– bands), by 2019 half of the bonds already had a BBB– rating, representing the lower limit of the category. In line with this trend, the proportion of top-rated AAA bonds fell below 1 per cent, while the proportion of AA rated bonds fell below 8 per cent. Within the non-investment grade, the proportion of the best-rated BB bonds has been rising dynamically since the 2000s, increasing to 60 per cent by the end of 2019 from 30 per cent at the beginning of 2000 (*Figure 1*). This may be explained by the fact that several issuers below BB left the bond market and moved to the leveraged credit market after the financial crisis in 2008. A downgrade wave on the bond market could cause significant problems, because if some bonds were to be reclassified as non-investment grade, many institutional investors might be forced to sell due to their more conservative investment policies. Nevertheless, this behaviour became more moderate during the Covid-19 pandemic, as several central banks defined the target groups of their bond purchase programmes so that the impact of downgrades caused by the pandemic would be taken into account. In line with the growth in lower-rated bonds, stronger investor protection has also become more prominent, a particularly important factor in the low-yield environment. Within the investment grade, the proportion of bonds secured by covenants in the US bond market has been around 15–20 per cent in recent years. By contrast, non-investment grade bonds showed a gradual decline in the ratio of bonds secured by covenants (from 47 per cent to 30 per cent) between 2000 and 2012, but the ratio

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<sup>4</sup>In 2018, no BB rated bonds were in default.

increased again in the years following the crisis. At the end of 2019, the indicator stood at 38 per cent, significantly higher than the figure for investment grade. A significant part of these covenants is related to the sale of the company’s assets and to further indebtedness (Çelik et al. 2020). The increased risk of corporate bonds has increased the importance of the transparent operation of companies and the role of credit ratings that objectively and independently describe the risk of companies.

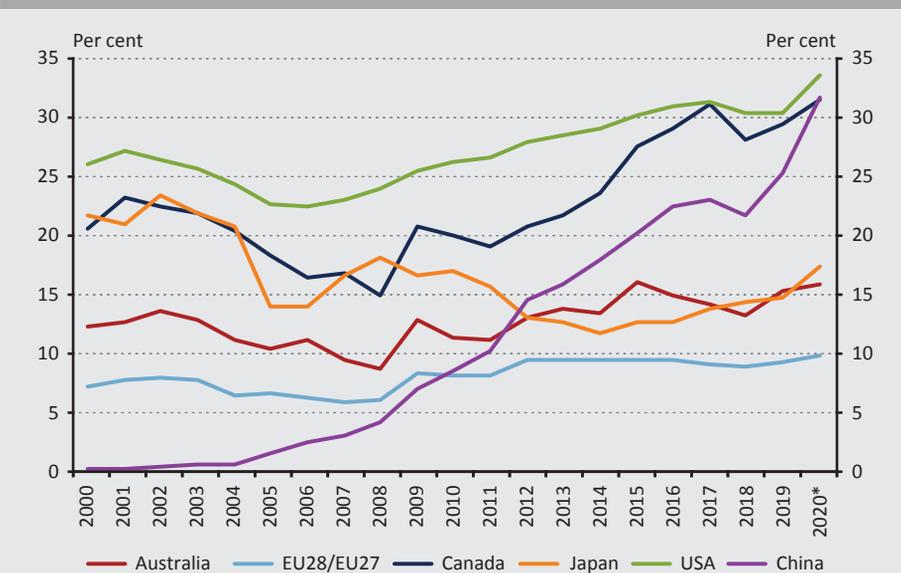


One of the most common indicators for determining the size of the corporate bond market of a country is the ratio of its aggregate stock of bonds to GDP, which provides an efficient means to monitor the extent of changes in the market stock compared to the economy as a whole. The assumption that the aggregate of corporate bonds in proportion to the gross domestic product is increasing at the global level is confirmed by the relevant data of BIS and Eurostat<sup>5</sup> (Figure 2).

<sup>5</sup> Source: Bank of International Settlements (BIS) database (<https://stats.bis.org/statx/srs/table/c1>) and Eurostat database ([https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nasq\\_10\\_f\\_bs&lang=en](https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nasq_10_f_bs&lang=en))

**Figure 2**

**Evolution of the stock of corporate bonds in the world's leading economies**



Note: \* For bond markets, data as of end-2020, data on the stock of bonds were divided by GDP data for 2019, as the data for 2020 were not yet available. For the EU27/28, the ratio of the stock of bonds to GDP is shown as the average of Member States.

Source: BIS, OECD, Eurostat

With the exception of Japan, in the five countries with the largest corporate bond markets, and in the EU, during the 7–8 years prior to the crisis the stock of corporate bonds as a percentage of GDP showed a declining trend, which was broken by the 2008 global crisis, after which – although with different dynamics – the stock of non-financial corporate bonds increased in all major bond markets overall. Currently, China is one of the most prominent drivers of the growth in the global stock of corporate bonds. From below 1 per cent in the 2000s, after the 2008 crisis the Asian giant’s stock of corporate bonds as a percentage of GDP increased dynamically to over 32 per cent (USD 4.5 trillion) by the end of 2020. This dynamic growth is mainly due to the bond issues of state-owned companies. In addition to China, South Korean, Malaysian and Singaporean companies are also active in the Asian corporate bond market. Although with slower dynamics than in emerging Asian countries, the stock of corporate bonds has also increased in emerging Latin American countries, which is mainly linked to the securities of Brazilian, Mexican and Chilean companies being placed on the market.

Capital market financing has traditionally been a widespread means of corporate funding in Anglo-Saxon countries. The stock of corporate bonds as a percentage of GDP is the largest in the United States, exceeding 34 per cent at the end of 2020, which is approximately 8 percentage points higher than in 2000. The ratio is comparable in Canada, which saw its stock of bonds decrease from 21 per cent in 2000 to 15 per cent during the economic crisis of 2008–2009. Subsequently, however, a significant increase was observed: the ratio of corporate bond debt has been around 30 per cent of GDP since 2015, reaching a historic peak of 32 per cent in 2020. The ratio of corporate bonds to GDP in Australia is considerably lower compared to other Anglo-Saxon countries, without any significant increase in the past 20 years. The figure of 12 per cent in 2000 rose to 16 per cent by the end of 2020, but the financial crisis caused a slight break in the time series in 2008, as in the case of Canada.

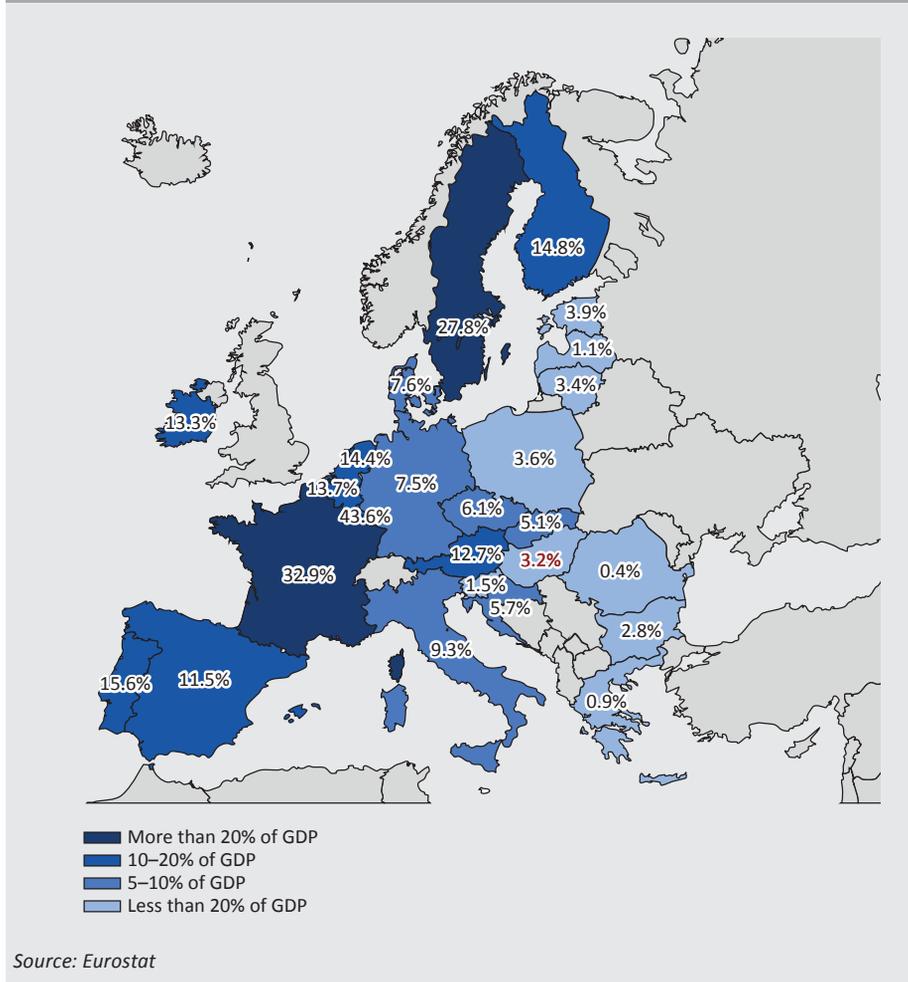
In contrast with the developed countries described above, Japan can be considered an exception, with its ratio of corporate bonds to GDP showing a decreasing trend from 22 per cent in 2000 to 18 per cent at the end of the period under review. The reason for this is that Japanese corporate funding has essentially been dominated by bank lending, although the Japanese corporate sector has again shown somewhat greater reliance on financing from the bond market since the beginning of the pandemic.

For the 28 countries of the European Union, over the 20-year period concerned the stock of corporate bonds as a percentage of GDP increased slightly from 7 per cent to 10 per cent by the end of 2020. This ratio is similar to the Japanese and Australian figures, but falls significantly short of the size of the markets in the USA, Canada and China.

### **3.2. Situation of the EU bond market**

Within the European Union, the development of individual Member States' bond markets varies considerably: while in some countries the stock of bonds amounts to around 30 per cent of GDP, in the Eastern and Central European Member States and the Baltic region it tends to be less than 5 per cent (*Figure 3*). Examining the countries of the European Union, it emerges that there is a positive correlation between the level of economic development and the size of the corporate bond market. In developed countries with higher per capita GDP, corporate indebtedness also tends to be higher, i.e. a more active use of the capital market can be observed. Despite the positive correlation, there are some countries in the EU where the size of the bond market is smaller or larger when measured against the country's development: In Germany and Denmark, the bond market is relatively small at 7–8 per cent of GDP, while the 16-per cent level in Portugal is far above that of countries at a similar level of development.

**Figure 3**  
**Stock of non-financial corporate bonds in EU Member States as a percentage of GDP (2020)**



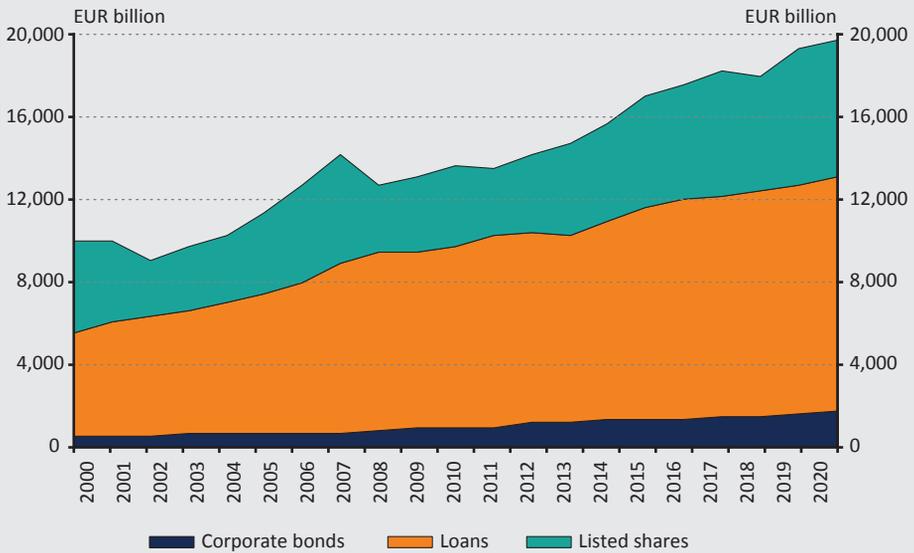
The level of bond market development stands out in two countries: At the end of 2020, the stock of non-financial corporate bonds in France and Sweden approximated 33 per cent and 28 per cent of gross domestic product, respectively.<sup>6</sup> In the French bond market, the activity of partly state-owned enterprises and large multinational corporations tends to be high, while in Sweden regional governments and municipalities represent a larger proportion of issuers than in

<sup>6</sup> The most advanced bond market in the EU is that of Luxembourg, where the stock of corporate bonds was equivalent to 44.6 per cent of GDP at the end of 2020, while in nominal terms the size of the domestic market did not rank at the top among EU Member States.

other markets. The ratio of corporate bonds to GDP is 10 per cent for the EU as a whole and averages 14.9 per cent for euro area countries. Bond markets with levels of development above the EU average are typically found in Western and Scandinavian countries.

In order to examine the growing importance of the corporate bond market, it is worth taking a look at how the liability structure of companies has evolved over time. The structure of liabilities shows the lending opportunities available to the companies: the ratio of creditors to shareholders in financing them, and the importance of relying on capital markets for funding. If we look specifically at the evolution of the markets for bank credit and bonds in euro area countries, over the last two decades it emerges that while the loan portfolio increased dynamically until 2008, the bond market tended to stagnate. During the years of the crisis, lending dropped significantly and remained largely negative in the 5–6 years following the crisis, leading to a contraction in the loan portfolio. By contrast, the euro area bond market grew dynamically from the previous EUR 600–700 billion to approximately EUR 1,700 billion by the end of 2020. It is also striking that while the bond market's role in funding has been growing continuously and steadily since the crisis, the share of equities and loans in corporate finance has been much more volatile. In addition to the change in the stock of corporate bonds, the change in the share of bonds in corporate finance also deserves analysis. According to Eurostat data, while at the end of 2000 the weight of bonds on the liabilities side in the euro area was less than 4.7 per cent, it was already 6.8 per cent in 2010 and approached 8.7 per cent in 2020, with the importance of longer-term, more stable bond financing becoming more and more remarkable. Obviously, loans – especially bank loans – continue to account for the most significant slice of corporate debt, but the complementary role of capital markets, which provide an important alternative to bank loans, is clearly strengthening (*Figure 4*).

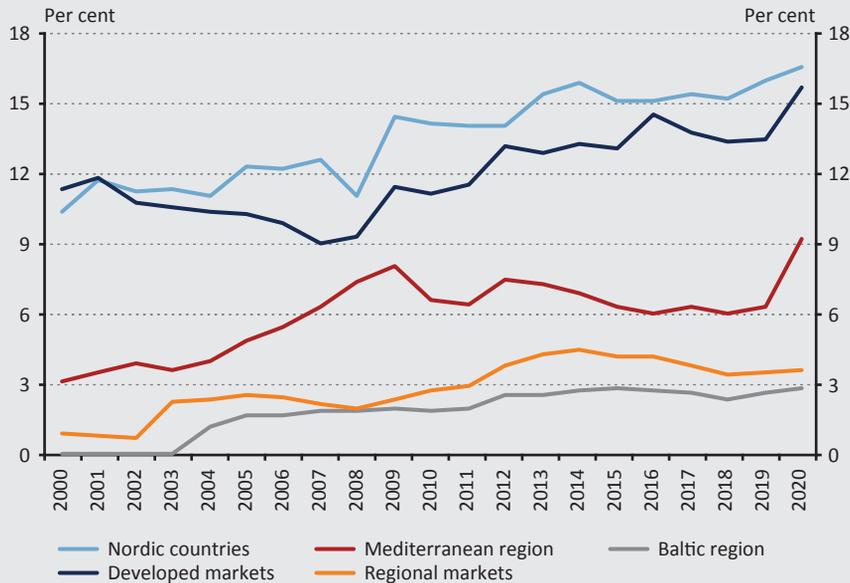
**Figure 4**  
**Evolution of the liability structure of non-financial corporations established in the euro area**



Source: Eurostat

An analysis of the development of the EU bond market based on the data for the past 20 years leads to a remarkable conclusion. The markets of the countries can be classified into five large groups based on a joint examination of their geographic location and bond market developments. It is clear from the time series data that in almost all country groups, except for the Mediterranean countries, the bond market has become more important in the last decade and that the markets of all EU regions were able to grow in 2020, mainly due to the central bank bond purchase programmes that mitigated the negative effects of the pandemic (Figure 5).

**Figure 5**  
**Evolution of the size of European regional bond markets as a percentage of GDP**



*Note: Baltic region: Estonia, Latvia, Lithuania; Nordic countries: Denmark, Finland, Sweden; Mediterranean region: Greece, Italy, Portugal, Spain; Developed markets: Austria, Belgium, France, Germany, Ireland, Netherlands; Regional markets: Bulgaria, Croatia, Czechia, Hungary, Poland, Romania, Slovakia, Slovenia. The size of the regional markets as a percentage of GDP was defined as the arithmetic average of the data for the Member States taken into account.*

*Source: Eurostat*

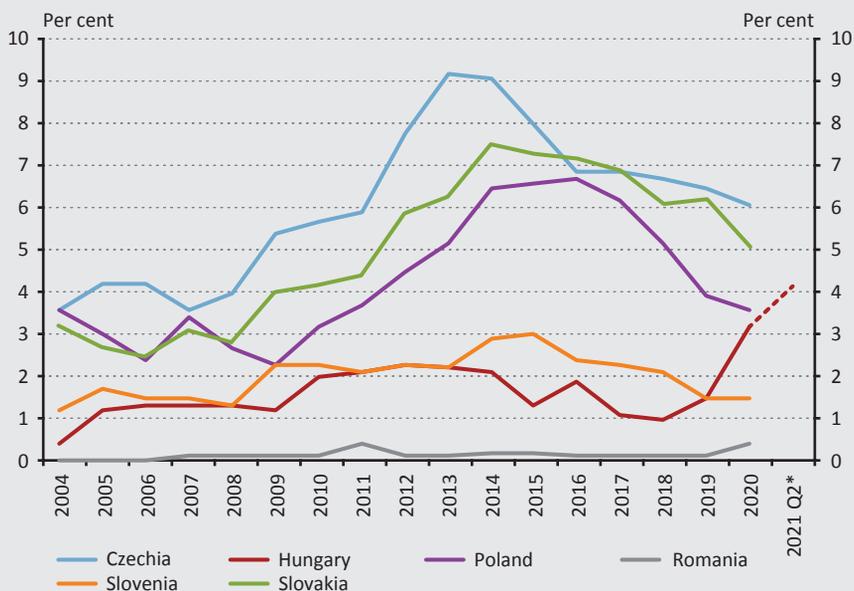
Currently, the most developed region is the market of Scandinavian countries, where the average bond market stock is close to 17 per cent of GDP, and this region's markets have also made the most progress in terms of the extent of development, as the regional ratio of stock to GDP increased by 6.3 percentage points from 2000 to the end of 2020. In the early 2000s, developed markets experienced a decline in the bond market, which lasted until the economic crisis in 2008, and since then, although with minor interruptions, the growth of the stock as a percentage of GDP has been continuous. The Mediterranean markets developed along a path that differed from other regions: while the stock of corporate bonds increased intensively until the global crisis, after the crisis, the volume of bonds declined, mainly due to the collapse of the Greek bond market and contraction of the Portuguese market from 2013 onwards. In the case of the Baltic States and the countries of regional markets, the bond markets took off in the period under review. While the size of the corporate bond markets was below 1 per cent at the beginning of the 2000s, these markets grew to an average of 3.6 per cent by the end of 2020. In response to the economic difficulties caused by the pandemic hitting the continent in early 2020, several central banks in Europe launched targeted corporate bond purchase programmes, which significantly contributed to the ability of the average market of all country groups under review to

grow as a percentage of GDP in 2020, and even to reach the highest reading of the last 20 years in all regions, except for the markets of the Central European region.

### 3.3. Situation in the CEE region's bond market

For a more detailed examination of the bond markets of the countries in the region, the Romanian and Slovenian markets were also included in the analysis along with those of the V4 countries. Based on the volume of corporate bonds as a percentage of GDP, the Czech, Slovak and Polish bond markets are the most developed, but thanks to the growth of the past two years, the Hungarian bond market has also approached the average of the regional markets (*Figure 6*). The Slovenian market falls slightly short of the average, while the Romanian bond market is underdeveloped, with almost no bond issuance. The countries considered are also referred to by *Iorgova and Ong (2008)* as the developing markets of the continent, as the establishment of market mechanisms and capital market regulatory frameworks in these Member States did not begin until the early 1990s. Although the markets in the region have seen significant growth since then, as the bond market analysis by the *European Commission (2017)* points out, compared to the core countries the bond market in the region at large is still characterised by a lower degree of development, with the majority of issuers entering the bond market for the first time, and many potential issuers only starting to gain an understanding of raising funds through the bond market.

**Figure 6**  
Development of the CEE region's bond markets as a percentage of GDP



Note: \* The size of the Hungarian bond market as at the end of the second quarter of 2021 was determined on the basis of the central bank's estimates.

Source: Eurostat, MNB

In the years after the 2008 crisis, the role of the bond market in the Czech, Slovak and Polish economies increased significantly, with the stock of bonds as a percentage of GDP more than doubling in these countries. In all three markets, the appetite for bond issues waned in recent years, which may be explained by the favourable interest rates on bank loans available to companies and by the GDP effect. In recent years, the ratio has dropped from its peak of 9.2 per cent to 6.1 per cent in the Czech market, from 7.5 per cent to 5.1 per cent in the Slovak market, and from 6.7 per cent to 3.6 per cent in the Polish market. Such volatility was not observed in the Slovenian and Hungarian markets, and as a result of the crisis the role of the bond market temporarily increased in both countries. However, whereas in Slovenia the ratio of stock to GDP at the end of 2020 was only slightly higher than at the time of the crisis, the Hungarian bond market stood at 3.2 per cent, a historic high, with sustained growth mainly as a result of the MNB's Bond Funding for Growth Scheme. According to our estimates, the Hungarian market was close to 4.2 per cent of GDP at end-June 2021, only 0.3 percentage points below the average of the V4 countries.

### 3.3.1. *The Polish bond market*

The stock of bonds issued by Polish companies amounted to EUR 18.3 billion at the end of 2020, equivalent to 3.6 per cent of the country's GDP, meaning that – in nominal terms – Poland has the largest market in the CEE region. The Polish corporate bond market experienced its most intensive growth in the period following the 2008–2009 economic crisis (*Figure 7*), in which the introduction of the Catalyst system in 2009, the first Polish market organised for credit instruments, played a significant role. The Warsaw Stock Exchange (WSE) operates two retail markets and BondSpot operates two wholesale markets in the Catalyst structure. Both the stock exchange and BondSpot have dematerialised financial instruments, such as corporate bonds. On the retail market regulated by the stock exchange, a bond issue must be worth at least EUR 200,000, while on the wholesale market operated by BondSpot, this entry threshold is PLN 5 million (approximately EUR 1.08 million).<sup>7</sup>

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<sup>7</sup> Calculated at the exchange rate on 21 September 2021.

**Figure 7**  
**Evolution of the stock of bonds of Polish non-financial corporations**

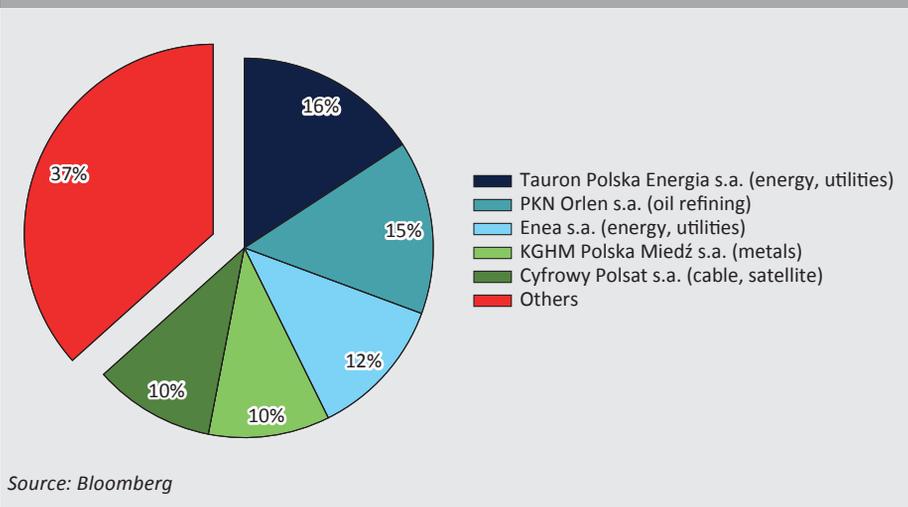


Source: Eurostat

According to Bloomberg’s bond database,<sup>8</sup> the stock of active Polish corporate bonds is almost exclusively denominated in PLN, with 75 per cent of the instruments related to principal repayments at floating interest rates, and 54 per cent related to bullet repayments. The average face value on issue (EUR 35 million) and the average maturity (7.1 years) of the series of securities are both considered low by regional standards. The Polish market is characterised by a lower concentration of issuers and sectors compared to the countries in the region. The energy group Tauron Polska s.a., the country’s largest corporate bond issuer, accounts for only 15 per cent of the total market, and even the five largest issuers combined cover “only” 63 per cent of the market, with no major differences in their market shares. The bond market portfolio is linked to more than 50 issuers, i.e. a wider range of large corporations take the opportunity to raise funds through the securities market than in other regional Member States. In the sectoral breakdown of the bond market, public utilities and energy occupy a prominent position with a combined share of 38 per cent, whereas 16 per cent of the stock of Polish corporate bonds was linked to telecommunications, and 10 per cent each to oil refining, mining and metal processing (*Figure 8*).

<sup>8</sup> As queried on 1 April 2021.

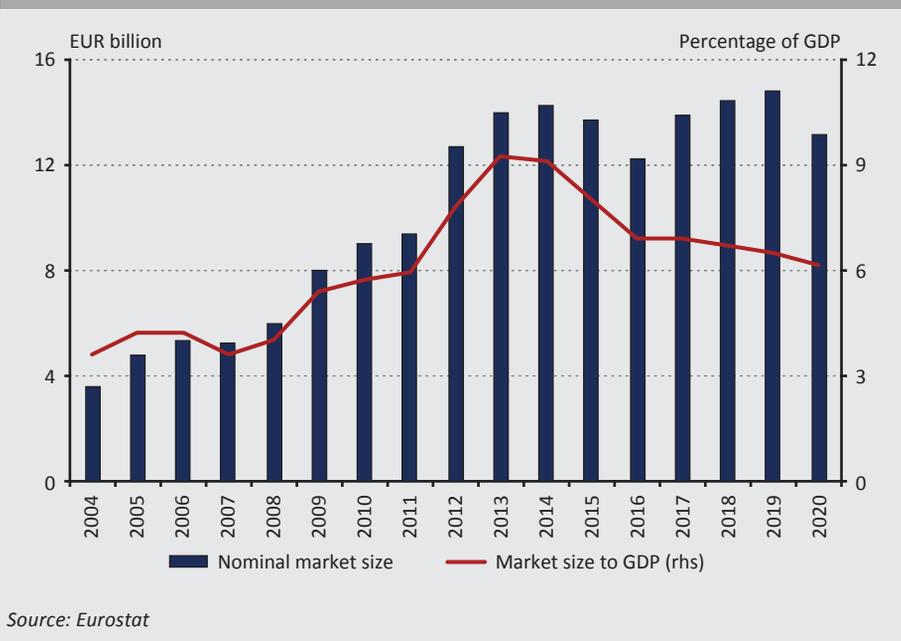
**Figure 8**  
Market share of the largest issuers in the Polish corporate bond market



### 3.3.2. The Czech bond market

The stock of corporate bonds issued by non-financial corporations established in the Czech Republic exceeded EUR 13 billion at the end of 2020, as a result of which the Czech bond market qualified as the most developed in the region, with a size equivalent to 6.1 per cent of GDP. The stock of corporate bonds started to grow significantly after the global economic crisis of 2008–2009, reaching its peak by the end of 2013 (9.2 per cent of GDP), while in nominal terms it was the largest in 2019 (EUR 14.8 billion). Despite the nominal growth in the stock of bonds, expressed as a percentage of gross domestic product it has been steadily declining since its peak in 2013 due to the strong GDP effect. In 2020, the bond market contracted, but the stock of EUR 13.1 billion at the end of the year was still 3.5 times the market size at the end of 2004 (*Figure 9*). Arguably, only a narrow circle of large companies exploit the opportunity to raise funds via bond issues. The Czech Ministry of Finance attributes this phenomenon to information barriers, to the lack of financial knowledge characteristic of the SME sector, and to bank loans that are well targeted to the segment and available on favourable terms (*Ministry of Finance of the Czech Republic 2018*).

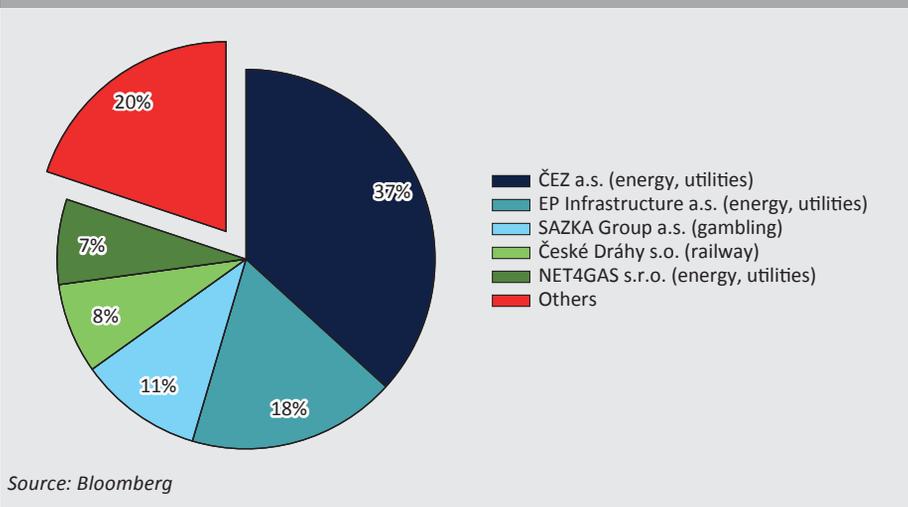
**Figure 9**  
Evolution of the stock of bonds of Czech non-financial corporations



According to Bloomberg’s data, the Czech corporate bond market is dominated by fixed-rate bonds denominated in foreign currency, which have a longer maturity than the average of the regional markets, and a higher average face value on issue. 74 per cent of the market bond portfolio is denominated in EUR and only 18 per cent is traded in CZK. In terms of the type of interest, fixed-income securities account for 90 per cent of the stock, and in terms of the type of principal repayment, bullet securities account for 46 per cent. The average maturity of Czech corporate bonds at the time of issue is 9.6 years, which significantly exceeds the same indicator for securities in the Polish market. The average face value of Czech corporate bonds on issue is EUR 178 million, five times the average issue size in the Polish market.

The market of non-financial corporations established in the Czech Republic is characterised by an extremely strong concentration of issuers and sectors (*Figure 10*): the energy company ČEZ a.s., with a dominant state shareholding, had a 37-per cent market share through 18 bond series. The 5 largest issuers account for four-fifths of the bond market. The sectoral distribution of issues shows that sectors with significant investment needs are active in the bond market. The market share of energy production and utilities is close to 70 per cent of the total stock, while the gambling segment – through the bonds of a single issuer – accounts for an 11-per cent share. The Czech corporate bond market was composed of securities issued by 38 issuers at the time of the analysis.

**Figure 10**  
**Market share of the largest issuers in the Czech corporate bond market**



#### 4. Corporate asset purchase programmes of central banks

In the evolution of the corporate bond market and the economic recovery following the crisis caused by the coronavirus, specific central bank asset purchase programmes have played a significant role, aiming to improve the conditions for corporate funding opportunities in response to the structural problems already identified by professionals. Asset purchase programmes offer opportunities to improve bond market liquidity and reduce yield spreads, but their main objective is to improve the efficiency of the monetary policy transmission channel. The latter is particularly important for central banks where inflation targeting monetary regimes are applied. In relation to crisis management, many central banks have enhanced their monetary policy toolkits and many have turned to the corporate bond market to purchase bonds on primary and secondary markets. In light of the recent period, it can be said that central banks responded quickly to the economic crisis caused by the Covid-19 pandemic, and that in turn may significantly increase the efficiency of economic recovery.

##### 4.1. Corporate bond purchase programme of the European Central Bank

On 10 March 2016, as part of its asset purchase programme (APP), the European Central Bank (ECB) announced its *Corporate Sector Purchase Programme* (CSPP), designed to further ease monetary policy and improve financing conditions for euro area companies. Under the programme, the ECB purchases investment-grade, EUR-denominated securities of euro area non-financial corporations on both the primary

and secondary markets, with remaining maturities ranging from 6 months to 30 years. The asset purchase programme was temporarily halted by the ECB in 2018, but based on market developments the Board of Governors considered it necessary to restart net purchases from 1 November 2019. In addition, the ECB purchases corporate bonds not only within the traditional Asset Purchase Programme (APP), but also as part of the Pandemic Emergency Purchase Programme (PEPP) announced in March 2020, thus providing a quick and targeted response to the economic downturn caused by Covid-19.

In their analysis of the effects of the CSPP programme, *De Santis and Zaghini (2019)* examined 12,000 bonds issued between October 2013 and June 2018. They found that the bond purchase programme contributed significantly to the expansion of the corporate bond market in the two years following the announcement on 10 March 2016. The issues examined were divided into two groups: those meeting the requirements of the purchasing programme and those failing to meet them, with the latter serving as the control group in the research. The authors concluded that the probability of issuing bonds in EUR was 14 per cent higher in the group where the issues met the requirements of the programme than in the other group. The result holds true even if the control group only includes non-bank or non-investment grade issuers.

It should also be pointed out that in some cases the adjustment of market participants was already triggered by verbal intervention, a good example of which is that the interest rate spreads in relation to the (benchmark) government bond yield started to decrease in March 2016 after the announcement of the European Central Bank's bond purchase programme. The corporate bond market saw a drop of 25 basis points for non-investment grade bonds, nearly 20 basis points for bonds issued by non-financial corporations and 5 basis points for corporate bonds issued by financial institutions (*ECB 2016*).

#### **4.2. Effect of the Bank of England's bond issuance programme**

Following completion of the Brexit referendum, the Bank of England launched its GBP 10 billion corporate bond issue programme in August 2016<sup>9</sup> for the purpose of economic stimulus, as part of which it purchased GBP-denominated bonds issued by investment-grade non-financial corporations. The programme was designed to reduce the bond market yield spread by increasing investment activity, which makes bond financing more attractive and encourages companies to issue bonds. In addition to the increase in the number of bonds denominated in GBP, as with the ECB's programme, following the announcement a significant decrease was observed

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<sup>9</sup> In April 2020, the Bank of England decided to increase the envelope of the bond issue programme by GBP 10 billion, creating a new envelope of GBP 20 billion. <https://www.bankofengland.co.uk/markets/market-notice/2020/asset-purchase-facility-additional-corporate-bond-purchases>. Downloaded: 19 June 2020.

in bond spreads over government securities. *Boneva et al. (2018)* examined the effect of the bond issue programme on the bond market yield spread. Compared to risk-free sovereign debt, the spreads of GBP-denominated corporate bonds decreased by 13 to 14 basis points compared to the USD- and EUR-denominated bonds of the same companies; nevertheless, the yields on GBP bonds that did not meet the conditions of the bond purchase programme but were still rated as investment grade also decreased, indicating that the latter also benefited from the positive effects of the central bank programme.

In May 2021, the Monetary Board of the *Bank of England (2021)* invited the management of the institution to examine how it could support the climate-neutral transformation of the UK economy alongside its primary objective of price stability. As part of these efforts, the central bank announced the greening of its corporate bond portfolio by publishing a discussion paper on the principles and instruments enhancing the relevance of sustainability bonds.

#### **4.3. Recent launches of additional corporate bond purchase programmes**

In May 2020, in order to overcome the economic crisis caused by Covid-19 and to increase market liquidity, the Fed launched its bond purchase programme, mainly through special purpose vehicles (SPVs) established by the US Treasury, which provided loans for the purchase of investment-grade corporate bonds and bond ETFs, as a result of which the bonds purchased were not entered on the Fed's balance sheet. Due to the announcement of the programme, corporate bond spreads started to decline, although they remain above the pre-Covid-19 level.<sup>10</sup> Another positive aspect is that the value of investment-grade bonds issued between 17 March and 19 May 2020 amounted to USD 675 billion, which exceeded the amount issued in the first half of 2019 by USD 100 billion. In terms of debt purpose, the vast majority of revenues from issues were used for general liquidity purposes and refinancing (*S&P Global 2020*). The trend continued later in the year: according to Moody's report, in 2020 (already in September), the issuance of both investment grade and speculative corporate bonds broke the records of previous years (*Lonski et al. 2020*).

In May 2020, the Bank of Canada, like the Fed, launched its 12-month corporate bond purchase programme, as part of which it purchases bonds denominated in CAD and rated at least BBB on the secondary market up to a limit of CAD 10 billion. The primary objective of the programme is to provide companies affected by the

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<sup>10</sup> Source: <https://www.advisorperspectives.com/commentaries/2020/05/26/the-feds-corporate-bond-buying-programs-faqs>. Downloaded: 15 January 2021.

virus with the long-term financing necessary for their operation by boosting the liquidity of the corporate bond market.<sup>11</sup>

Among the Nordic countries, consideration has so far been given to the purchase of corporate bonds, similarly to the ECB's purchases, by the Swedish central bank Riksbank. According to January 2020 data, of the 290 corporate bonds on the Swedish market,<sup>12</sup> less than one-third (79) had ratings awarded to them (*Lindeberg 2020*). Finally, as part of its set of actions responding to the Covid-19 pandemic, Riksbank launched its bond purchase programme in September 2020, within the framework of which it purchases bonds with residual maturities of up to 5 years from investment-grade companies established in Sweden. Since January 2021, using the so-called *negative screening* method,<sup>13</sup> the Swedish central bank has only been purchasing corporate bonds placed on the market in accordance with international sustainability standards.

## **5. Situation of the Hungarian corporate bond market and the Bond Funding for Growth Scheme**

### **5.1. Liabilities of Hungarian non-financial corporations before 2019**

Within the liabilities of Hungarian non-financial corporations, the stock of bonds is negligible (*Figure 11*). Over the past 20 years, equity holdings have been predominant among Hungarian companies, reaching the equivalent of around 100 to 150 per cent of GDP, accompanied by a significant stock of shareholder loans from foreign parent companies. At the same time, bank loans are a realistic option for the majority of Hungarian companies when raising external funds, apart from the fact that such loans amounted to only around 20 per cent of GDP, which is lower than the overall rate measured for EU countries. Before the launch of the Bond Funding for Growth Scheme, bond funding was a viable alternative only for a small number of companies, and its volume was around a mere 1 per cent of GDP.

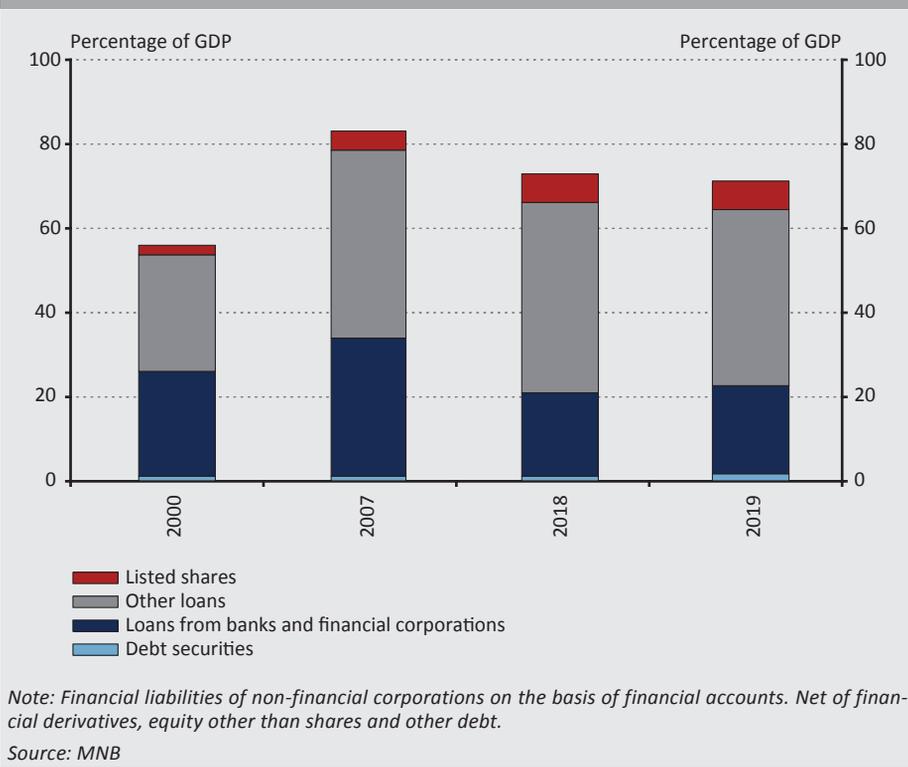
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<sup>11</sup> Corporate bond purchase programme (CBPP) – Term Sheet. <https://www.bankofcanada.ca/markets/market-operations-liquidity-provision/market-operations-programs-and-facilities/corporate-bond-purchase-program/corporate-bond-purchase-program-cbpp-term-sheet/>. Downloaded: 18 January 2021.

<sup>12</sup> The data includes both financial and non-financial corporate bonds.

<sup>13</sup> Rather than the existence of a green rating, the scope of bonds meeting the sustainability criteria can be narrowed on the basis of specific restrictive norms and constraints defined for sectors and activities.

**Figure 11**  
**Liabilities of Hungarian non-financial corporations as a percentage of GDP**



## 5.2. Launching the Bond Funding for Growth Scheme

Spillover of the 2008 global economic and financial crisis to Hungary also led to significant disruptions in the debt-based financing of the Hungarian corporate sector. The structure of corporate finance was characterised by three unfavourable trends. The first was that the channel of bank credit contracted to a greater extent than the international trend, as a result of which the volume of loans to companies, especially SMEs, started to decline. Second, the structure of corporate loans did not show healthy characteristics, in terms of the length of maturity periods and the type of interest. Third, the diversification of funding for Hungarian companies, which traditionally relied on bank lending, was at a low level not only compared to the average of the European Union, but also to that of countries in the Central and Eastern European region. In order to enhance corporate financing opportunities, the MNB responded with monetary policy instruments targeted at improving the above trends.

In June 2013, the central bank first launched its Funding for Growth Scheme with a focus on improving the channel of bank credit, designed to put Hungary's corporate loan portfolio back on a growth path after its fall to three-quarters of its pre-crisis level by 2013. Considering the limited access of the Hungarian SME sector to longer-term and fixed-rate loans, the MNB contributed to the increase in the share of fixed-rate loans with the Funding for Growth Scheme Fix facility launched in early 2019, which rendered the structure of the corporate loan portfolio more uniform. Despite that, the diversification of corporate funding was still not achieved, because while in 2019 the bank loan portfolio was equivalent to 20 per cent of GDP, the Hungarian corporate bond market was worth around a mere 1 per cent of gross domestic product. To provide for a more balanced footing of corporate funding in Hungary, in July 2019 the MNB launched its Bond Funding for Growth Scheme (BFGS), designed to boost the liquidity of the Hungarian corporate bond market in order to expand domestic corporate financing opportunities (MNB 2019).

The Bond Funding for Growth Scheme seeks to improve the efficiency of monetary transmission by stimulating bond market liquidity. The BFGS framework draws on the ECB's corporate bond purchase programme (CSPP) in respect of several points. Under the BFGS, the central bank purchases corporate bonds on both the primary and secondary markets, subject to specific conditions for the issuer and its bonds. In the period since the launch of the bond programme, in response to changes in the macroeconomic situation, in particular those resulting from the pandemic, the Monetary Council of the MNB has fine-tuned the original parameters of the BFGS on several occasions. Within the meaning of those changes, issuers may currently include non-financial companies and public undertakings established in Hungary, with a balance sheet total of at least HUF 1 billion according to the financial statements for the two most recent financial years. To be issued under the bond scheme, a security must have a rating of at least B+ by a credit rating agency recognised by the European Securities and Markets Authority (ESMA), the total nominal value of the issue must be at least HUF 1 billion, and the tenor must be between 3 and 30 years. In order to make the allocation of funds more efficient, the MNB also requires that the issuer introduce the bonds issued as part of BFGS to a trading platform of the Budapest Stock Exchange (BSE) within 90 days of the date of the issue. The MNB employs the Preferential deposit facility to neutralise the excess liquidity generated in the banking system as a result of the asset purchases.

### **5.3. Issues under the Bond Funding for Growth Scheme**

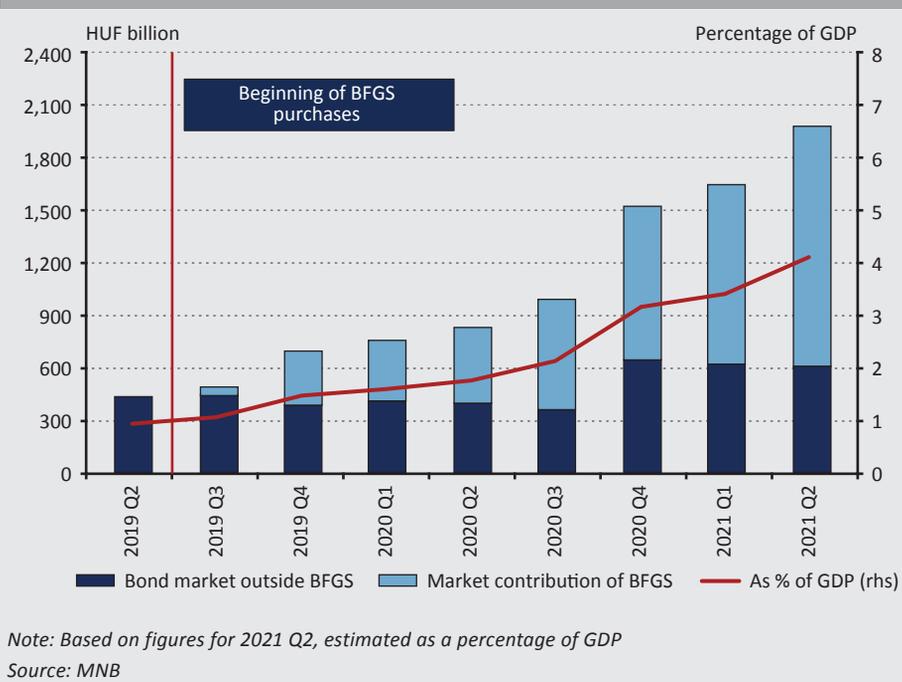
In the framework of the bond programme, 80 bond series of 63 companies were successfully placed on the market by the end of August 2021, and with these transactions issuers raised HUF 1,550 billion worth of funds, while the MNB effected bond purchases with an estimated face value of nearly HUF 905 billion. The MNB's purchases are not subject to any sectoral preferences, so the sectoral breakdown

of issuers also shows a diversified picture; that said, there is a significant share of companies in the manufacturing industry and those with operations related to the property market. The bonds have an average maturity period of 9.3 years and an average credit rating of BB. The average yield calculated for the 80 issues is 2.49 per cent, and the spread of the auctions over the average yield of government securities is only 27 basis points, which shows that participants in the BFGS accessed funds at favourable costs. The companies participating in the BFGS used the funds raised primarily for investments and acquisitions that increased their competitiveness, and to a smaller degree to refinance earlier loans with less favourable terms.

Before launch of the BFGS, the bond market for Hungarian non-financial corporations was only around 1 per cent of GDP in size and was restricted to bonds issued by a limited group of companies, typically in foreign currency. Thanks to the significant contribution of the BFGS issues, we estimate that at the end of the second quarter of 2021 the stock of corporate bonds may have reached 4.2 per cent of gross domestic product, and the nominal market size has almost quintupled since the launch of the bond programme (*Figure 12*). According to the MNB's data, between June 2019 and July 2021 the number of corporate bond issuers and the number of bond series placed on the market more than doubled, the share of HUF-denominated securities increased from below 10 per cent to 60 per cent of the total portfolio, and the sectoral and issuer concentration of the bond market decreased significantly. Since the launch of the BFGS, the Hungarian bond market has not only kept up with the average size of the markets of countries in the region, the structure of the market has also become significantly healthier and more diversified. As an important milestone for the Hungarian capital market, the first Hungarian green corporate bond was issued in August 2020 as part of the BFGS, which has since been followed by another 10 series of bonds meeting the sustainability criteria.

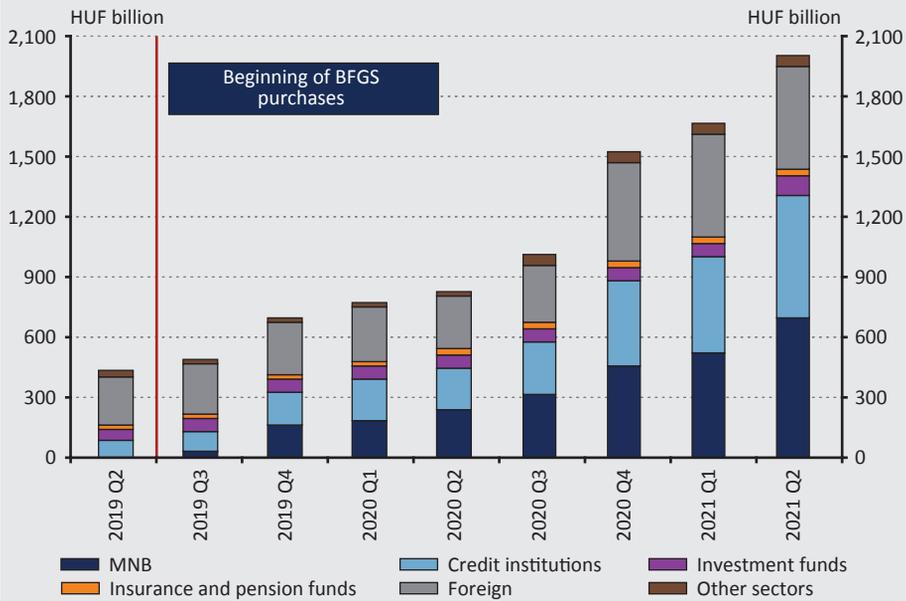
Thanks to the BFGS, the number of corporate bond series admitted to trading on a trading venue has increased significantly. While at the end of 2019 there were only 8 corporate bonds on the BSE, at the end of July 2021 there were 69, i.e. the number of instruments present on the stock exchange platforms has increased almost ninefold since the launch of the programme. The obligation of listing helps to increase market transparency and protect investors, and the bond issue process and participation in listing also strengthen Hungarian companies' knowledge base of the financial and capital market.

**Figure 12**  
**Stock of bonds of non-financial corporations established in Hungary**



The ownership distribution of the overall Hungarian corporate bond market shows a varied picture; however, thanks to the BFGS, the ratios related to the shareholder groups have changed significantly, with the central bank and credit institutions currently representing the largest investors (*Figure 13*). According to the latest statistical data (from June 2021) on securities, 35 per cent of the bond market of more than HUF 2,000 billion was held by the MNB, 31 per cent by credit institutions and 7 per cent could be found on the balance sheet of institutional investors. The aggregate of securities held by foreign residents represented a quarter of the market. The launch of the BFGS triggered a considerable fall in the proportion of foreign residents.

**Figure 13**  
**Evolution of the distribution of holders of bonds issued by non-financial corporations after the launch of the BFGS**



Source: MNB

## 6. Summary and conclusions

The important role of a developed corporate bond market in the economy is confirmed by a number of studies. As an alternative form of financing, corporate bonds contribute to the provision of market liquidity, reinforce the diversification of corporate sector funding in terms of the availability of funds and promote more favourable funding costs while ensuring greater transparency about issuers, thereby improving the overall efficiency the allocation of funds in the market.

Compared to the early 2000s, growth has been observed in the stock of corporate bonds in both developed and developing markets. This is due, on the one hand, to the fact that as bank lending dried up during the crisis, the need and importance of alternative funding options were recognised by companies, and, on the other hand, central banks started to encourage the issue of corporate bonds through their bond purchase programmes, which facilitated the development of wider and deeper markets. The central bank asset purchase programmes designed to stabilise the corporate bond market have been given a new impetus to mitigate the Covid-19 crisis, which contributes to dampening the economic downturn and to a faster recovery. The sharp increase in issues in the US market proves that a central bank

can play a significant role by providing stimulus in the securities market, while mitigating the turbulence caused by a sudden surge in yields. The Bond Funding for Growth Scheme launched by the MNB was also designed for the development of the corporate bond market, taking into account earlier central bank initiatives.

The findings of the study support the conclusion that monetary policy measures to promote corporate bonds can appear in essentially two ways: one is when the central bank gradually increases market liquidity in pursuit of a long-term strategy for market development. In the other case, in a well-functioning market, the central bank replaces the liquidity which has temporarily dried up as a result of a shock, so that recovery can take place with the least possible economic damage. Using the methods presented, central banks can play a key role in the management of a crisis by creating a more efficient market and a more resilient economy through the diversification of funding forms.

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# Climate Change in the Capital Markets: A Study of Actively Managed Green Bond Funds\*

Emilia Németh-Durkó – Anita Hegedűs

*In this study, we carried out a performance analysis of green bond portfolios available from public databases for the period between 2017 and 2020. The aim of our research was to obtain empirical proof for the existence of the green premium, which was confirmed by risk-adjusted indicators, i.e. the Sharpe ratio, the M<sup>2</sup> ratio and the Sortino ratio. The green premium is the return differential that can be measured between green and conventional financial instruments. According to the literature, investors are willing to forego 1 to 9 basis points of their returns in the interests of financing climate targets, to cover the issuer's extra costs incurred from green bond ratings and reporting obligations. Our results confirmed that the green bond portfolio underperforms benchmark indices by an average green premium of 2 basis points. We only found a single green bond fund that did not involve a green premium and was capable of achieving a risk-adjusted excess return. Nevertheless, it is noted that all of the indicators used showed that the average performance of green bonds improved steadily each year in the period under review.*

**Journal of Economic Literature (JEL) codes:** C5, G10, G31, G38, Q50

**Keywords:** sustainable investments, climate finance, green bonds, portfolio analysis

## 1. Introduction

In spring 2021, a green government bond with the longest maturity in the world made its debut in Hungary. The auction attracted huge investor interest, generating demand several times higher the planned volume to be sold. Targeted at fund managers pursuing sustainable investments, the 30-year, fixed-rate government bond is, according to Bloomberg, unprecedented in green capital markets. The

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*Emilia Németh-Durkó is an Assistant Lecturer at the Corvinus University of Budapest.*

*E-mail: emilia.durko@uni-corvinus.hu*

*Anita Hegedűs is a Recipient of the Thesis Award from the Hungarian Society of Economics, and an Undergraduate Student in finance and accounting at the Corvinus University of Budapest.*

*Email: hegedus.anita96@gmail.com*

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HUF-denominated green bonds were issued in a volume 1.5 times that originally foreseen.<sup>1</sup> In raising funds for environmental and sustainable climate objectives, Hungary is not only present in the government bond market, but is also represented by the green bonds of several companies operating in Hungary, and many potential institutional investors are planning further expansion of green portfolios.<sup>2</sup>

The rapid spread of green bonds and the growing interest in sustainable investments are not specific to Hungary. In recent years, the issue of global warming has been playing an increasingly important role in corporate social responsibility and in managing banks' climate risks. For sustainable economic growth and development, fiscal and structural reforms are needed to reduce emissions to the atmosphere. According to an estimate by the *OECD (2017)*, infrastructure developments to slow global warming is estimated to USD 6.9 trillion annually over the next 15 years. Government resources, especially in developing countries, are not sufficient to manage the climate problem (*Reichelt 2010*). Banks are facing a challenge in financing projects designed to support the spread of long-term renewable energy solutions and low-carbon projects (*Boros 2020*), and businesses in facilitating decarbonisation processes (*Fogarassy et al. 2018*).

The spread of green portfolios in capital markets is one possible way of financing the mitigation of climate change and damage from global warming. There are investors who are willing to forego part of their returns for the sake of environmental objectives and pay a green premium ("greenium") to that end (*Zerbib et al. 2019; Baker et al. 2018; Ehlers – Packer 2017*). However, green bonds can not only provide an alternative for investors committed to environmental protection, but also have a number of advantages over conventional bond portfolios in capital markets. According to some studies, the returns on green bond portfolios exceed those achieved by conventional bonds (*Karpf – Mandell 2018*), and even in difficult economic circumstances, such as the Covid-19 period of the past year, they have proved to be crisis-proof investments (*Taghizadeh-Hesary et al. 2021*).

In our study, we focus on a portfolio analysis to describe the conceptual structure and market for green bonds. In addition to explaining the specific features of the market, we also highlight regulatory problems and the difficulties faced by the sector, for example the phenomenon of greenwashing, i.e. making companies appear more sustainable. In our empirical research, we examine the financial performance of actively managed green bond funds in a public-database portfolio.

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<sup>1</sup> ÁKK issued a 30-year Green Hungarian Government Bond on Earth Day. <https://akk.hu/download?path=21c8a460-03fe-431d-8907-50796766fd01.pdf>. Downloaded: 20 May 2021.

<sup>2</sup> A kulisszák mögött: így zajlik a vállalatoknál a zöld kötvények kibocsátása (*Behind the Scenes: How Corporates Issue Green Bonds*). <https://www.hugbc.hu/hirek/a-kulisszak-mogott-igy-zajlik-a-vallalatoknal-a-zold-kotvenyek-kibocsatasa/4262>. Downloaded: 20 September 2021.

Our research question is whether the green premium exists, i.e. whether the returns on green bond funds are significantly lower than that of the conventional bond portfolio. Our research is a contribution to the growing body of literature on green investments, which have been attracting increasing interest, whereas in the context of Hungarian empirical analyses, our inquiry into the financial performance of green bond funds fills a gap by virtue of its focus and the limited number of such analyses.

Our study is structured as follows: *Section 2* presents the market for green bonds and the geographical and other characteristics of bond issues. *Section 3* describes the institutional conditions and the regulatory framework, while *Section 4* focuses on the results of empirical research through an account of studies on the existence of the green premium. *Section 5* reports on our own research, with a summary of our conclusions provided in *Section 6*.

## 2. Green bonds in the capital markets

While sustainable investment is an established concept in the equity market,<sup>3</sup> the concept of green bonds is a relatively new element. In this Section, we first discuss how green bonds are issued and the role they play in the market, and subsequently provide an inventory of regulatory problems.

### 2.1. The uptake of green bonds in markets

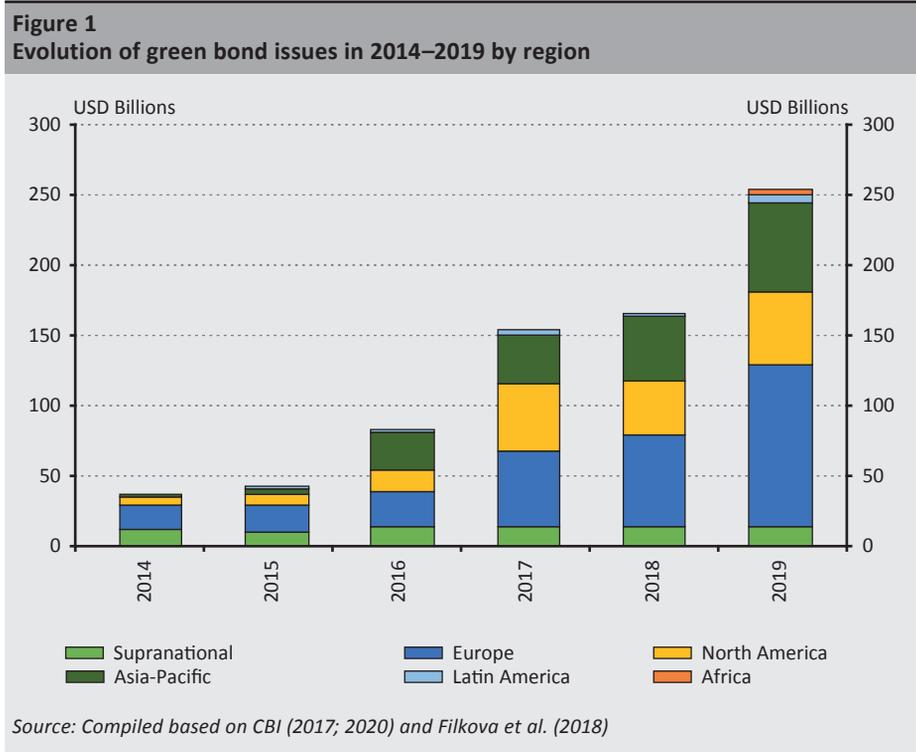
The most fundamental difference between green bonds and conventional bonds is that the income from green bonds is used to finance environmentally friendly projects (*Pham 2016*). The aggregate net asset value of green bond funds and green bond ETFs is growing dynamically. The global green bond market has expanded rapidly since the launch of the climate awareness bond in 2007, and in 2018 the global issue of labelled green bonds reached USD 167 billion, although it still accounts for only a few per cent of the global bond market today (*Hyun et al. 2019*). The expansion affected capital markets differently, and green bonds represent a constantly changing segment both geographically and from an issuer perspective.

The first green bond, known as the “climate awareness” bond, was issued by the supranational European Investment Bank in the approximate amount of EUR 600 million. The first entrant to the market in the public sector was the Norwegian Kommunalbanken in 2010, while the first sovereign issuer was Poland, but only in 2016 (*Filkova et al. 2018*). With the volume and value of issues increasing each year, *Figure 1* shows a green bond market boom in almost all regions. Europe has been in the lead for the period, also acting as the main nexus of the upswing in

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<sup>3</sup> Sustainable investment refers to the emergence of environmental, social & governance (ESG) factors in the capital market. The focus of this research is limited to a description of the green bond market.

2018–2019, recording a growth rate of 79 per cent to reach a market size of USD 117 billion, with European issues accounting for half the total market (CBI 2020). Jókuthy (2020) points out that the market dynamics are well illustrated by the temporal concentration of global green bond issues within recent years. Today, countries that were previously less focused on sustainability aspects, or were even considered exotic, such as Russia, Ukraine or Kenya, have also emerged as issuers.



The financial resources obtained via green bonds serve a wide variety of purposes within green objectives, as they can be used both to prevent climate change and mitigate its consequences, also referred to as mitigation objectives. Green energy developments are among the most typical investment objectives, but the improvement of water and wastewater management, transport and energy efficiency are also popular financing objectives. Almost half of the funds raised are spent on green energy development (47 per cent), and combined with the greening of buildings (22 per cent), these two priorities account for two-thirds of utilisation. Energy efficiency (8 per cent) and transport (9 per cent) receive the smallest shares of green funds (ICMA 2019; MNB 2019).

Despite its rapid expansion, the green bond market is still very small compared to the global bond market, accounting for about 2 per cent of bonds issued globally (Ehlers – Packer 2017). The main obstacle to the development of the market is probably the universal lack of a definition for green bonds and of generally recognised standards. Ethical investors associate investments in green bonds with positive environmental impacts, but without generally recognised green bond standards, it is difficult for investors to identify whether green bonds are in fact green. This may stem from the fact that the purpose for which the funds are to be used is less specifically stated when a green bond is defined in general, while it would also be appropriate to precisely define and document the utilisation of funds for green objectives, along with supporting processes (MNB 2019).

## 2.2. Standards and regulatory problems

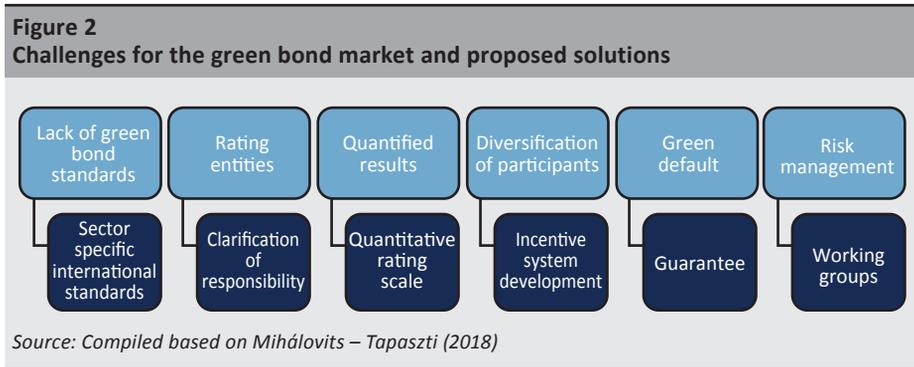
The definition delimiting the concept of green bonds is used consistently in the literature. Revenue from green bonds can only be used to finance environmentally friendly projects (Pham 2016) or only for investments that generate some kind of direct or indirect benefit for environmental or climate protection (Mihálovits – Tapasztai 2018). In other terms, a green bond is also defined as a hybrid financial instrument that combines the environmental benefits with the features of conventional fixed-rate instruments to channel funds to environmentally friendly projects (Hyun et al. 2019). In its summary, the MNB (2019) underlines the role of the issuer, which must responsibly undertake to “use the funds raised from the bonds to finance some environmental or related investment”.

While the definition builds on similar elements, there is less transparency and harmony as regards the regulatory system, engagements and purposes for which the funds can be utilised. The literature (IBA 2021; Mihálovits – Tapasztai 2018; Kolozsi 2019) consistently calls for uniform regulatory and rating standards. Several green bond issuers have developed proprietary green bond frameworks. Development banks such as the Asian Development Bank and the International Finance Corporation, as well as other players such as the Nordic Investment Bank, have declared market regulation mechanisms (Deschryver – de Mariz 2020), but many questions remain unanswered, even according to the latest literature.

Initiatives supported by public or private entities in this sector have only established “recommendations” and “guidelines”, which can be adopted on a voluntary basis. The Green Bond Principles (GBP) developed by the International Capital Markets Association (ICMA) are the most important voluntary guidelines for the issuance of green bonds (IBA 2021). The European Union is currently in the process of developing a framework for green finance. The first step was taken in March 2018, when the European Commission adopted a comprehensive plan to promote sustainable financing (the Sustainable Finance Action Plan) and set up its Technical

Expert Group on Sustainable Finance, which drew up the first draft of the EU Green Bond Standard.

As green bonds are an instrument aimed at eliminating the negative effects of economic activity on the environment and may even promise extra returns for investors, green bonds very soon received considerable attention worldwide. *Mihálovits – Tapaszi (2018)* collected the challenges lying ahead of the green bond market and also offered solutions to the problems listed (*Figure 2*). The regulatory system has been less successful in keeping abreast with the steady increase in interest and capital market prominence; a uniform regulatory framework for both investors and issuers, and market transparency have proven deficient in connection with the issuance of green bonds. The clarification of uniform international standards and responsibilities would resolve the uncertainties surrounding the rating of green bonds, but at least as much emphasis should be placed on the development of a quantitative scaling system to provide investors with feedback on financing outcomes.



Apart from the uniformity of precise regulation, criticism is also justified for the hard-to-define green criterion, which determines the purpose of finance. What makes an investment green? Does improved energy efficiency in a coal plant support sustainable principles? Are areas that do not serve climate objectives, but suffer the consequences of climate change eligible? By asking such questions, *Gyura (2019)* points out the need for some definition of environmental utility in order to maintain confidence in the green bond market. Failing that, promoting sustainable values in capital markets could trigger the opposite effect.

Due to a regulatory framework that allows flexibility in interpretation, companies may become inclined to give the impression that they are “greener” than the green benefits they actually possess. Since the environmental utility of such companies can be questioned according to several studies (*Kidd 2015; Shislov et al. 2016; Gyura 2019*), greenwashing could bring the emerging segment of green-labelled financial instruments to an abrupt halt by destroying investor confidence. *Timár*

(2021) argues that the fact that he found no significantly abnormal returns in the pricing of responsible and sustainable investments with companies listed on the New York Stock Exchange could be attributed to the phenomenon of greenwashing.

The green bond market, as we have seen, continues to face many uncertainties and challenges on the regulatory front. While climate risks and the role of banks will not be addressed in this study, a paper by *Baranyai – Banai (2020)* does show that the banking sector is also involved in climate risk management. Arrangements for the establishment and review of uniform principles are one of the most urgent issues and, given the need for a reallocation of capital due to decarbonisation and the transition to a carbon-neutral economy (*Kolozsi 2019; Fogarassy et al. 2018*), risk management must be transformed and sustainability must become an integral part of investment decisions. On the other hand, green bonds must be in line with the issuer's climate strategy, making it absolutely necessary to examine the issuer's commitment so that greenwashing is contained.<sup>4</sup>

### 3. Pricing specificities of green bonds – the green premium

Today, sustainable investment is a quickly growing area of scientific research, with a body of literature that is expanding at a tremendous rate every year (*Németh-Durkó 2019*). There has been a dynamic increase in the emphasis and measurement of the role of corporate, social and environmental aspects in the banking and capital markets. Such areas include calculations of returns, green premiums and, with at least as much interest, the risks of sustainable investments. In this Section, we present the specific features involved in the pricing mechanism of green bonds and examine the green premium with reference to the return differentials as measured in the literature.

Issuers of green bonds may incur additional costs from certifying the compliance of their bonds with the relevant directives, keeping the revenues in separate accounts, specifying the internal processes required for the selection of eligible projects and reporting regularly on the use and impact of revenues, which will compel them to enter the market at a higher price and with lower returns compared to conventional bonds. The return differential resulting from this mechanism is referred to as the green premium. The cost of issuing green bonds ranges from 0.3 to 0.6 basis points for an issue of USD 500 million (*Hachenberg – Schiereck 2018*) and this represents a particular challenge for smaller issuers (*Forsbacka – Vulturius 2019; Tuhkanen – Vulturius 2020; Sartzetakis 2020*).

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<sup>4</sup> Tapaszt, A.: *ESG- és zöldbefektetések a jegybanki portfóliómenedzsmentben (ESG and green investments in central bank portfolio management)* <https://economianiblog.hu/2021/04/09/esg-es-zoldbefektetesek-a-jegybanki-portfoliomenedzsmentben/>. Downloaded: 10 June 2021.

The body of literature on the green premium comprises a rather small number of empirical works. *MacAskill et al. (2021)*, in their summary of green bond performance and the green premium, report only 15 studies on bond issues in primary and secondary markets between 2007 and 2019. The consensus on the existence of a green premium is confirmed by their research for more than half of the green bonds, in particular green bonds that are sovereign-issued and comply with the standards and reporting obligations that can be expected from green bonds. The authors estimate the size of the green premium within a range of 1 to 9 basis points on average, indicating the average share of the returns that investors are willing to forego in favour of financing environmental objectives. In other words, investors pay a (negative) price premium on green bonds, i.e. they tolerate lower returns on green bonds compared to conventional bonds. *Tuhkanen and Vulturius (2020)* argue that the green premium benefits issuers and reduces their financial costs of issuing.

The premium on green bonds can be present in both the primary and secondary markets. In the primary market, where new bond issues are offered to investors, these issuance costs would translate into a higher price for a green bond compared to a conventional bond. Once the bonds have been issued, in the secondary market they are traded freely and subject to price movements. The presence of a negative green premium in primary or secondary markets means that a green bond trades at a lower return (or higher price) compared to a conventional bond with similar characteristics. “By placing green bonds on the market, issuers credibly indicate their commitment to protecting, maintaining or restoring the environment. As a result of investor interest generated by the related benefits, issuers are generally able to price green (and third-party certified) bonds at a premium” (*Sági 2020*). By purchasing bonds that offer lower returns but are *green*, investors reward the issuer with lower financing costs for the implementation of projects targeting environmental measures.

The literature shows that the existence of the green premium is empirically confirmed by a major part of the studies (*Table 1*). For different periods and a variety of markets, similar conclusions were reached. Investors are willing to forego a part of their returns by buying green bonds. In other words, they are willing to pay a premium for climate finance. Based on the works covered by our review, the green premium was found to be a minimum of  $-0.17$  basis point and a maximum of  $-63.2$  basis points compared to the returns on conventional bonds.

The lowest green premium is reported by *Harrison (2019)*. Regarding the performance of American and European green bonds, on a sample of 61 green bonds, she found the return on green bonds to be 0.17 basis point lower compared to conventional bonds. On a global sample, but comprising a smaller universe of green bonds, a much higher green premium ( $-63.2$  basis points) is reported by

*Nanayakkara – Colombage (2019)*, who compared bond performance for the period 2016–2017. *Zerbib (2019)* also analyses a portfolio compiled from the global market, with one-tenth of his original sample eventually included in the model due to the strict criteria of the matching methodology and their fulfilment. Matching each green bond with a conventional bond with comparable properties, he found the return on green bonds to be 1.8 basis points lower in the period 2013–2017. This premium in return for achieving environmental objectives is, according to the author, not significant and is not expected to discourage investors from investing in green bonds.

**Table 1**  
Results for green premiums in green bond portfolios as reported in the literature

Author	Year	Market/ Dimension	Method*	Period	Green bonds (pcs)	Green premium (basis points)
Ehlers and Packer	2017	USA and Germany	Matching	2007–2014	21	–18
Bauer et al.	2018	USA (local governments)	CAPM	2014–2016	2,083	–6
Bauer et al.	2018	USA (corporate)	CAPM	2014–2016	19	–
Tang and Zhang	2018	global	OLS	2007–2017	665	–
Hyun et al.	2018	global	Matching	2010–2017	60	–
Zerbib et al.	2019	global	Matching	2013–2017	110	–1.8
Nanayakkara and Colombage	2019	global	OLS	2016–2017	43	–63.2
Harrison	2019	EU and USA	OLS	2019	61	–0.17
Gianfrate and Peri	2019	EU	Matching, OLS	2013–2017	121	–0.2
Karpf and Mandel	2018	USA (local governments)	Oaxaca–Blinder decomposition	2010–2016	1,880	+7.8

Note: \* CAPM - capital asset pricing model, OLS - ordinary least squares.

The existence of the green premium has been disproved by a small number of studies (*Baker et al. 2018; Tang – Zhang, 2018; Hyun et al. 2018*) on the grounds that no significant difference was demonstrated between the returns on green and conventional bonds. *Tang – Zhang (2018)* found no significant premium or discount for green bonds that was constant in time, but established a significant positive response in stock prices to corporate green bond issues. The issue of green bonds brought about a significant improvement in the liquidity of the shares, implying that a corporate decision on the issue of green bonds promises to be beneficial for shareholders at the time. Although in contrast with the work of *Tang – Zhang (2018)*, *Hyun et al. (2018)* report a green premium in the range of 6–9 basis points,

they note that this only applies to green bonds rated externally by Climate Bonds Initiative (CBI) or another entity. Carried out between 2010 and 2017, their research is based on a sample of 60 green bonds denominated in GBP versus conventional bonds with comparable properties, in alignment with the research methodology of *Zerbib (2019)*.

The classification of green bond issuers, i.e. corporate and municipal, is also subject to analysis. *Partridge – Medda (2020)* report on better performing green indices. The Municipal Green Bond Index outperformed the nearest equivalent S&P index between 2014 and 2018. In their research, *Karpf – Mandel (2018)* also reported superior performance by green bonds: controlled for the liquidity of green bonds from a database of about 2,000 items, a green premium of +7.8 basis points was obtained over a 30-day horizon. In contrast with most research, in this case the premium is a positive value, suggesting that the green bonds issued by local governments are perceived as less risky by the market and investors.

In terms of methodology, risk-adjusted ratios are a popular means of analysing the performance of investment funds, and that approach is taken into account for both bonds and equity portfolios. In their comparative analysis of 131 green funds against risk-adjusted ratios, *Chen – Chang (2012)* found green funds to have outperformed the peer group consisting of conventional funds. Using an extended version of the Fama and French 3-factor model, the financial performance of conventional funds was found to have been better than that of green funds, while there was no significant difference between the risk-adjusted performances of green and black portfolios. Consistent with the conclusion of *Chen – Chang (2012)*, based on an analysis of 175 green funds, 259 black funds and 976 conventional funds, it was found that when the time window was moved forward, the green funds achieved increasingly higher returns between 2012 and 2014, with the green premium disappearing (*Ibikunle – Steffen 2017*).

Our literature review confirms the empirical evidence for the existence of a green premium. Most research papers agree on a significant confirmation of a green premium, i.e. negative returns on green bonds. Assertions to the contrary are made in very few studies. In the following we present the results of our own research.

#### **4. The green bond portfolio and methods to measure performance**

In our research, we examine the performance of a portfolio of publicly available assets. We look for empirical evidence for the existence of a greenium by determining whether the performance of a green portfolio matches that of market benchmark indices or falls short of the market. Our results show whether green bonds offer a profitable investment alternative, or instead serve corporate reputational purposes, for which investors committed to sustainability are willing to pay (i.e. incur a loss of return).

In our database, we collected actively managed funds, the purpose of which is to outperform their benchmark. Active fund management builds on the portfolio manager's ability to pick securities and to act on the market with appropriate timing and specific strategies, while the other type, passive fund management, operates by producing the returns of a market index as accurately as possible. We opted for actively managed funds on the grounds of an estimate, according to which 23 per cent of such funds outperformed their passive counterparts (*Stempler 2021*).

We use a variety of indicators for the assessment of green bond portfolios. To characterise market conditions from the CAPM model (for our purposes, the index model) we use alpha and beta, and to measure risk-adjusted performance, we use the Sharpe ratio, the M<sup>2</sup> ratio and the Sortino ratio. One of our research hypotheses is that the average return on green bond funds is lower than the market benchmark return, i.e. a green premium exists. To report returns and performance in the most actual terms possible, we infer the answer to the hypothesis from the value of the risk-adjusted ratios. Our second hypothesis is that there are green bond funds in the case of which active fund management creates value and achieves higher returns than the market thanks to the ability of the fund manager. We answer the hypothesis based on the results for the alphas of the green bonds.

#### **4.1. Characteristics of the database examined**

Due to the relatively young market, the period considered in this study to analyse the performance of green bonds is from 1 March 2017 to 28 February 2020. Of the 32 green bond funds defined by Environmental Finance, which examined only those funds in which green bonds accounted for at least half of their weight, 17 met the three-year timeframe criterion, of which only 11 had historical data available. As in the research by *Climent – Soriano (2011)*, our database only consists of open-ended, primary investment funds, which are freely available to any investor. The exclusive focus of the asset class is bonds. The data have been collected from four different database: Yahoo Finance, Boursorama, Markets and Umundi. The list, currency and net asset value of the green bond funds included in the analysis are shown in *Table 2*.

<b>Name</b>	<b>Currency</b>	<b>Net asset value 2019 (million USD)</b>
Allianz Green Bond W EUR	EUR	383.58
Amundi Rspnb Investing Green Bds I C	EUR	86.79
Amundi Rspnb Investing Imp Gr Bds I C	EUR	385.17
AXAWF Global Green Bds I Dis EUR	EUR	251.82
BFS Nachhaltigkeitsfonds Green Bonds	EUR	21.97
Calvert Green Bond I	USD	418.39
JSS Sustainable Green Bd Glb P EUR acc	EUR	24.36
Mirova Global Green Bond N	USD	39.65
NN (L) Green Bond I Cap EUR	EUR	1,422.64
Raiffeisen-GreenBonds I T	EUR	103.03
SEB Green Bond D EUR	EUR	122.62

*Source: Yahoo Finance, Boursorama, Markets and Umundi databases*

The portfolio we constructed includes a total of 11 green bond funds. The total value of the assets managed in the funds is approximately USD 4,440 million. The cumulative net asset value of green bond funds represents less than half of the assets managed by the overall market during this period. All of the funds listed are open-ended, with nine denominated in EUR and two in USD. Although U.S. bonds have the greatest weight in USD funds and European bonds have the greatest weight in the EUR funds, they are not categorised separately in the analysis because each portfolio is diversified geographically and includes both corporate and government bonds. For the purpose of determining the return premium, we chose the return on the three-month U.S. Treasury Bill as the risk-free return, which is derived from the website of the U.S. Department of the Treasury.

An important part of the analysis is the selection of appropriate benchmark portfolios, as each index can significantly affect the return of bond funds. In the research, we worked with 3 indices, to which we compare the performance of the funds. The first index represents the green bond market (S&P Green Bond Index), the second index (S&P Global Developed Aggregate Ex-Collateralized Bond Index) represents the conventional bond market, and the third index (MSCI All Country World Index) represents the global securities market.

The three most popular green indices are the Bloomberg Barclays MSCI Green Bond Index, the Solactive Green Bond Index and the S&P Green Bond Index, of which we chose the latter, since it is the most diversified of all, with the highest number of constituents. The S&P Green Bond Index was designed to monitor the global green bond market. The pioneering index maintains strict standards in order to include only bonds, the income from which is used to finance environmentally friendly projects. One of the most commonly used benchmarks for global fixed-rate instruments is the S&P Global Developed Aggregate Ex-Collateralized Bond Index, which tracks the performance of bonds issued by sovereigns, governments and market companies.

The third index against which the performance of green bond funds was measured is the MSCI All Country World Index. In most of the literature on the performance of investment funds, besides the FTSE All-World Index, it is used to represent the overall financial market. The MSCI All Country World Index is a global equity index designed to represent large and mid-caps in 23 developed and 26 emerging markets. In December 2019, it had more than 3,000 constituents in 11 different sectors.

#### **4.2. Methodology for the analysis of actively managed portfolios**

In the literature, the performance of actively managed portfolios is evaluated against a number of criteria, most frequently using risk-adjusted ratios such as the Jensen's alpha, the Sharpe ratio, the Sortino ratio and the  $M^2$  ratio (RÁCZ 2019). When calculating the green premium, most of the literature presented in our review compares the performance of the green portfolio with a conventional bond portfolio. In a different approach, this research looks for evidence for the existence of a green premium in relation to the performance of market (benchmark) indices (equity index, bond index, green bond index) focusing on three different asset classes.

The most commonly used metric for risk-adjusted returns and to compare investments is the Sharpe ratio, which shows the excess return per unit of risk, i.e. of standard deviation. It signifies the "attractiveness" of an investment, that is, whether the investment fund provides an adequate excess return for a unit of additional risk taken. Since the assessment of returns could provide a distorted view of an investment strategy due to differences in risk-taking, the risk-adjusted ratios ensure that assets bearing different risks are comparable. The Sharpe ratio is obtained using the following formula:

$$\text{Sharpe ratio} = (r_i - r_f) / \sigma_i \quad (1)$$

where  $r_i$  is the return on the asset,  $r_f$  is the risk-free return, and  $\sigma_i$  is the standard deviation, i.e. risk, of the asset. The Sharpe ratio allows comparisons between the performance of the funds and that of its reference indices. A fund with a Sharpe

ratio exceeding that of the indices is considered to have outperformed the indices. However, there are cases where the Sharpe ratio does not give reliable results, for example, where returns are associated with a negative skewness, it underestimates the risk, indicating a strategy that actually carries more risk than what is suggested by the Sharpe ratio,<sup>5</sup> which calls for the use of additional ratios.

The Sortino ratio is an enhanced version of the Sharpe ratio that also measures risk-adjusted performance, with the difference that while the Sharpe ratio takes into account the overall standard deviation, the Sortino ratio only takes into account negative standard deviation, i.e., contrary to the Sharpe ratio, it ignores positive volatility. It filters out volatility increases due to a price increase, a case otherwise favoured by investors. The formula of the Sortino ratio is the quotient of the return premium and the negative standard deviation of the portfolio.

$$\text{Sortino ratio} = (r_i - r_f) / \sigma_d, \quad (2)$$

where  $r_i$  is the return on the asset,  $r_f$  is the risk-free return, and  $\sigma_d$  is the standard deviation of negative returns.

Applying the Markowitz portfolio theory and incorporating enhancements on the capital asset pricing model (CAPM) based on that theory, various models and indicators can be used for evaluative comparisons of investment opportunities in terms of risk and return optimisation. The CAPM model works well in theory, but its assumptions are prejudiced in practice, and have brought about a multitude of market anomalies. Given that in practice it is realised (ex post) returns that can be observed (Lovas *et al.* 2019), we work with the single-factor index model instead of the CAPM model. The single-factor index model is a regression model that measures the excess return achieved by the portfolio against the benchmark. This approach allows us to measure the performance of the green bond portfolio we have compiled against that of the market. The line fitted on the return premiums of the asset and the market using the ordinary least squares (OLS) method is the security characteristic line (SCL), with beta slope and alpha intercept (Bodie *et al.* 2005). Alpha, or Jensen's alpha, quantifies the excess return on the portfolio, expressing the size of the difference between the average return on the portfolio and the return obtained with CAPM (here: index model).

$$\alpha_i = E(r_i) - [r_f + \beta_i \cdot (E(r_m) - r_f)], \quad (3)$$

where  $\alpha_i$  is the excess return,  $E(r_i)$  is the theoretical expected return obtained with CAPM,  $\beta_i$  is the undiversifiable market risk, and  $E(r_m - r_f) (= E(r_m) - r_f)$  is the expected market risk premium. A positive value of Jensen's alpha ( $\alpha_i$ ) indicates that the fund

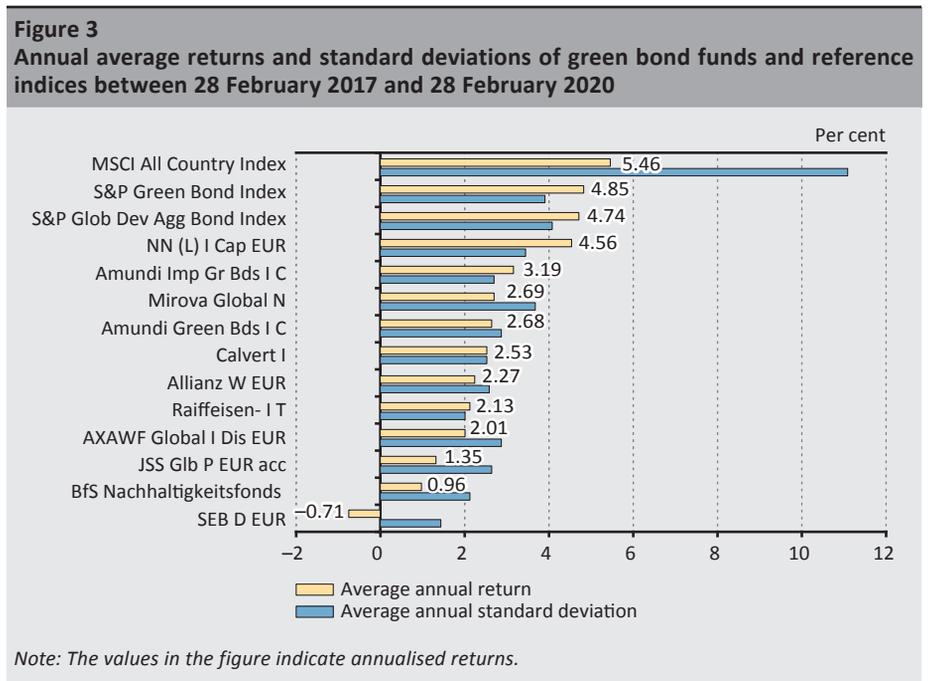
<sup>5</sup> Rollinger, T.N. – Hoffmann, S.T.: *Sortino: A 'Sharper' Ratio*. <https://www.cmegroup.com/education/files/rr-sortino-a-sharper-ratio.pdf>. Downloaded: 5 June 2019.

manager achieved a higher return than the reference index, i.e. that active portfolio management was successful. In the regression equation, alpha was tested using a t-test, in which  $H_0: \alpha = 0$ . If the null hypothesis can be rejected, i.e.  $\alpha$  is not equal to zero, then active portfolio management has added value.  $\beta_1$  explains the movement of the market portfolio in alignment with the return premium.

The indicators are first calculated over the whole period, then broken down by years, in order to observe the evolution of the risk-adjusted returns over time. By reference to *Ibikunle – Steffen (2017)*, we expect that green bond funds will show a similar increasing trend to that seen with green equity funds due to the spread of sustainable investments.

### 5. Measuring the performance of green bond funds

We first present the average annual returns and volatility of the 11 green bond funds and the 3 reference indices to give an overview of the basic characteristics of the green bond funds included in the study. We calculated annualised logarithmic returns from daily price data for the period concerned, adjusted for the average number of trading days (250) for the purposes of annualising daily returns and standard deviation. For the purpose of determining the return premium, we considered the return on the 3-month U.S. Treasury Bill as a risk-free return.



Ten of the 11 green bond funds achieved positive returns, but the return of the green bond funds was lower than that of all benchmark portfolios examined, and therefore none was able to beat the market compared to any benchmark index. The average return on the funds was 2.15 per cent, exceeding only the risk-free return (2 per cent), but falling far short of the benchmark indices returns of around 4–5 per cent. Of the green bond funds, the NN (L) fund, with the largest asset value, excelled in performance (4.56 per cent), but even that was only sufficient to approximate the lowest-return reference index (4.74 per cent). With the funds examined, lower returns tended to be accompanied by lower risk. The results show that while green bond funds are not more profitable investments, they are less risky than market portfolios (*Figure 3*). Other research has also found sustainable investments to be less risky than other portfolios (*Taghizadeh-Hesary et al. 2021*).

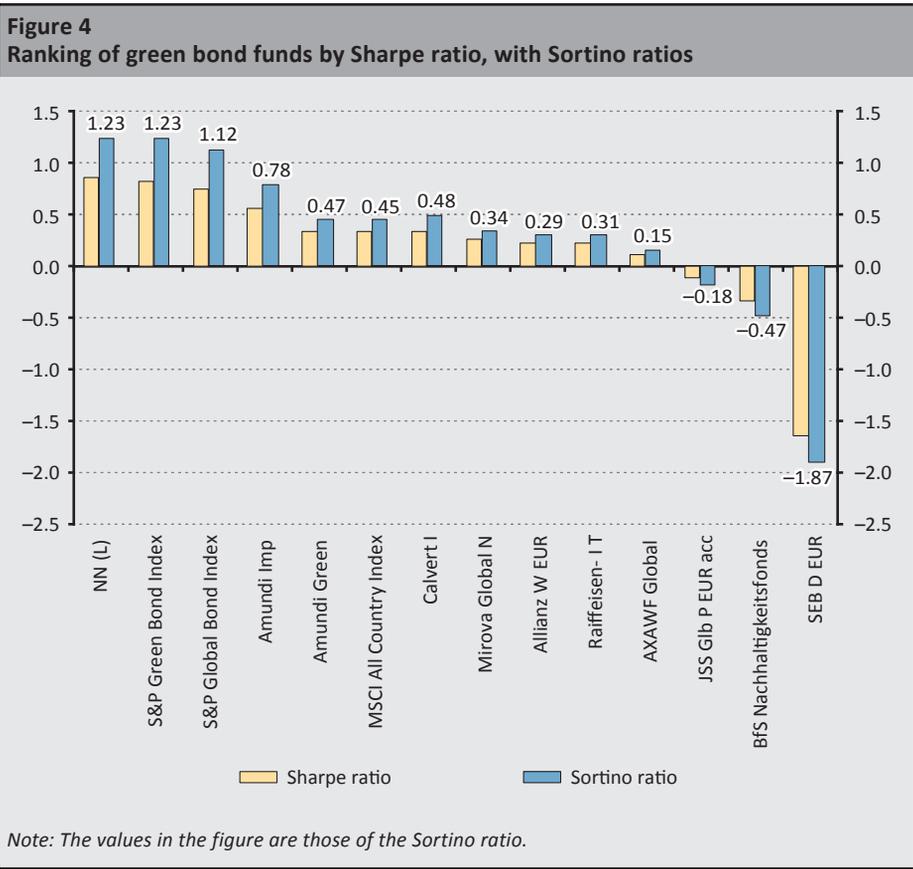
As regards the evolution of standard deviations, it is not surprising that the MSCI All Country World Index has the highest standard deviation, which is explained by the fact that equities are riskier assets than bonds. Of the indices, the performance of the S&P Green Bond Index and the S&P Bond Index (the index of the conventional bond portfolio) are nearly identical in terms of both risk and return. It is noted that the green bond fund with the highest return carries only the second highest risk; however, further conclusions about the relationship between returns and standard deviations should only be drawn after calculating the risk-adjusted ratios.

### **5.1. Risk-adjusted ratios**

The order of green bonds and benchmarks obtained on the basis of the annualised returns presented above can be disputed, given that portfolio managers achieved their returns by undertaking different risks. Risk-adjusted ratios are more appropriate for a correct assessment of performances. In this study, we present the performances obtained on the basis of the Sharpe ratio and its two enhanced versions, the Sortino ratio and the M<sup>2</sup> ratio.

While the three benchmark indices performed best in terms of returns, the highest Sharpe ratio was achieved by the green benchmark index and a green bond fund, the NN (L) fund. The equity market index was also outperformed by the risk-adjusted ratios of two green bond funds. The Sharpe ratios calculated for green bond funds are positive with the exception of three funds, which means that most green bond funds outperformed the risk-free return. The average performance indicator of green bond funds is 0.07 and 0.36 with negative values excluded, coming in just ahead of the equity market index (*Figure 4*).

The NN (L) fund was the only green bond fund with a higher performance than the green and conventional market indices in the period under review. Although the two Amundi funds came in behind the two mentioned indices, they outperformed the equity index. Thus, compared to the market, only a quarter of the funds proved to be superior investments that were able to achieve a higher return per unit of risk. The results also show that it is not appropriate to infer the performance from the evolution of the return alone, because, for example, the Mirova Global N Fund closed the period under review with a higher return than the Amundi Imp Fund (Figure 3), but it also took a much higher risk in exchange, and thus the Amundi Imp Fund, as reflected in the Sharpe ratio ranking, performed better in terms of return per unit of risk. The lowest-return green funds also rank the lowest in terms of the Sharpe ratio, as they failed to generate higher returns than the risk-free rate (Figure 4).



The Sortino ratio is an enhanced version of the Sharpe ratio, which is more sophisticated in its treatment of price movements, because rather than penalising price increases, it only incorporates the risk of their decline. The results of the Sortino ratio only changed the order by the Sharpe ratio for two funds. Importantly, another fund, the Calvert I Fund, also beats the stock market benchmark, whereby 4 of the 11 green bond funds prove to be good investments under market conditions of the analysed period (*Figure 4*). All portfolios with positive Sharpe ratios also had higher Sortino ratios, i.e. there were more positive outliers than negative ones. Accordingly, we assume a return distribution with a slight stretch to the left and skewed to the right, which is also confirmed by the descriptive statistical function run on the returns, where the skewness indicator is negative, averages are lower than the median, which is in turn lower than the mode. Therefore, the returns are asymmetrical, as their distribution is not normal. Consequently, the Sortino ratio provides a more accurate result for the performance of the funds.

Looking at the return on each green bond fund separately by year, an increasing trend is seen in their performance. The observed return change warrants an examination of the risk-adjusted return ratios, broken down by period. In the first two periods considered in the study, the Sortino ratios of the funds were negative, but in the third year, i.e. from the beginning of March 2019 to the end of February 2020, seven funds outperformed all three benchmark indices and three out of four funds also outperformed two benchmark indices (*Table 3*). All green funds, except the SEB D EUR green bond with a negative Sortino ratio, thus outperformed the reference indices in year 3 of the period under review. Our result is consistent with the conclusion of *Chen – Chang (2012)* and *Ibikunle – Steffen (2017)* that by moving the time window forward, the green funds perform better and the green premium disappears.

<b>Table 3</b>			
<b>Evolution of the green premium over time through an annual breakdown of the Sortino ratio</b>			
	<b>Sortino ratios for the periods</b>		
<b>Green bond funds</b>	<b>01.03.2017– 28.02.2018</b>	<b>01.03.2018– 28.02.2019</b>	<b>01.03.2019– 28.02.2020</b>
Allianz W EUR	-1.14	-0.98	2.77
Amundi Green Bds I C	-1.09	-1.14	3.32
Amundi Imp Gr Bds I C	-0.95	-0.69	3.32
AXAWF Global I Dis EUR	-1.50	-1.27	2.53
BfS Nachhaltigkeitsfonds	-1.31	-2.21	2.21
Calvert I	-1.85	-0.81	3.43
JSS Glb P EUR acc	-2.06	-1.99	3.33
Mirova Global N	-0.82	-0.65	2.48
NN (L) I Cap EUR	0.04	0.24	3.16
Raiffeisen- I T	-1.80	-1.02	3.00
SEB D EUR	-2.50	-3.87	0.68
<b>MSCI All Country Index</b>	<b>2.78</b>	<b>-0.56</b>	<b>0.02</b>
<b>S&amp;P Global Dev Agg Bond Index</b>	<b>2.01</b>	<b>-1.31</b>	<b>2.69</b>
<b>S&amp;P Green Bond Index</b>	<b>3.20</b>	<b>-1.43</b>	<b>2.06</b>

Another enhanced indicator of the Sharpe ratio is the  $M^2$  ratio, which eliminates the lack of actual numerical comparability of the ratio (*Table 3*). The Sharpe ratio only ranks the funds according to their risk-adjusted performance, whereas the  $M^2$  ratio adjusts the risk of the portfolio to its market risk and gives the difference between the theoretical return on the portfolio so constructed and the return on the benchmark. It shows how much the given fund performed better or worse than the market. In this study, we infer the extent of the green premium from the evolution of the ratio.

We note that funds with negative Sharpe ratios are not applicable here and would distort the results; disregarding them (JSS Glb P, BfS Nachhaltigkeitsfonds, and SEB D EUR) produces a green premium varying between +0.2 and -1.75 basis points (*Table 4*). There is therefore no green premium compared to the equity index, and the returns on the green bond funds were an average 0.2 per cent higher. According to our calculations, green bond funds fell short of bond and green bond indices by about 1.58–1.75 per cent on average, which means that green bond funds pay a green premium of an average of 1.6 basis points, which is consistent with the measured values reported in the literature (*MacAskill et al. 2021; Harrison 2019; Gianfrate – Peri 2019*).

**Table 4**  
**Evolution of the M<sup>2</sup> indicators in relation to all three market (benchmark) indices**

	M <sup>2</sup> -ratio (%) (stock index)	M <sup>2</sup> -ratio (%) (bond index)	M <sup>2</sup> -ratio (%) (green bond index)
NN (L)	5.49	0.38	0.11
<b>S&amp;P Green Bond Index</b>	5.17	0.26	–
<b>S&amp;P Global Bond Index</b>	4.47	–	–0.25
Amundi Imp	2.29	–0.80	–1.02
Amundi Green	0.02	–1.64	–1.82
<b>MSCI All Country Index</b>	–	–1.65	–1.82
Calvert I	–0.10	–1.69	–1.86
Mirova Global N	–0.76	–1.93	–2.09
Allianz W EUR	–1.36	–2.15	–2.30
Raiffeisen- I T	–1.42	–2.17	–2.33
AXAWF Global	–2.55	–2.59	–2.72
<b>Average green premium</b>	0.20	–1.58	–1.75

The values of the Sharpe ratio and the Sortino ratio depend only on the average return, the risk-free return and the overall or downside risk. The ratios were not affected by the choice of the benchmark index, regardless of whether their performance was compared to the conventional or green indices. However, as the benchmark index is also used in the calculation of the M<sup>2</sup> index, we have shown the results for all three indices, although it can be seen from our subsequent calculation that only one benchmark index correlates with the return on green bond funds.

Taking into account the risk-adjusted ratios alone is not sufficient to determine how the funds performed relative to one another; accordingly, in the following we present the results calculated using the univariate index model based on the CAPM model. Before that, we need to take a look at the benchmarks we have chosen. The values of alpha and beta, which measure the portfolio manager's ability to select and manage funds, and the movement of funds with the market, are sensitive to the benchmarks chosen. This raises the question of which benchmark to choose.

We found a slight negative correlation between green bond funds and the global equity market, which varies between –0.2 and 0; accordingly, we used a t-test to confirm that the values of the two returns are independent of each other. However, there is already a stronger, positive significant correlation between funds and bond indices. Surprisingly, we found the global bond index to correlate better with green bond portfolios than the green index. This may be due to the fact that while the former may contain green securities, the latter excludes conventional bonds, whereby its composition is less similar to that of the funds. In their analysis of ethical investment funds, *Bauer et al. (2005)* also concluded that explanatory power

of ethical indices was very weak. Drawing on the results from the correlation study, the return premium of the funds is compared to the global bond index, as the correlation calculation shows that the MSCI All Country World Index is less powerful in explaining their extent.

Table 5 shows the results of the regression equation run with the S&P Global Bond Index, where the dependent variable is the return premium of the index and the independent variable comprises the premiums of the funds above the risk-free return. Jensen's alpha basically gives the excess return above the expected return according to the CAPM model, but due to the latter's practical difficulties mentioned earlier, we use the index model to measure the return premiums.

<b>Green bond funds</b>	<b>Alfa (%)</b>	<b>Beta</b>	<b>R<sup>2</sup></b>
Allianz W EUR	0.001	0.16*	0.06
Amundi Green Bds I C	0.0026	0.37*	0.28
Amundi Imp Gr Bds I C	0.0045	0.38*	0.33
AXAWF Global I Dis EUR	0.0003	0.35*	0.25
BfS Nachhaltigkeitsfonds	-0.0011	0.19*	0.13
Calvert I	0.0016	0.40*	0.42
JSS Glb P EUR	-0.0022	0.34*	0.28
Mirova Global N	0.0022	0.40*	0.20
NN (L) I Cap EUR	0.0099	0.39*	0.21
Raiffeisen- I T	0.0058	0.06*	0.01
SEB D EUR	-0.0068*	0.37*	0.13

Note: \*  $p < 0.05$

Regarding the performance of the green bond funds, it may be asserted that the eight funds with positive alphas out of the 11 funds managed actively outperformed the global bond index benchmark representing the market. The results of the abnormal yields adjusted for the risk obtained with Jensen's alpha are consistent with our previous calculations, according to which the BfS Nachhaltigkeitsfonds, JSS Glb P EUR and SEB D EUR funds produced negative returns, negative Sharpe ratios and also negative Sortino ratios. However, when the p values are measured at a significance level of 5 per cent, we can reject the null hypothesis only for the SEB fund, which means that a significant difference from the bond index in terms of performance is found for one of the funds, the poorest performer; however, due to the low value of the determination coefficient, no far-reaching conclusions can be drawn regarding the green premium.

In our analysis, it can be seen from the significant betas that the benchmark index sufficiently explains the performance of the funds. We use the t-test of the betas to explain the market sensitivity of an asset, with the beta indicating the change in the return on a given asset triggered by the change in the return on the benchmark index. The average of the betas is 0.21, implying movements that are only marginally aligned with the market, and therefore less risky assets. The beta of the Calvert I fund is the highest at 0.42, which is also the fund with the highest reading for the determination coefficient, meaning that the variance of the return premium of the Calvert I fund is explained by the global bond index at 42 per cent.

Overall, active fund management had no effect on the evolution of the returns on the green bond funds, which is equivalent to unsuccessful fund manager operations for failure to use ability to beat the market. Our results confirm those of *Fama – French (2020)* on actively managed U.S. equity funds, which underperformed the market in the long run even after adjustments for cost; indeed, the alphas obtained for actively managed funds were essentially negative.

## **6. Summary**

A green revolution is taking place in the capital markets. Sustainable securities for achieving climate objectives appear to be a popular investment opportunity, but surprisingly, the key to their spread was not necessarily higher returns. From the empirical literature on green bonds, we showed that investors are willing to forego a part of their returns for the benefit of issuers, and to participate in climate finance, supporting the achievement of sustainable goals by paying a green premium. The green premium is a negative return compared to another conventional instrument with similar characteristics, and as such it can be considered as a kind of return sacrifice on the part of the investor, used by the issuer to finance the costs incurred to have the product green rated. However, our research also shows that the “greening” asset allocation by investors is not destined to be loss-making, but can be a profitable strategy for them even in the medium term.

We formulated two hypotheses. The first hypothesis was accepted, as the underperformance of the green bond funds compared to the benchmarks could be seen from the evolution of the returns and the risk-adjusted ratios. The average value of the  $M^2$  ratio confirmed the existence of a green premium for two benchmarks, and green bonds performed only marginally better than the equity index. However, due to the low explanatory power and insignificant results, we could not draw valid conclusions for the green premium from the CAPM-based regression model. We also accepted our other hypothesis on the grounds of the outstanding performance shown throughout the period by a single green bond

fund, the NN (L) fund, confirming the possibility to invest in a profitable green bond portfolio without a green premium.

Our research confirms the link that initially the choice of investors to invest in green bonds “only” had reputational value, but over time, with the continuation of the trend that emerged from our data, the green premium disappears, and green bonds are expected to have better performance and higher returns. Looking at the entire period, we confirmed the existence of green premiums for the majority of the funds in the portfolio of 11 green bonds, but over the years the green premium became less frequent and smaller. In this way, we were able to capture the green premium as priced in by the market, another view that is widely held in the literature. The annual analysis of the Sortino ratios showed green bonds to perform increasingly better, and the ability of some to outperform the benchmark indices.

Our findings highlight the role and importance of strengthening environmental preferences among bond market participants. The capitalisation of ecofriendly investor preferences can be an important catalyst for avoiding and mitigating the “dangerous” effects of climate change. Despite the poor performance of green bond funds in the overall sample, we have seen that over time they may become profitable investments as green premiums disappear, but we believe that this will only be the case if the regulatory issues around green (bond) funds are resolved.

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# Financial Exclusion in the Digital Payment Space\*

Márta Somogyvári

*The digitalisation of payment systems is accelerating and appears unstoppable. Today, we use mixed payment systems based on cash and digital money, but an increasing number of central banks are exploring the possibility of introducing central bank digital currency and full digitalisation. The greatest obstacle to this is not only the increase in the amount of cash in circulation, but also the situation of those social groups that do not use electronic payment methods and are excluded from financial services. There are several reasons for the latter, including economic and intellectual access difficulties, low levels of digital and financial literacy, banks' business policies and difficulties in accessing digital infrastructure. Subsidising digital access and various educational training programmes can help reduce financial exclusion, but the most impactful solution may be developments that use artificial intelligence to replace face-to-face contact. This requires rapid, safe, transparent innovations that take into account the specific characteristics of the heterogeneous groups affected by financial exclusion.*

**Journal of Economic Literature (JEL) codes:** E42, D14, G20, G53

**Keywords:** financial exclusion, electronic payment systems, financial literacy, digital finance, cash usage, payment infrastructure, bank of the future

## 1. Introduction

In the 21st century, we manage the economy and our daily lives from the digital space, and our information about the world is also captured there. Digitalisation also seems unstoppable in the financial world. Payment transactions, which today are still mixed, cash or non-cash, are a vitally important segment of finance for everyday life. Digital payment methods not only offer new, often faster and more convenient solutions for the user, as banks and financial institutions also constantly face new technological challenges. During the Covid-19 pandemic, fears of potential pathogens on paper money and coins significantly enhanced the reputation of card payment.

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Márta Somogyvári is an Associate Professor at the Institute of Quantitative Management, Faculty of Business and Economics, University of Pécs. Email: [somogyvari.marta@tkk.pte.hu](mailto:somogyvari.marta@tkk.pte.hu)

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This process was facilitated by raising the threshold for contactless transactions to HUF 15,000. At larger retail outlets, in addition to contactless payment methods, young people are also the main users of mobile apps. If we only look at the new digital solutions announced daily in the specialised press, the introduction of instant payments, the cryptocurrency exchange rates making headlines in the news and the ideas floated by central banks about the full digitalisation of national currencies, i.e. ‘fiat money’, we might tend to believe that we will soon be saying goodbye to paper money.

The data, however, tell a different story. Almost everyone pays with cash: in 2015, the share of cash users was nearly 99 per cent (*Ilyés – Varga 2015*), and in 2019, the share of cash transactions in retail was still 80 per cent (*MNB 2020*). Between 2012 and 2019, Hungary’s cash stock grew by almost 14 per cent annually to HUF 6,500 billion (*Végső 2020*), with the coronavirus pandemic pushing this figure to HUF 7,291 billion by December 2020.<sup>1</sup> These data show that cash will be with us for a long time to come, and even if the number of payments through digital channels increases, cash as a form of savings (*Végső et al. 2018*) is unlikely to lose popularity in the future. Nevertheless, digitalisation is inexorably progressing. The idea that electronic payment systems facilitate the development of the economy and generate significant cost savings for society seems beyond question (*Turján et al. 2011*). However, for those excluded from the digital financial world, these savings do not materialise at all. With the advance of digitalisation, these groups are being excluded from the range of potential buyers of financial products, and they are also unable to access commercial transactions, which are increasingly moving to the electronic space.

In this paper, I take a closer look at the general arguments in favour of the full digitalisation of payment systems and contrast them with the benefits that cash offers. I summarise the academic literature on financial exclusion and describe the factors that make it impossible for some vulnerable social groups to connect to the digitalised financial space and within this space to digital payment methods. The paper draws attention to the ethical problems arising from the complete phasing out of cash use and presents some innovative directions to reduce financial exclusion.

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<sup>1</sup> Press release on the preliminary statistical balance sheet of the MNB. <https://www.mnb.hu/letoltes/mnbmerleg-en-202101.pdf>. Downloaded: 19 February 2021.

## 2. Towards cashless payment systems

In terms of the digitalisation of payment systems, countries are at different stages, characterised by the variety of digital solutions and the share of payments made through digital channels. The constant stream of new FinTech solutions to replace cash, and more recently card payments as well, not only includes electronic cards and electronic wallets capable of handling physical cards issued by multiple card issuers, it has also been accompanied by a remarkable increase in the number of service providers. The banking and financial sectors now have competitors operating in the international digital space that have easy access to risk capital, can respond flexibly to consumer demands and are subject to neither the Basel III capital adequacy requirements, which have been increasingly stringent since 2008 in terms of quantity and quality (Kerényi *et al.* 2017), nor to the strict financial regulations and in many cases to the deposit protection measures of individual countries. This also means that users have almost no protection in the event of a hacker attack or the bankruptcy of their service provider. When someone wants to use Revolut to make a stock exchange transaction, and their balance suddenly is just gone, or Wirecard, a blue-chip company listed on the German stock exchange, is found to have falsified its balance sheet to cover up its capital shortfall, the trust of users in the FinTech sector can be fundamentally shaken (Zeranski – Sancak 2020). This is why BigTech companies, which – due to their huge market weight and their booming user base in the wake of the Covid-19 pandemic – are more trusted by users, are playing an increasingly important role in competition worldwide and may be threatening competitors for FinTech companies (which they usually acquire), as well as for the traditional financial sector. Facebook’s Libra project has shown how individual countries’ national sovereignty in respect of money creation could be threatened by the introduction of an international payment ecosystem controlled by BigTech companies. The Libra project aimed to develop a decentralised, anonymous, universal digital payment system backed by a currency basket of stable currencies and low-volatility instruments, but with characteristics more similar to cash (Brühl 2020). While Facebook has consistently stated that it wants to launch the project in compliance with financial rules, it is clear that the digital payment system they have in mind cannot solve the problems relating to customer identification and the prevention of money laundering. The intention to introduce Libra has drawn the attention of central banks and financial regulators to the dangers of BigTech efforts, and this has accelerated the discourse on the introduction of central bank digital currency (Didenko *et al.* 2020). The project seems to have failed due to the numerous criticisms by the world’s major central banks, but the company has not given up, as it is working on the launch of Diem, which – in contrast to Libra – is a new currency pegged to the US dollar rather than to a currency basket.

Looking at today's payment systems and the possible directions of development, we can distinguish three paradigms that will remain relevant for cash-only and digital-only payment systems in the future:

- a mixed payment system, based on cash and digital payment methods, which is common today;
- a reduced cash payment system based mainly on digital payment, but still using smaller denominations; and
- a fully cashless payment system based on central bank digital currency (and possibly cryptocurrencies).

The arguments in favour of phasing out cash can be grouped into three categories: the convenience provided by digital payment methods; the use of cash for various criminal activities; and the social and private costs of maintaining cash payment systems.

The first argument seems natural to people who are comfortable in the digital space, do not carry cash and do not queue up in the bank, use a single bank card to pay for purchases in the shop or online, make bank transfers from home and receive instant notification of transactions in their bank account.

At the same time, cash payments are seen by many as a hotbed of the shadow economy, financial crime and tax evasion (*Rogoff 2016*). Clearly, cash can be used for financing various illegal activities such as drug trafficking, smuggling, terrorism and money laundering. However, cash supply reduction and cash flow restriction are not meaningful ways to reduce crime and money laundering in today's mixed payment system. In fact, these activities are gradually shifting to digital channels, using the opportunities offered by cryptocurrencies and the darknet. Analysing the relationship between cash and the shadow economy, *Cleland (2017:82)* finds that in Great Britain, unpaid tax has not increased over the last ten years despite demand for cash growing by 75 per cent, and concludes that – contrary to popular belief – phasing out cash cannot significantly reduce or by any chance eliminate tax evasion. The Deutsche Bundesbank (DB) takes a somewhat more nuanced approach, pointing out that there is as of yet no empirical evidence to confirm the positive impact of cash phase-out on taxes paid. By contrast, there are factors that clearly influence willingness to pay tax, such as the proportion of self-employed people, the tax rate and the extent of social contribution obligations (*DB 2019a:49*).

The production, transport and storage of cash, and the replacement of worn-out paper money and coins involve complex logistical processes and are also resource-intensive and expensive. *Turján et al. (2011)* assume total savings of HUF 103 billion

if the following conditions are met: the number of POS card transactions reaches 1 billion per year, paper-based bank transfers are fully electronised, pensions are transferred to bank accounts, and postal payments with yellow cheques are completely replaced by transfers or direct debits. Unfortunately, there have been no studies on whether these savings have materialised with the spread of digitalisation. However, this amount seems low in relation to GDP, and when we look at the overall picture, it is questionable whether the savings are real. We do not know which actors will be more burdened by phasing out cash or the forced introduction of digitalisation, and what costs or difficulties, unrelated to banking and financial processes, it will create for financially vulnerable social groups. These groups include not only households with no access to the digital space, but also primarily the micro-level enterprises that are connected to these groups. Digitalisation places a particularly heavy burden on trade businesses, as they bear more than half of the costs related to digital payment methods, e.g. in the form of fees payable to card companies and banks, and terminal maintenance costs (*Schmiedel et al. 2013; Business Insider 2019*). Although the costs of card transactions have fallen considerably in recent times, they are still around 34 per cent more expensive for merchants than cash transactions, according to German data (*DB 2019b*). While these systems are easy to manage for large commercial chains, they significantly reduce the liquidity and indeed the chances of survival of small, undercapitalised enterprises or even necessity entrepreneurship.

The arguments against phasing out cash can be divided into two major groups. These relate (1) to the stability of the financial system as a whole, and (2) to the public's attachment to cash. The stability of the financial system can be strengthened by the presence of cash, because it can maintain the flow of payments even when there is some interference in the digital channels. This could be due to a software or hardware failure in the system, or an external cyber attack. A collapse of the electricity system, even a momentary blackout or a power outage lasting up to days can cause significant problems. In such cases, cash can function as a safety reserve for the public. The reserve role of cash may be the reason why even in countries with an advanced digital financial culture the amount of cash held by the public is high (*Végső 2020*). For broad strata of the public, paying with cash is a payment method that is easy, free and provides instant use without any fees or costs. The anonymity of cash and the protection of personal data are also important aspects (*Greenham – Travers-Smith 2011*). In contrast to digital payment channels, the psychological function of cash is significant, as attachment to cash is often motivated by emotional reasons. It is what people are used to and it is physically tangible, and this physical connection and the act of paying with cash are more personal than digital transactions. The data also show that despite digital alternatives, the popularity of cash is still unbroken around the world today (*Cleland 2017*).

Even if today it seems that cash will be with us for a long time, access to digital payment instruments is becoming increasingly important. Hungary is leading the way in the transition to a cashless or, initially, only reduced cash payment system. This is evidenced by the move towards the digitalisation of retail payments, mandatory card acceptance with online cash registers, restrictions on cash payments in the business sphere and the successful introduction of instant payments. The digitalisation of the financial world and payment systems also means that a key element of economic transactions will become virtual, and those who are not comfortable in the virtual world will be excluded from its opportunities. The impact of financial exclusion on these social groups is associated with externalities that are almost impossible or difficult to quantify, and which we do not usually take into account when assessing the social impact of digital payment methods.

### **3. Financial exclusion in the digital world**

At the end of the 2010s, a total lack of access to financial services affected more than 1.7 billion people worldwide (*Demirgüç-Kunt et al. 2018*). They are the ones who are unbanked, who do not get credit and do not have access to various investment, insurance savings products and services. In the case of mixed payment systems, lack of access does not apparently mean total exclusion, as everyone or almost everyone has access to cash. However, for cash-dependent people the growing prevalence of electronic payment systems means difficulties or only limited opportunities in terms of being involved in economic life. This of course equally applies to households, as only less than half of households worldwide have access to basic financial services. People with no direct access to services and products to be paid for electronically, and relying solely on cash payment methods, can buy products and services at a higher price – if they are available for them at all – and this is also reflected in their lower standard of living and material well-being. Webshops usually have lower profit margins than shops, and if an order exceeds a certain amount, home delivery is free of charge. People without a bank card are either unable to order anything online at all or are forced to rely on intermediaries, who will shop for them for an extra charge. The other option is to buy goods from different commercial outlets that sell the same products at a higher price. If these people live in rural areas difficult to reach by public transport, they have to travel to the city to buy certain products, and this usually requires the help of an acquaintance with a car, who is also informally involved in passenger or goods transport. The price level of retail outlets or even mobile shops in villages is much higher than that of urban shops, while a very large number of their consumers have low incomes. Financial exclusion thus often goes hand in hand with social exclusion (*Kempson et al. 2000*).

### 3.1. Use of payment methods from cash to digital solutions

Of the wide portfolio of financial services, access to payment systems is the most widespread because, unlike credit or banking services, cash is available to everyone. However, there are groups among the adult public that may seem marginal, but comprise hundreds of thousands of people, who have lost their financial self-determination. This includes, for example, middle-aged and elderly people who are no longer able to handle even cash due to cognitive impairment. Although many of them now actually have a bank account, it is their environment, typically their family, that manages their finances for them. For the longer term, however, it is widely assumed that by the time the middle-aged generations currently using digital financial system reach old age, this could also mean a full integration of older people into the circle of users of digital financial services (*Ilyés – Varga 2015; Horn – Kiss 2019*). This expected full catching-up may be made more challenging by some observations on the health status of older age groups. Perhaps the key one is that among elderly people, dementia is the most common disease associated with cognitive decline, which on the one side was the seventh most frequent cause of death worldwide in 2019 (*WHO 2020*), and on the other hand is the third leading cause of death in high-income countries, and the proportion of people with dementia in the population is projected to rise steadily.<sup>2</sup>

People who have control over their finances use digital services to different extents. Many cash-only users are voluntarily abandoning digital payment methods. In this case, they have the means to obtain access, but think they do not need it and are attached to cash for cultural or emotional reasons (*Claessens 2006*).

The range of users of electronic payment methods varies from occasional users to fully digitalised electronic-money-only users. Occasional users are those who do not have a bank account. They usually use a prepaid card of some kind that can be used freely for purchases, but this also includes the prepaid meter card for electricity services, mobile balance top-up, and in Hungary, use of the prepaid SZÉP Recreation Card (although in this case there is a technical account behind the card).

The next group consists of people who need a face-to-face contact regarding information about their bank account and possible problems. Many of them are forced users, for example because as public service employees they are obliged to receive their salary on a bank account or have their pension transferred to a bank account, but they do not use any other service. Once a month, they withdraw the money in cash from a bank branch or an ATM machine. They make transfers on paper, at the bank, with the help of bank staff to complete them, and although many

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<sup>2</sup> *Alzheimer's and other dementias* – Statistics & Facts. <https://www.statista.com/topics/3722/alzheimer-s-disease-and-other-dementias/>. Downloaded: 14 January 2021.

of them pay for public services by direct debit, they ask at the bank for information on the state of their bank account. They also need face-to-face contact with a bank representative because they would not be able to do things on their own, they do not have sufficient information about banking processes and do not know what account they should hold and when. This is partly due to the fact that information on banking products, account types and condition lists is relatively difficult to access. These official documents can only be downloaded from banks' websites after a long search, and the more readily accessible parts of the websites contain marketing material for the target group. The documents are also posted in bank branches, but the formal language of bank information is hard to understand, the wording is too technical, and the particulars are rather difficult for an outsider to interpret. It is not by chance that the EU Directive 2014/92/EU requires banks to provide clear and transparent information on bank accounts (*EU 2014*).

The biggest leap in terms of entering the digital financial world is online banking. Although the boundaries between cash users and electronic money users are not always distinguishable, as almost everyone uses cash today, the line between those who need face-to-face banking and do not participate in digital banking and those who use net banking is relatively sharp. The proportion of people using net banking in Hungary is just below the EU average: in 2020, 57 per cent of the public in the EU and 51 per cent in Hungary used online banking. However, this proportion is very low compared to the Nordic countries with the strongest coverage, such as Finland or Norway, where the proportion of net bank users is over 90 per cent (*EC 2020*).

The positive experience of online banking, and the related card and now phone app payments, coupled with the convenience and the demand for non-stop access to the system, may also lay the basis for the use of FinTech payment methods. These are very diverse today. They include, among others, cardless payment solutions over the internet; payment gateways that function as online POS terminals and connect e-commerce participants and banks; mobile P2P (peer to peer) payment solutions; mobile wallets that connect to technical accounts behind physical bank cards; global digital remittance providers connecting guest workers abroad and family members back home; mobile phone payment systems (*Business Insider 2019*).

### **3.2. Distinguishing between access and use**

Access to digital payment systems means in fact the availability of the relevant services and products from the supply side. If the supply side finds the right target groups, the users will be reached as a common intersection of supply and demand. Non-users can be divided into two groups: there are those who voluntarily exclude

themselves from using digital payment systems and those who are excluded from it for some external or internal reason (Claessens 2006).

Why do some potential users voluntarily exclude themselves from using digital payment systems, when neither the infrastructure available to them nor their digital literacy are barriers? One practical reason is that if they receive their salary or income in cash, it is not worth paying it into their bank account every month. Another common reason for the refusal of use is the virtuality of electronic money. People who use a bank card or transfer money from a bank account are often unclear about what their money is spent on and how much, and they do not even know the actual amount in their account. This in turn can lead to them being unable to manage their income properly. International surveys also show that it is much easier for people to allocate their money if it exists in a tangible, physical form. Around 31 per cent of unbanked people in a Great Britain study said they did not have banking connections for this reason (Lloyds Bank 2017).

### 3.3. Reasons for involuntary exclusion

In order to assess what products and services are needed to increase the penetration of digitalisation, it is necessary to identify the reasons why a relatively high proportion of the population is still attached to cash (Demirgüç-Kunt *et al.* 2008). The forced exclusion of many from the digital payment system has subjective and objective elements that often reinforce each other. These barriers can be divided into two broad categories. The first category includes barriers to access to digital payment services, whereas the second one relates to exclusionary factors and regulatory issues associated with banking supply.

#### 3.3.1. Availability of digital financial payment infrastructure

Access to financial infrastructure can be provided in person or digitally. Although there are now examples in Hungary of the possibility to open a bank account or handle account-related matters online using video identification, these are only pioneering ways that require relatively good digital literacy and continuous high-speed internet access. The general way to open an account is to go to a bank branch in person, and cash withdrawals can also only be made at a bank or an ATM, or possibly at a post office branch. It is not by chance that, in their listing socio-demographic determinants, Ilyés and Varga (2015) highlight that the size of a settlement has a fundamental impact on bank account coverage and that small settlements have a negative bearing on the use of banking services. The type of settlement thus clearly determines the physical accessibility of banking services (Horn – Kiss 2019). The Hungarian bank branch network has shrunk significantly in recent years. While in 2008, there were more than 4,400 bank branches in the country (Helmeczi 2010), at the beginning of 2021, the branch and ATM locator of

the Magyar Nemzeti Bank (the Central Bank of Hungary, MNB) showed only 1,844 branches. 78 per cent of Hungarian settlements do not have a branch; the density of bank branches is only adequate in Central Hungary and in the Southern Great Plain, i.e. these are the only areas where financial institutions are available in almost all settlements (*El-Meouch et al. 2020*). In other regions, where the poor population living in very small villages is particularly vulnerable financially, not only the lack of bank branches, but also the lack of public transport is a major handicap to accessing financial infrastructure (*El-Meouch et al. 2020*).

According to 2019 data from World Bank, Hungary is on a par with Slovakia in terms of ATM availability per capita, but it lags well behind Croatia and even Romania.<sup>3</sup> The previously dynamic growth in ATM deployment in the world slowed down markedly from 2011 onwards and seems to have come to a standstill in 2017 (*World Bank 2021*). In February 2021, there were 4,685 ATMs in Hungary. Cash withdrawals can also be made at a post office and there were 2,554 post office branches in 2021. The limited opening hours of smaller rural branches make it difficult for those who work to use the also limited banking services available at a post office. Wide access to digital payment systems is not ensured in rural areas, but money withdrawal itself is possible in some form in larger settlements.

The decline in the number of bank branches is not only related to bank consolidation in Hungary. This is a self-generating process that is also facilitated by the spread of digital financial solutions. If customers use net banking to conduct their transactions and payments shift towards electronic means, the need for face-to-face contact is reduced, leading to lower bank branch utilisation. Competition generated by FinTech companies providing financial services also has a negative impact on banks' profitability (*Scardovi 2017*). This is compounded by increasingly stringent standards for traditional banks. In fact, the regulation of new FinTech companies, which often provide international services, is currently rather lax. Banks are responding to the intensifying competition by cutting costs, with a consequent increase in branch closures. Access to banking services for the rural population is a long-standing problem around the world.

Having the right digital devices and an internet connection are essential for digital access. In 2018, in Hungary, 48 per cent of households had a laptop, 42 per cent had a desktop computer, 15 per cent had a tablet, and almost all households had one or more mobile phones (*HCSO 2018*). No data are available on how many households do not have internet-enabled ICT devices, but when the Covid-19 pandemic caused schools to switch to digital learning, the lack of internet connection, digital devices and electricity was the biggest problem in many small rural settlements. A survey

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<sup>3</sup> There are around 61 ATMs per 100,000 inhabitants (*World Bank 2021*).

in villages with foundation schools found that more than one third of pupils were not able to engage in digital learning activities.<sup>4</sup> In terms of internet coverage, the country is in a relatively good position, with cable broadband network covering 94 per cent of households, high-speed broadband coverage at 90 per cent and 4G coverage at 97 per cent. If we look at usage, the picture is much worse. In 2019, regular net surfers make up 80 per cent of the public, and 66 per cent of internet users use the net bank, which is a very large increase when compared to the 49 per cent in 2017. By contrast, 9 per cent of the public do not use the internet at all. Mobile broadband usage is the lowest in the EU: in Hungary, only 70 out of every 100 subscribers use the mobile internet. Based on the European Commission's DESI Composite Index, which covers technological progress (broadband internet deployment and use, the penetration and pricing of broadband mobile internet), the level of education in the society, internet usage penetration and e-government, Hungary ranks 21st out of the 28 EU countries (*EC 2020*). While the infrastructural conditions essential for the use of digital financial solutions are usually available for all but the poorest rural, segregated households, their use does not reflect the scale of the opportunities.

### 3.3.2. Economic access

There is no benefit in having proper network infrastructural conditions if deprived households cannot afford the costs involved. Globally, low household income is one of the most explicit indicators of who uses only cash (*Greenham – Travers-Smith 2011*), but the same correlation can also be detected with GDP (*Bech et al. 2018*). Hungarian research confirms this (*Horn – Kiss 2019*). If we try to put together the cost factors affecting access to digital infrastructure, we find that it is the price of electricity and the price of cable and mobile internet that can be a barrier to connecting to any infrastructure that may be available. In Hungary, there are about 1 million people living in poor families in the first income decile, with very low incomes of around HUF 500,000 a year, and another 1 million people in the second decile also have incomes of less than HUF 1 million a year.<sup>5</sup> While the availability of electricity may seem like a given in Hungary, there are a very high number of consumers in need of protection due to their social situation who have accumulated relatively high arrears. In 2017, the number of disconnected consumer premises was almost 100,000,<sup>6</sup> and in 2019, the number of consumers with debts more than

<sup>4</sup> Amit a digitális tanrend felszínre hoz: sok helyen nem hogy digitális tudás, de megfelelő tér, vagy áram sincs – tanodák, roma közösségi szervezetek és szülők tapasztalatai (*What the digital curriculum reveals is that in many places there is not only no digital knowledge, but there is also no adequate space or even electricity – the experience of foundation schools, Roma community organisations and parents*). [https://www.rosaparks.hu/wp-content/uploads/2020/06/K%C3%B6z%C3%B6ss%C3%A9gi\\_kutat%C3%A1sR%C3%B6v.pdf](https://www.rosaparks.hu/wp-content/uploads/2020/06/K%C3%B6z%C3%B6ss%C3%A9gi_kutat%C3%A1sR%C3%B6v.pdf). Downloaded: 14 January 2021.

<sup>5</sup> Gross and net per capita income by income decile. Hungarian Central Statistical Office. [https://www.ksh.hu/docs/hun/xstadat/xstadat\\_eves/i\\_zhc047.html](https://www.ksh.hu/docs/hun/xstadat/xstadat_eves/i_zhc047.html). Downloaded: 14 January 2021.

<sup>6</sup> Eladósodottság és hátralékosság. Éves jelentés a lakhatási szegénységről 2018 (*Indebtedness and arrears. Annual report on housing poverty 2018*). <https://www.habitat.hu/mivel-foglalkozunk/lakhatasi-jelentesek/lakhatasi-jelentes-2018/eladosodottsag-es-hatralekosság/#6>

a year overdue was just over 300,000.<sup>7</sup> For these people, both cable and mobile internet are unaffordable. The cheapest internet tariffs are around HUF 4,000–5,000 a month, i.e. for the poorest people, using cable internet would cost almost 10 per cent of their annual income. With regard to mobile internet, even for those with better incomes, not everyone uses it, as tariffs for mobile phone use are among the highest in the EU (EC 2020). For the most vulnerable and poorest people, connecting to digital infrastructure is impossible under the current income conditions. For them, cash is the only universal means of payment that they have access to at no extra cost and can use instantly wherever they are (Végső *et al.* 2018).

### 3.3.3. Intellectual access

To use ICT devices properly and learn how to use electronic money, we need two things: digital skills and financial literacy. Even at the basic skills level, the digital skills of the Hungarian public are below the EU average, standing at 49 per cent compared to the 58 per cent in the EU, and this has unfortunately not shown signs of improvement in recent years (EC 2020). The proportion of people using digital payment devices increases with education, but those with only an 8th grade education and even those who attended vocational school lag significantly behind; even if they have a bank account, they do not use a bank card (Ilyés – Varga 2015). This may not only be because those less educated people who can afford access to financial infrastructure do not know how to handle a computer or a smartphone: in many cases they receive all or part of their salary in cash, live in rural areas, often support themselves through casual work and thus they do not feel like they need electronic payment devices. Lack of digital literacy is clearly evident in the case of older generations, with older age clearly increasing the use of cash as compared to electronic solutions (Ilyés – Varga 2015; Greenham – Travers-Smith 2011).

Another important factor for intellectual access is financial literacy (Kovács – Terták 2019). Various surveys around the world show that the level of financial literacy is low not only in low-income countries but in middle- and high-income countries as well. This includes knowledge of finance and individual institutions, financial skills such as compound interest calculation as well as financial planning, and managing and investing money. When looking at the demographic factors, we find that typically women, the elderly and minorities living in segregation have low level of financial literacy, while higher income and higher education increase the level of financial literacy (Xu – Zia 2012).

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<sup>7</sup> Number of customers in arrears by energy carrier and duration of payment delay (pc). <https://habitat.hu/sites/lakhatasi-jelentes-2020/adattar/>. Downloaded: 14 January 2021.

### 3.3.4. Exclusionary factors associated with banking supply and financial regulation

Unsettled status, bad banking history and judicial enforcement also often prevent the opening and/or use of a bank account. In Hungary, in principle, there is no need to have a residence card to open a bank account, but banks usually require Hungarian citizens to have one. Those who are in debt and whose debts are deducted from their salary or other income coming into their account also prefer to use only cash rather than a bank account.

Many people are excluded from financial services because of banking processes and banks' business policies (*Kempson et al. 2000; Gosztonyi – Havran 2021; Kirwan 2021*). In general banking practice, this also includes when the customer is found to be too risky. This practice was addressed by the EU's Bank Accounts Directive, requiring banks in the Member States to provide all European citizens with a payment account with basic features (*EU 2014*). Some banks target a certain type of business, and so other potential, but undesirable customers are discouraged by the terms and conditions governing the use of the products. Such a requirement is, for example, the receipt of a certain amount of income or a certain number of transfers from the account. In these cases, banks resort to targeted marketing in an attempt to reach only those they would like to see among their customers. Also pricing, account management fees as well as cash withdrawal fees and the fee for net banking is included here – this is another way of ensuring that only those customers are able to use a given service who can pay for it, or who generate more traffic, thus contributing to the bank's profit. The final business policy-related factor mentioned by *Kempson et al. (2000)* is voluntary exclusion, which is encouraged by fear of banking procedures. Many people do not use banking services, thinking they will be refused anyway because of their social status or level of income.

## 4. Possible ways to eliminate financial exclusion

A wide range of social actors can do something about avoiding exclusion from the digital financial system. They include the state as a regulatory authority, the education system, banks, FinTech companies, among them ICT innovation start-ups, BigTech companies, retailers, and on the demand side, users themselves.

In Hungary, from 1 January 2021 onwards, all retail outlets with an online cash register are obligated to accept electronic payments. For this to reduce cash use in a meaningful way, demand for electronic payment should also be created on the user side. How is this possible in relation to social strata suffering from financial exclusion? The target systems of EU standards mainly address the infrastructural prerequisites and the promotion of digital literacy for society as a whole, but do not focus explicitly on the involuntary financial exclusion of groups in special situations.

The Hungarian National Digitalisation Strategy also mentions the problem and particularly highlights the group of people living in extreme poverty, the Roma and elderly people living alone in rural areas, whose digital literacy is to be improved through ‘targeted awareness and communication programmes’ (NDS 2019:115). Clearly, it is not primarily the lack of possibility to access the digital infrastructure that is hindering access to the financial digital infrastructure in Hungary. Besides the intellectual barriers, a much bigger barrier is the lack of economic access. If we were to recognise also here in Hungary that access to digital systems, i.e. to the internet, is a basic right that the state should provide as a public good, we could largely eliminate the disadvantages arising from the difficulties of economic access, and this would also make digital access easier for those in the lower income deciles. Supporting fixed costs associated with the use of digital infrastructures and thus facilitating access to the financial system is an important argument in the fight against poverty, the effectiveness and legitimacy of which is the subject of heated debates in the academic literature, and this is particularly true for the beginning of the century (Demirgüç-Kunt et al 2008; Bech et al. 2015). Of the declarations on this issue, the Estonian example has perhaps the greatest relevance: Estonia defines access to cyberspace as a human right and provides it for citizens virtually free of charge. This also allows for exclusive digital communication between citizens and state bodies.<sup>8</sup>

In addition to providing access to the internet, digital devices should also be provided free of charge or for a nominal fee for households in the low income deciles. This would also facilitate access to online education for the needy strata, especially children and young people, and would be a logical next step after free printed textbooks, which could even be replaced in this way. Such a move, and of course the associated educational programmes tailored to the specific characteristics of the target groups, could also bridge the gap caused by the lack of bank branches or their inaccessibility due to poor transport in underdeveloped regions with very small villages. Thus, digital access could be the basis for access to the financial system, and electronic payment systems and other financial services would also become available.

Regardless of the manner in which infrastructural and economic access to digital payment systems is ensured, the measures can only be successful if they are accompanied by the removal of barriers to intellectual access. Financial knowledge

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<sup>8</sup> Estonia is a digital society. <https://www.visitestonia.com/en/why-estonia/estonia-is-a-digital-society>

education has already started in both secondary and primary schools, which is a positive sign for the future.<sup>9</sup> The Pénz7 (Money Week) programme is also included in the document entitled ‘Strategy to improve public financial literacy’ adopted by the Hungarian Government in 2017.<sup>10</sup> However, the extent to which these programmes will reach schools in the poorest, most segregated settlements remains to be seen. The target group of this high-quality, imaginative textbook for 7th and 8th grade pupils is children from average or well-off families (*Burkáné et al. 2017*). Pupils living in extreme poverty, who often struggle with reading and reading comprehension problems and have poor mathematical or algebraic knowledge, should be provided with educational materials that reflect their living conditions and teach them to develop appropriate skills in numeracy and ICT user literacy.

How can barriers to intellectual access be broken down for those who have been excluded from the digital space, or who simply cannot or perhaps dare not use internet banking interfaces? Most Hungarian net banks do not seem to be user-friendly even for users familiar with the digital world. A 2015 survey found that the net banks tested scored only 50–70 per cent in terms of user interface and user experience.<sup>11</sup> For groups affected by financial exclusion, there is a need for systems that are easy to use, take into account the logic and, where appropriate, the limited digital skills of users and are customer-friendly, simple, comprehensible, easy to navigate, not based on impossible-to-remember and illogically designed pictogrammes, and that contain only the functions that the user needs.

These new systems, new services and the consideration of the special needs of users suffering exclusion can hardly be expected from traditional banks. The population of ‘non-users’ is too diverse, as it includes the elderly, perhaps cognitively impaired, poor, segregated social groups or minorities as well as those self-employed necessity entrepreneurs who are entirely dependent on their accountants to manage their official affairs and even transfers. Financial institutions are not aware of the specificities of these groups or do not want to deal with them, because it is too costly, and, indeed, their banking business strategy often precludes this. Another example of this trend can be seen in the way the poorer strata of the public are being provided with credit, where lending is taken over from banks by local traders, local loan sharks or specialised financial companies that work with a large network of local agents, have face-to-face contact with the borrowers and charge very high APRs.

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<sup>9</sup> *Indul a PÉNZ7 pénzügyi és vállalkozói témahét (PÉNZ7 – Financial and Entrepreneurial Thematic Week is kicking off)*. <https://penziranytu.hu/indul-penz7-penzugyi-es-vallalkozoi-temahet>. Downloaded: 14 January 2021.

<sup>10</sup> *Pénzügyi tudatosság fejlesztésének stratégiája (Strategy to improve financial literacy)*. <https://www.okosanapenzel.hu/Media/Default/ASZ-videok/P%C3%A9nz%C3%BCgyi%20tudatoss%C3%A1g%20fejleszt%C3%A9s%C3%A9nek%20strat%C3%A9gi%C3%A1ja.pdf>

<sup>11</sup> *Internetbankok használhatósági elemzése (Usability analysis of internet banks)*. <https://ergonomx.hu/modszertan.php>. Downloaded: 14 January 2021.

If banking supply is unlikely to change in the near future to reduce financial exclusion, then who are the actors that can help target the strata at the bottom of the pyramid? Is there a way to incorporate the groups that are being left out by traditional financial institutions into the digital finance user base? The closure of bank branches penalises the most disadvantaged strata of the society, and banks are not really investing in services that replace face-to-face contact-based banking offered at a branch. What is needed here are alternative solutions that not only move services related to payment transactions and lending into the digital space (Boobier 2020), but also make them accessible to all. The solution is to utilise artificial intelligence and communicate in natural language in the digital space. Enterprises operating the payment systems of the future will have to learn to communicate with the user on all digital devices – be they computers, tablets or mobile phones – ‘with the same tone of voice’, in the same way, and to design banking interfaces following the logic of the users, not that of programmers. In other words, a very efficient, transparent and radically simple service is required. In terms of reducing financial exclusion, verbal, i.e. voice-controlled interfaces are of the greatest importance. The payment service provider of the future will use chatbots to talk to the user (Bhattacharyya 2017), who will communicate verbally, in writing or even by touching the corresponding images. Artificial intelligence interprets the conversation by comparing the given situation with the customer’s previous transactions or with behavioural patterns of similar transactions stored in the cloud. Today’s common financial assistants with simple budgeting features in banking apps do not protect users from making poor financial decisions, and in fact, app users are more likely to accumulate debt.<sup>12</sup> Thus, new groups with no financial literacy or even those struggling with cognitive decline would benefit from the development of an AI-based solution that not only manages payment processes, but also controls and implements household budget allocations and utility bill payments according to pre-set rules, monitors daily spending, alerts on sudden deviations from previous payment patterns and, where appropriate, prevents abnormally high or unusual transactions.

We are still a long way off from the day when the digital banking assistant addresses customers in their own language both in mother tongue and in cultural terms, explaining payment transactions and financial processes in a way that everyone can understand and even protecting them from reckless spending. The companies developing this are not necessarily from the financial sphere. BigTech companies such as Google, Amazon, Apple and Facebook have extensive and daily growing experience in the areas of artificial intelligence, speech recognition and text interpretation. On their servers, in their cloud, they have an infinite amount of

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<sup>12</sup> *Want to manage your money better? Ditch your banking apps.* [www.finextra.com/newsarticle/32933/want-to-manage-your-money-better-ditch-your-banking-apps](http://www.finextra.com/newsarticle/32933/want-to-manage-your-money-better-ditch-your-banking-apps). Downloaded: 14 January 2021.

social media data that they can use to profile users in detail for any purpose. Yet, they miss non-users and digital illiterates. We do not know how much longer we will have to wait for these digital financial apps; and even if the very first English versions are already working, who knows how long it will take to translate them into Hungarian both linguistically and culturally.

Due to the shrinking availability of face-to-face banking and the increasing digitalisation, the number of financially excluded people both in Hungary and other European countries may continue to rise in the near future. These rather heterogeneous groups need specific solutions tailored to their needs and financial literacy or inexperience. The only ICT device available to almost everyone is the mobile phone. Just as in China large masses of users have switched from cash to mobile phone payment systems without using bank cards, the same could be a development direction worth considering here in Hungary with regard to excluded groups. The near future can bring a breakthrough only if new actors, new FinTech companies emerge that can act as intermediaries between those who are inexperienced in digital finance and the banks. This means taking on the communication burden with excluded groups that banks are not able to do, aggregating the demand side and, where appropriate, leaving only the processing of back-end payments to banks. Here, we are talking about innovative solutions through which they provide simple, secure, always-on payment services for people who have previously been cash-only users. In order to do this the first step is to identify the reasons preventing the relatively broad strata of the society from participating in the modern economy characterised by digital finance.

## **5. Summary**

The digitalisation of finance is making ever greater progress, affecting the whole spectrum of financial institution services, including payment systems. Central banks' plans for the future are also looking at the introduction of central bank digital currency, which could be followed by a drastic restriction in the use of cash and, over the longer term, the complete elimination of cash. The main arguments for cash phase-out are: the anonymity of cash leaves room for money laundering and the settlement of illegal transactions, and facilitates corruption; the maintaining of cash circulation entails high costs borne by society. However, today's mixed payment system based on digital solutions and cash also shows the risks of a full digital switchover. Cash can also be seen as a safety reserve increasing the resilience of payment systems to external shocks such as a total or partial breakdown of the digital infrastructure due to hacker attacks or even a collapse of electricity supply. The use of cash gives the socially and/or financially vulnerable groups in society the opportunity to participate actively in economic and social life. The factors

underlying the partial or total exclusion of relatively large groups of society from the digital financial space and their inability or unwillingness to use cashless payment methods will persist for a long time. Physical, intellectual and economic access to the digital infrastructure is included, and this is also fundamentally influenced by the profit-driven business policies of the banks and FinTech companies providing the services. For this reason, the digital payment systems of the future and the ideas for the complete phasing out of cash should only become a real alternative with due foresight and without deepening social inequalities. In order to extend the penetration of digital financial payment methods to groups affected by financial exclusion as well, new digital innovations are needed that take into account the characteristics of these rather heterogeneous groups and are able to tailor services to them. By presenting and categorising the barriers to accessing financial payment systems, I intended to contribute to this process.

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# Issues Relating to the Creation of a Central Database to Support Statistical Property Valuations\*

Gabriella Grosz – Evelyn Herbert – Gábor Izsák – Katinka Szász

*The valuation of real estate collateral is a long-established area of the lending process that is currently undergoing increasingly dynamic development and in which the use of statistical valuation methods is becoming more and more common instead of on-site valuations. The legal conditions for this have been created by amendments to European and national legislation in the past year, but for the method to be truly widely used and operational and to ensure the accuracy of the resulting valuations, access to detailed, accurate, up-to-date and regularly checked data on real estate must be also created. As the databases currently available for Hungarian real estate are very fragmented, in our study, we propose to create a central database that would provide a uniform, up-to-date set of data, by harmonising the existing separate databases. Such a database would help create a level playing field in the market and automate data transfer in a cost-effective, fast and reliable manner. This would greatly facilitate the uptake of statistical valuation methods, supporting the further spread of digitalisation, increasing banking competition, speeding up administration and reducing the cost of lending for all parties.*

**Journal of Economic Literature (JEL) codes:** G21, G28, G32, G51, O33

**Keywords:** automation, digitalisation, collateral valuation, mortgage lending, financial regulation, statistical valuation

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*Gabriella Grosz is an Economic Analyst at the Magyar Nemzeti Bank. Email: groszg@mnb.hu*

*Evelyn Herbert is an Analyst at the Magyar Nemzeti Bank. Email: herberte@mnb.hu*

*Gábor Izsák is a Lawyer at the Magyar Nemzeti Bank. Email: izesak@mnb.hu*

*Katinka Szász is a Legal Referent at the Magyar Nemzeti Bank. Email: szaszka@mnb.hu*

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## **1. Introduction**

In Hungary, the role of real estate is vitally important for both households and financial institutions, as the majority of the population live in their own property, which is financed by loans in many cases. Housing stock accounts for around 70 per cent of Hungarian households' real wealth, and around 80 per cent of them own their own property (*MNB 2017*). Real estate plays a major role in the operation of the financial sector, with a significant proportion of bank exposures secured by mortgages on real estate. At the end of 2020, mortgage loans backed by residential property amounted to more than HUF 4,500 billion, while commercial real estate mortgage loans amounted to more than HUF 3,000 billion. Together, this accounted for around 16 per cent of banks' operations in proportion to the balance sheet total.<sup>1</sup>

One essential requirement for efficient mortgage lending processes is that participants have up-to-date, accurate information on the parameters of the properties offered as collateral. Property valuation can also be relevant in other banking processes, for example when developing a preliminary loan appraisal or monitoring the value of the underlying property over the term of the loan. The property valuation commonly used in Hungary is essentially based on an inspection carried out on-site by an independent professional, the credibility and accuracy of which is in the best interests of both the lender and the prospective debtor, but is very costly and time-consuming.

In our study, within the context of mortgage lending, we focus on residential mortgage lending, as serving this segment accounts for a significant number of banks' lending processes including valuations, and the processes can be well standardised and play a key role in the functioning of the economy as a whole. One solution to overcome the above-mentioned obstacles to residential mortgage lending could be – in part – provided by the opportunity for the valuation of collateralised real estate without an on-site inspection, based on statistical data and models, which is also allowed by the legal framework for new lending from February 2021, under certain conditions. However, this method can often be limited by the fact that many credit institutions do not have available data based on which they could carry out valuations with sufficient accuracy. On the other hand, there are practical issues and regulatory gaps that support this type of valuation to a lesser degree. Providing access to real estate data for statistical valuation methods through a central database would, in our view, support financial institutions in developing digitised solutions making risk management more efficient and in terms of lending processes, it would allow for simpler and faster administration.

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<sup>1</sup> Based on the data reporting of the Magyar Nemzeti Bank (the Central Bank of Hungary, MNB)

In this paper, we provide a summary of the current situation of valuations relevant to the lending process in Hungary and internationally, and present the benefits and potential challenges of a central database for valuations. *Section 2* describes the role and function of valuation processes in bank lending, as well as the methodology, advantages and disadvantages of on-site and statistical valuation methods. *Section 3* reviews the legal environment and practical application of the statistical valuation method, and briefly describes some relevant features of the domestic housing loan market. *Section 4* describes the requirements for the databases needed for the application and provides a brief outline of the data on real estate that are available in Hungary. Finally, *Section 5* presents the theoretical operating model for a central database, outlining the opportunities and challenges for actors in the sector.

## 2. The role of valuations in lending

### 2.1. Terminology related to property valuations and the on-site valuation process

In the case of mortgage lending using real estate as collateral, the purpose of the loan is usually the purchase or construction of the property itself, which also serves as collateral for the loan. Real estate collateral provides the debtor with more favourable credit terms compared to an unsecured loan (Aczél *et al.* 2016), as it reduces the lender's risks by allowing the value of the collateral to be used to satisfy the debt in case of default, and therefore plays a significant role in lending; accordingly, knowing value of the collateral is of paramount importance. For decades, financial regulation has been challenged by the issue of accurately determining (estimating) the value of the property that is the collateral behind a mortgage loan, which is constantly changing depending on a number of macroeconomic and financial indicators. Housing market developments and in particular the volatility of housing prices influence the sector's savings and consumption decisions through the financial position of households, while these factors influence the portfolio, profitability and lending activity of financial institutions via the mortgage loan collateral (MNB 2021a).

When applying for a mortgage loan and determining the value of the property, a distinction must be made between the market value of the property and the value of the property taken into account in the lending process, the so-called mortgage lending value. The market value of the real estate is the market price of the debtor's property when selling it, normally estimated at arm's length under normal market conditions;<sup>2,3</sup> determining the market value requires the services of an expert using

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<sup>2</sup> See Article 1 of Government Decree 231/2015 (VIII. 12.) on the determination of the market value of the debtor's assets in the debt settlement proceedings of natural persons <https://net.jogtar.hu/jogszabaly?docid=a1500231.kor>

<sup>3</sup> Article 4(1)(76) of Regulation (EU) No 575/2013 of the European Parliament and of the Council on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012 (CRR) (26 June 2013) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32013R0575>)

various calculation methods. This is different from the mortgage lending value, which cannot be higher than the market value, as it is designed to ensure that the collateral guarantees the return on the loan granted by the credit institution over the long term<sup>4</sup> and minimises the bank's losses in the event of default by the debtor. The mortgage lending value is usually the basis for the extent of lending or commitment, often capped by regulatory tools,<sup>5</sup> and provides collateral for a claim and its charges.<sup>6</sup>

Banks expect the value of the property to be used as collateral for a loan to be determined by a valuation expert for the practical reason that the purchase price or market value negotiated by the parties at a given moment in time ("Market value") is not an accurate indication of the long-term (20–30 years) value of a property. In addition to the assessment of the consumer's ability to pay, the assessment of the long-term value of the property ("Mortgage lending value") is of particular importance, which is why the maximum amount of the loan that can be taken out is also capped – in a conservative approach, taking into account systemic effects at a stricter level than the previous one – in relation to the value of the property, as set out in the MNB's borrower-based measures<sup>7</sup> ("Maximum LTV"). Compared to this, banks can be more restrictive according to their risk sensitivity ("Bank's internal limit") as seen in *Figure 1*.

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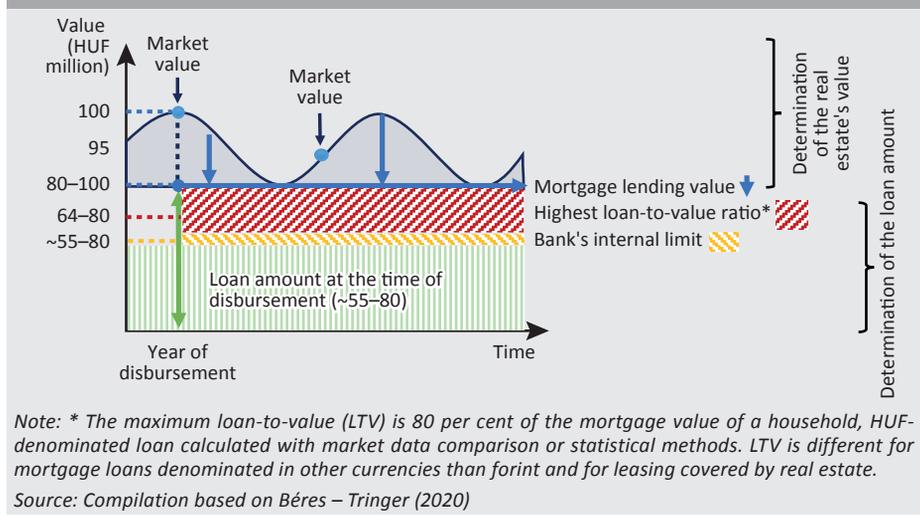
<sup>4</sup> Decree 25/1997 (VIII. 1.) of the Minister of Finance on the methodological principles for defining the mortgage lending value of properties not qualifying as arable land (<https://net.jogtar.hu/jogszabaly?docid=99700025.PM>), Section 2 (1) "The mortgage lending value is the value of a property determined on the basis of a conservative estimate. In determining the mortgage lending value, account is taken of the specific risks arising from the long maturity of the loans disbursed by the lender and only those features of and returns on the property which are likely to accrue to any owner in the future."

<sup>5</sup> In Hungary, according to MNB Decree No. 32/2014. (IX. 10.) on the Regulation of the Debt service-to-Income Ratio and the Loan-to-Value Ratio (<https://net.jogtar.hu/jogszabaly?docid=a1400032.mnb>), Section 3 (1) "For forint loans secured by a mortgage on real estate as collateral, the value of the exposure at the time of the assessment of the loan application shall not exceed 80 per cent of the real estate's market value, and shall not exceed 85 per cent in case of financial leases. The market value of loans granted for facilities under construction refers to the expected market value at the time of full completion of the property".

<sup>6</sup> In the context of the valuation of real estate, additional supervisory requirements are set out in MNB Recommendation 11/2018 (II. 27.) on the management of real estate-related risks of financial institutions.

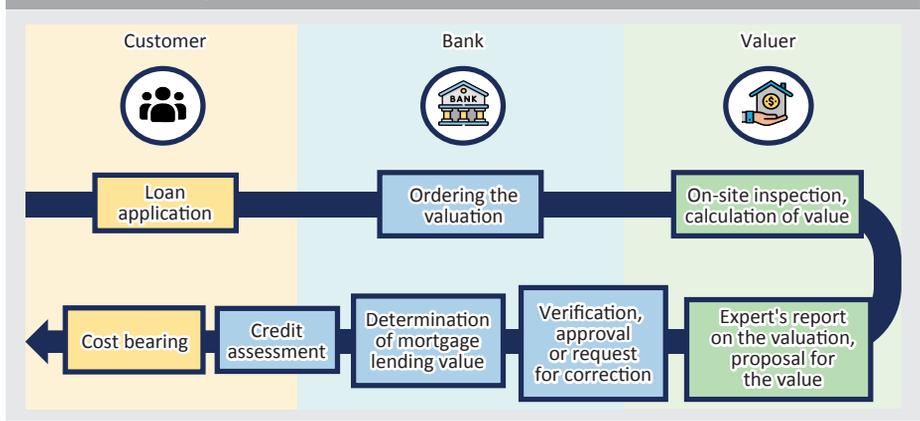
<sup>7</sup> MNB Decree No 32/2014. (IX. 10.) on regulation of the Debt service-to-Income Ratio and the Loan-to-Value Ratio

**Figure 1**  
**Relationship between the market value and the mortgage lending value during the term of the loan**



The cost and time required for loan disbursements secured by residential property is increased by the on-site inspection by an independent valuer, which costs around HUF 35,000-40,000<sup>8</sup> and takes several days. The valuation process during lending, including also the on-site inspection, is summarised in Figure 2.

**Figure 2**  
**On-site valuation process**



<sup>8</sup> [https://www.erstebank.hu/hu/tudastar/maganszemelyek/hitelek/lakasepitesi-tamogatas/milyen\\_koltsegekkel\\_kell\\_szamolni](https://www.erstebank.hu/hu/tudastar/maganszemelyek/hitelek/lakasepitesi-tamogatas/milyen_koltsegekkel_kell_szamolni). Downloaded: 8 October 2021. [https://granitbank.hu/upload/lakossag%20egyeb/T%C3%A1j%C3%A9koztat%C3%B3%20a%20GR%C3%81NIT%20jelz%C3%A1loghitelek%C5%91\\_140710.pdf](https://granitbank.hu/upload/lakossag%20egyeb/T%C3%A1j%C3%A9koztat%C3%B3%20a%20GR%C3%81NIT%20jelz%C3%A1loghitelek%C5%91_140710.pdf). Downloaded: 8 October 2021. [https://lakashitel.raiffeisen.hu/?o=csok&utm\\_source=raiffeisen&utm\\_medium=text&utm\\_content=termekoldal&utm\\_campaign=lakashitel\\_2021](https://lakashitel.raiffeisen.hu/?o=csok&utm_source=raiffeisen&utm_medium=text&utm_content=termekoldal&utm_campaign=lakashitel_2021). Downloaded: 8 October 2021.

The valuation is carried out by a valuer appointed by the bank and independent of the lending decisions. Based on Decree 25/1997 (VIII. 1.) of the Minister of Finance on the methodological principles for defining the collateral value of properties not qualifying as arable land (hereinafter referred to as the MoF Decree), market and legal aspects must be assessed when preparing the valuer's final report. In addition, during the inspection, the valuer will, *inter alia*, examine the immediate surroundings of the property, its accessibility, infrastructure, the use of the property, the size and conditions of the plot, the utilities, the description of the buildings and their structure and condition.

Following the on-site inspection, the valuer determines the market value of the property and proposes a mortgage lending value. Different valuation methods can be used to determine the value, such as valuation based on the analysis of comparative market data, valuation based on the calculation of yields and cost-based valuation, and – as a general rule – at least two of these methods (but preferably all three) should be used. The MoF Decree allows the use of a single valuation method (valuation method based on the analysis of comparative market data on the basis of the MNB requirement<sup>9</sup>) under certain conditions, and this option is also regularly used by institutions.

After the valuation, including an on-site inspection by the valuer, the proposed value and the valuer's final report must be verified and approved by the lender, the procedure and rules for which must be laid down in the internal rules of procedure. If errors of substance or form found during the verification justify it, the bank may initiate a correction of the valuation. The amount of the mortgage lending value will ultimately be decided by the lender in accordance with its rules, but the value accepted cannot be higher than the value proposed by the valuer.

Although a valuation based on an on-site inspection may reveal risks that cannot be identified without other facts that affect the value of the property, the chances of these occurring are assumed to be lower in markets where properties are readily comparable on the basis of certain standard parameters, e.g. condominiums in a specific neighbourhood (*Dippong – Harnos 2008, Chapter 3*). At the same time, the cost and time required for an in-person valuation is significant and is a barrier to digitalising the lending process. The development of digitalisation in banking is a key objective internationally and in Hungary as well, as it can increase banking efficiency and thus reduce interest rates on loans paid by clients (*MNB 2019*). Moreover, the loan application process would be more convenient and faster if it were fully digitalised.

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<sup>9</sup> Recommendation No 11/2018 (II. 27.) of the Magyar Nemzeti Bank on the management of real estate-related risks of financial institutions; (<https://www.mnb.hu/letoltes/11-2018-ingatlan-ajanlas.pdf>).

Although on-site valuations are based on a detailed examination of the property's individual characteristics, incorporating the experience of the valuer, it is important to bear in mind that they are an estimate of the property's value and therefore do not result in a perfect 'market' price. This uncertainty is something that banks need to take into account in their risk management, as supported by the fact that examining the data of the past nearly 20 years in a sample of mainly developed countries, in the case of residential property the average difference between the average sales price and the valuer's estimate ranged widely (between 0 and 10 per cent) (*MSCI 2019, Figure 7*).

## **2.2. General requirements for statistical valuation methods**

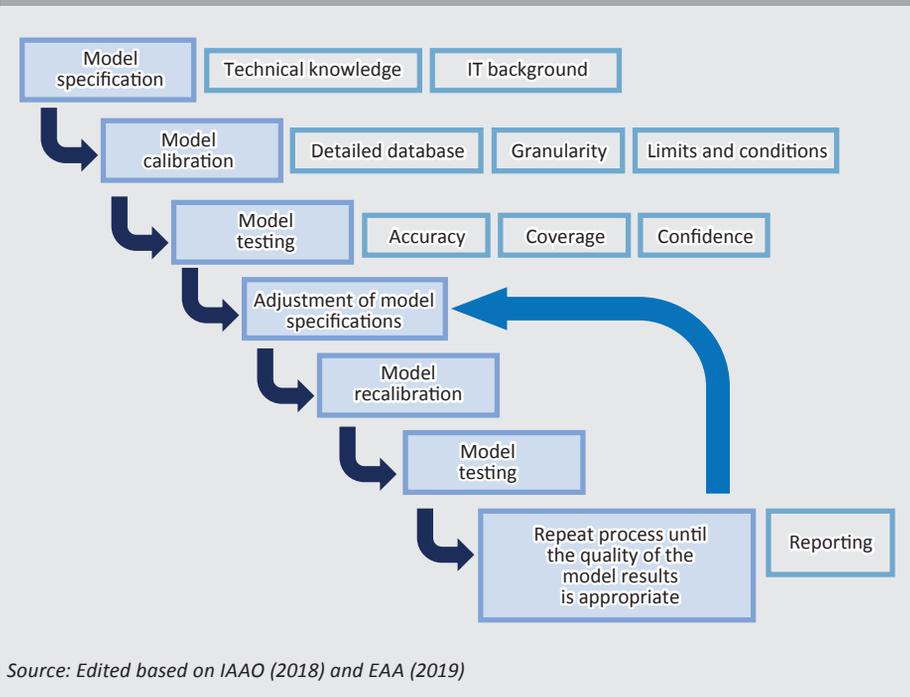
In recent years, technological advances and changing client needs have led to the spread and development of statistical valuation methods that do not require on-site inspections. These are methods based on mathematical, statistical models that perform valuations based on large amounts of extensive, detailed data on properties, without the need for an on-site inspection (*RICS 2017*). For some banking processes, such as refinancing or monitoring and reviewing property values, it was possible to use them in the past as well. In addition to the recent need for digitalisation and cost reduction, the coronavirus pandemic has highlighted the need to reconsider the rules related to on-site inspections. The domestic regulation has also reacted to the problem, as a result of which the MoF Decree, amended with effect from 5 February 2021, and the borrower-based measures of the MNB allow for the use of a statistical valuation method without an on-site inspection when granting loans (see Section 3.1. for details). Although in some cases on-site inspections will remain an unavoidable part of valuations, the widespread use of statistical valuation methods under the proper conditions is an important prerequisite for digitalisation, efficiency improvement and cost reductions in banking.

The European AVM Alliance (EAA<sup>10</sup>) has developed a detailed set of general requirements for statistical valuation models (*EAA 2019*), emphasising that detailed, accurate data, as well as extensive, objective backtesting, are necessary for the accuracy of results. The expectations are divided into two main groups: on the one hand, expectations related to operational aspects and, on the other hand, technical expectations related to the testing of models (*Figure 3*).

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<sup>10</sup> The EAA is a European non-profit organisation that brings together valuers using automated valuation models (AVMs) for residential property. Their aim is to raise awareness of the benefits of AVMs, to represent the interests of AVM valuers and to create uniform standards for the use of AVMs.

**Figure 3**  
**Operating mechanism of statistical valuation models**



### 2.3. Statistical valuation methods and fundamental principles

In fact, the term “statistical valuation method” covers a wide range of valuation models with varying complexity and data requirements, and therefore different purposes. These methods are presented according to the categorisation and description provided by the EAA (2019) (Table 1).<sup>11</sup>

<sup>11</sup> For a further categorisation of methods used for statistical valuation, see for example Horváth et al. (2016).

<b>Table 1</b>				
<b>Characteristics of some statistical valuation methods</b>				
	<b>House price index</b>	<b>Single parameter valuation</b>	<b>Hedonic models</b>	<b>Comparables based automated valuation models</b>
<b>Considers individual property features</b>	No		Partially yes	Yes
<b>Considers individual location</b>	Only predefined geographical categories		Geographical categories and individual distances	Yes
<b>Confidence indicator for each individual valuation</b>	No		Yes	
<b>Previous value must be available</b>	Yes	No		
<b>Property valuation on an individual basis</b>	No		Partially	Yes
<b>Used to monitor portfolio/market trends</b>	Yes	After conversion into a price index, yes		

*Source: Edited based on EAA (2019)*

### 2.3.1. House price index

The house price index is a time series of prices (usually grouped by area) for certain segments of real estate, which can be grouped using other dimensions, in addition to division by area. In Hungary, several published house price indices are available, the best known of which are the house price indices published by the MNB, Hungarian Central Statistical Office (HCSO) and Takaréék. There are several methods for calculating the house price index, based on expert opinions, simple aggregation, the basket of goods method and the repeat purchases index, or hedonic regression in the case of domestic price indices. While this method does not require a strong technical IT background, the availability of an appropriate data set and the development of a methodology are also essential for this method. *Eurostat (2013)* provides detailed guidelines for the production of house price indices, as well as methodologies and best practices.

### *2.3.2. Single parameter valuation*

A single-parameter valuation estimates the value of a property based on a selected property characteristic (mostly based on the type of property, e.g. detached house, semi-detached house, condominium). The method is based on an average or median price for a given geographical area and period. It is generally used to determine an approximate initial property value subject to further in-depth analysis or to describe and monitor the evolution of the price level of a particular market.

### *2.3.3. Hedonic models*

Hedonic models are multivariable methods that calculate the value of a property based on predetermined parameters, taking into account several property characteristics (e.g. property type, floor area, year of construction, number of rooms). Such models also assume that properties can be grouped according to their location, and that within the same group the same relationship between property characteristics and value can be observed for all properties. The parameters used are derived from a calibration dataset that includes property characteristics, data on values and additional socio-economic data for the geographical area (e.g. unemployment, average age of population, median income).

### *2.3.4. Comparables based automated valuation models*

This method uses algorithms to select similar properties from a detailed, extensive property database, based on which the estimated property value is calculated automatically using complex mathematical models. These models assume that the value can be best estimated based on the value of the most similar properties, with similar properties being selected on the basis of property characteristics and location.

## 2.4. Use of statistical valuation methods from the perspective of the different participants involved in lending

The emergence of statistical valuations affects different participants in the lending process in various ways, as illustrated in *Table 2*.

<b>Table 2</b>			
<b>Effect of statistical valuation methods on the individual participants involved</b>			
	<b>Pros</b>	<b>Cons</b>	<b>Risks, limitations</b>
<b>Banks</b>	<ul style="list-style-type: none"> <li>• Faster, partially automated valuations</li> <li>• Producing cheaper valuations</li> <li>• Shorter administrative deadlines</li> <li>• Lower staff expenses</li> </ul>	<ul style="list-style-type: none"> <li>• New internal processes need to be developed</li> <li>• Co-existence of several types of valuation methods (not always able to replace on-site valuation methods)</li> <li>• Costly to develop methods and build databases</li> </ul>	<ul style="list-style-type: none"> <li>• Accuracy depends largely on the data available</li> <li>• Cannot be applied to all property types</li> <li>• Models are constantly evolving and are costly for participants to track</li> <li>• Scarcity of available data often prevents the use of more advanced methods</li> <li>• Valuations cannot be fully automated (use of preferential risk weights still requires the approval of a valuer)</li> </ul>
<b>Customers</b>	<ul style="list-style-type: none"> <li>• Shorter administrative deadlines</li> <li>• Cheaper valuations reduce the cost of borrowing</li> <li>• Convenience value of not having an on-site inspection</li> </ul>	<ul style="list-style-type: none"> <li>• Possibly stricter loan conditions (e.g. higher down payment requirements or risk premiums) because of greater uncertainty due to lack of experience with statistical valuation methods</li> <li>• In the case of uneven spread, it may increase the difference between loans/banks</li> </ul>	<ul style="list-style-type: none"> <li>• Cannot be applied to all property types</li> <li>• Clients may be distrustful of new methods</li> </ul>
<b>Regulatory authorities</b>	<ul style="list-style-type: none"> <li>• May improve the efficiency of the loan and real estate market by way of faster administration</li> <li>• Supports digitalisation efforts</li> <li>• Improves competition between banks with equal access to data</li> </ul>	<ul style="list-style-type: none"> <li>• Can increase the uncertainty of the results of valuations, especially in the early stages of application</li> </ul>	<ul style="list-style-type: none"> <li>• Different IT and database backgrounds can lead to an uneven playing field</li> <li>• Additional regulatory tasks and specific knowledge is required to monitor and supervise new methods</li> <li>• Continuous monitoring of the initial stricter conditions and possible modifications are necessary</li> <li>• Domestic rules must be applied in conjunction with European rules, which could slow down the spread of the method</li> </ul>

One of the most common risks associated with statistical valuation methods is the inability to take into account information based on an on-site inspection that may have a material impact on the value of an individual property. While this may indeed increase the uncertainty of valuations, statistical valuations based on a large data set can reveal correlations between house prices and environmental/property characteristics that are not available in the case of traditional, on-site valuations involving also an on-site inspection due to the valuer's limited information base not including statistical data. *Békés et al. (2016)* also showed that, in addition to the individual characteristics of properties, the geographic characteristics, agglomeration and income position of municipalities also contain important information for the determination of property prices. Furthermore, the accuracy of valuations can be significantly improved without an on-site inspection if the available data is extended. The accuracy of a statistical valuation based on a sufficient quantity and quality of data may therefore not be inferior to a traditional on-site valuation based on on-site inspection.

One of the key advantages of statistical valuation methods is that they provide results faster than on-site valuations. This has tangible benefits for both clients and banks. However, faster administration can make not only lending processes but also housing market processes more efficient. Indeed, the use of statistical valuations is expected in the first instance for dwellings, including prefabricated concrete block flats (*Table 4*), as these types of property are well categorised and have fewer individual characteristics. The time to sell for such block flats is the shortest of all property types – only 2 months (*MNB 2021a*) – so accelerating the lending process could be of particular importance.

### **3. Current state of on-site and statistical valuations in the EU and Hungary**

#### **3.1. Legal environment**

The EU regulatory framework clearly creates the possibility for credit institutions to use statistical valuation methods to assess the value of property that serve as collateral in mortgage lending when monitoring and revaluing the value of property. However, the CRR contains neither specific rules for new lending, nor explicit exclusionary provisions. However, it stipulates that the valuation of collateral must always be carried out by an independent valuer. According to the European Banking Authority (EBA) guidelines,<sup>12</sup> the value is not automatically assessed by accepting

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<sup>12</sup> Guidelines on loan origination and monitoring, published on 29 May 2020 [https://www.eba.europa.eu/sites/default/documents/files/document\\_library/Publications/Guidelines/2020/Guidelines%20on%20loan%20origination%20and%20monitoring/884283/EBA%20GL%202020%2006%20Final%20Report%20on%20GL%20on%20loan%20origination%20and%20monitoring.pdf](https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Guidelines/2020/Guidelines%20on%20loan%20origination%20and%20monitoring/884283/EBA%20GL%202020%2006%20Final%20Report%20on%20GL%20on%20loan%20origination%20and%20monitoring.pdf)

the value given by the model, but statistical methods serve as a tool, based on which the independent valuer who remains involved in the process determines the value.

The use of statistical valuation methods is also regulated by the capital requirement rules set out in the CRR. For real estate,<sup>13</sup> institutions can only consider an exposure or a part of an exposure to be completely secured if the taxative criteria set out in the regulation are met, e.g. the value of the real estate is regularly monitored and the collateral is insured.<sup>14</sup> Based on the CRR and the EBA guidance referred to above, it can be concluded that real estate collateral valued using a statistical methodology can only be taken into account as a mitigating item in the determination of capital requirements for credit risk if the reliability of the estimated market value determined from the model output is individually reviewed (adjusted if necessary) by the independent valuer and is validated on a residential property-by-residential property basis.<sup>15</sup> This does not imply the need to carry out an on-site inspection, but it does imply verification based on the valuer's expertise and other information available to them.

As mentioned above, Member States may make extensive use of statistical valuation where their national legislation so allows. In Hungary, in order to limit the risk exposure, before deciding to originate a mortgage loan, credit institutions must verify the existence and fair value of the required collateral,<sup>16</sup> which must be determined in accordance with the rules set out in the MoF Decree. The MoF Decree allowed all credit institutions to apply statistical valuation methods for new loans from 5 February 2021, under the following conditions:<sup>17</sup>

- a) the property underlying the valuation is classified as a residential property and has a maximum floor area of 150 sqm;
- b) is located in Budapest, a county seat, a city with county rights or in the Budapest agglomeration;
- c) in the calendar year preceding the valuation, there have been at least 10 property sales in the municipality/district in question, with a difference in specific price of up to 30 per cent;
- d) the loan-to-value (LTV) ratio for a given transaction may be no higher than 60 per cent.

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<sup>13</sup> See Articles 47c, 125(2)(d) and 126(2)(d)

<sup>14</sup> For more details, see: Articles 208 and 229 of the CRR

<sup>15</sup> EBA Guidelines Section 210

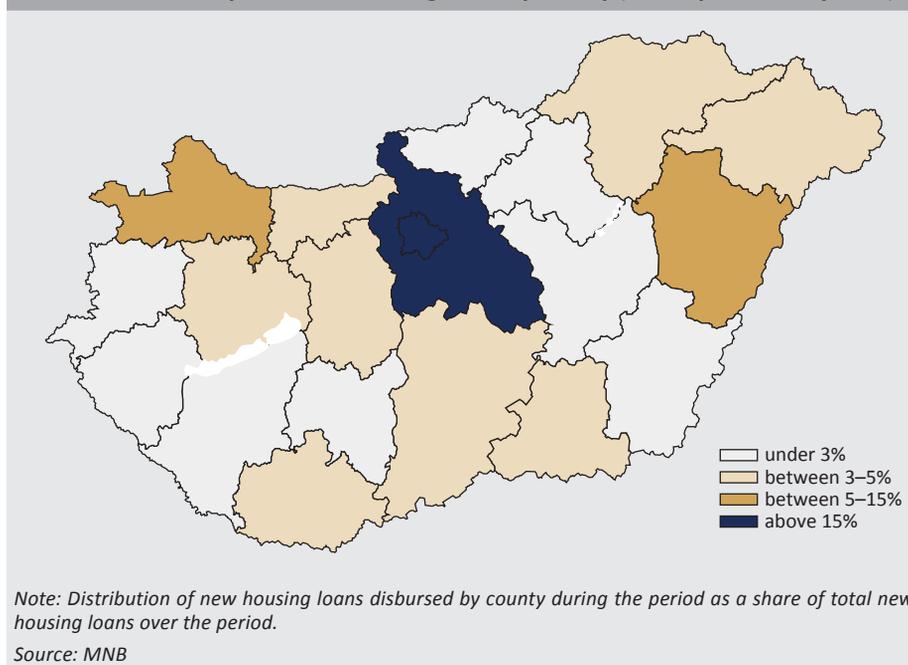
<sup>16</sup> Based on Section 99 of Act CCXXXVII of 2013 on Credit Institutions and Financial Enterprises (<https://net.jogtar.hu/jogszabaly?docid=a1300237.tv>)

<sup>17</sup> See Annex 5 to the MoF Decree

### 3.2. Features of the Hungarian housing market

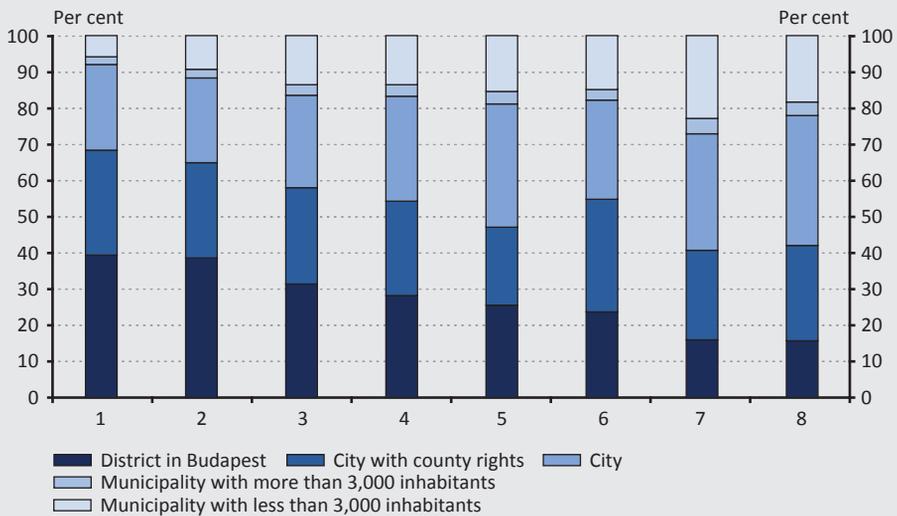
Domestic lending for housing is growing dynamically, with new mortgage origination averaging over HUF 900 billion annually over the past 2 years (MNB 2021b). However, the geographical distribution of lending is not even, with the most housing loans originated in Budapest and Pest county, while the smallest number of housing loans have been granted in Nógrád and Tolna counties since 2019, which correlates with county population data (Figure 4).

**Figure 4**  
Distribution of newly disbursed housing loans by county (January 2019 – July 2021)



However, housing lending varies significantly not only by region but also by type of municipality, especially when looking at the portfolio of individual banks. In this regard, we can see that some financial institutions are more active in lending in the capital/metropolitan areas, while others are strong in housing loans in smaller municipalities (Figure 5).

**Figure 5**  
**Distribution of newly disbursed housing loans by type of municipality and bank**  
**(January 2019 – July 2021, pcs)**

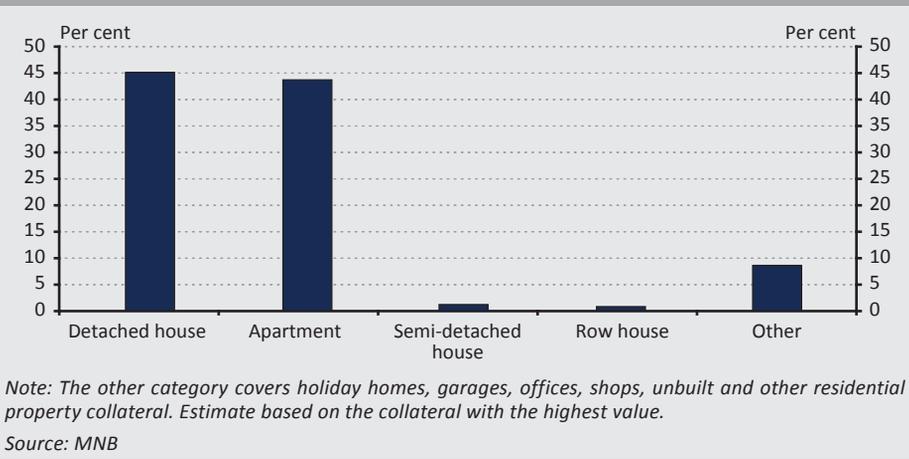


Note: The numbers refer to the eight O-SII (Other Systemically Important Institutions) banks (CIB Bank, Erste Bank, K&H Bank, MKB Bank, OTP Bank, Raiffeisen Bank, Takarékszövetkezet Bank, Unicredit Bank).

Source: MNB

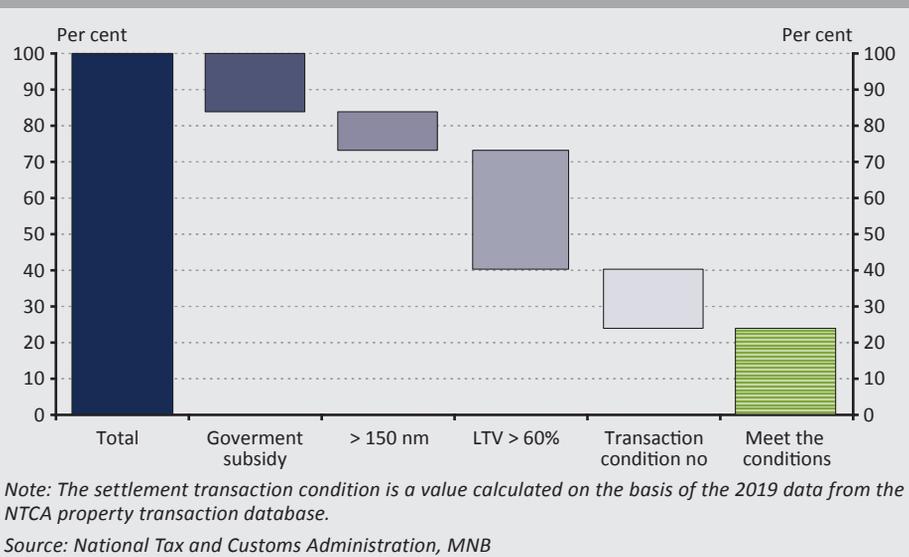
Newly disbursed housing loans can also be further analysed by the type of property financed. This is also important in the context of statistical valuation, because not all types of property can be valued using this method, and a certain number of contracts are needed for banks to have adequate amount of data on each type of property. The available data show that banks finance primarily single-family houses and apartments; therefore, statistical valuation may start with these property types – or a subset of them – first in the apartment market, due to the smaller importance of individual characteristics in this property segment (Figure 6).

**Figure 6**  
Distribution of newly disbursed housing loans by property type (January 2019 – July 2021)



The MoF Decree sets several conditions for the use of statistical valuation, and thus it is worth examining the potential scope affected by the possibility of valuation without on-site inspection, based on the lending in recent years. In addition to the conditions in the MoF Decree, we also examined the state-subsidised character of the loans, as these loans are subject to a statutory requirement for an on-site inspection. The strongest criterion was the LTV criterion (*Annex 5, Section 2.d of the MoF Decree*), while the weakest criterion was the square metre-based criterion (*Figure 7*).

**Figure 7**  
Estimate of the proportion of properties eligible for statistical valuation methods (January 2019 – July 2021)



Overall, the number of properties that can be valued using statistical valuation methods may be significant: around 20–30 per cent of market mortgages secured by residential properties disbursed since 2019 may have met the requirements set by the MoF Decree, which is on the order of 50,000–70,000 transactions in the last 2.5 years.<sup>18</sup>

### 3.3. Use of valuations in practice

In order to learn about the legal background and experience with the use of statistical valuation methods, the MNB conducted a survey of European practices in the summer of 2020.<sup>19</sup> Based on the responses from the central banks (or supervisory authorities) of the 14 countries that responded to the survey, the national legal framework typically allows for the use of statistical valuation methods for different purposes, but most countries explicitly provide for this legal possibility only for monitoring (Table 3). Practical experience also follows the legislative environment, in some cases with certain restrictions (transaction number-based limits in the Czech Republic, existence of prior valuation and loan amount limits in Germany).

	DK	ES	HR	MT	CZ	FI	DE	SI	RO	PL	LT	LV	NO
<b>Loan origination</b>	✗	✗	✗	✗	✓	✓	✓	✗	✗	✗	✗	✓	-
<b>Refinancing</b>	✓	✗	✗	✗	✓	✓	✓	✗	✗	✗	✗	✓	-
<b>Monitoring</b>	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓

*Note: In the case of a red box, no institution uses it, light green ticks indicate that some institutions use it, medium green ticks mean widespread use, dark green ticks mean that it is used by all institutions.*

*Source: MNB survey*

At the beginning of 2021, the MNB also surveyed domestic banks on the needs formulated and risks identified related to statistical valuation methods.<sup>20</sup> Based on the responses (10 banks, covering 95 per cent of the retail mortgage loan portfolio<sup>21</sup>), banks plan to use statistical valuation methods in a wide range of banking processes within the next year (Table 4). The majority of respondents would use statistical valuation methods for up to 30 per cent of their housing lending within three years,<sup>22</sup> as the majority of respondents believe that this would reduce the cost of valuation by 50–80 per cent. At the same time, almost all banks indicated

<sup>18</sup> State-subsidised housing loan transactions were disregarded, as the law currently requires a mandatory on-site inspection for them.

<sup>19</sup> International questionnaire on the legal environment for the statistical valuation method (MNB 2020 survey)

<sup>20</sup> Survey on domestic financial institutions' plans for the statistical valuation method (MNB 2021 survey)

<sup>21</sup> Based on the stock of mortgages secured by residential mortgages in December 2020

<sup>22</sup> OTP already provides its potential clients with an option to informative statistical valuation service <https://www.otpip.hu/online-ertekbecslo-kalkulator>

that they plan to impose stricter conditions on the use of statistical valuation methods than those set out in the MoF Decree (e.g. additional restrictions by area or property type, restrictions by loan type, stricter LTV requirements).

**Table 4**  
**Domestic banks' practices and future plans for statistical valuation methods used in their lending processes**

	Preliminary credit appraisal		Credit appraisal		Value-review		Revaluation	
	Currently	Plans	Currently	Plans	Currently	Plans	Currently	Plans
Number of respondent banks	0	6	0	9	3	6	3	5
Collateral types		Flat Residential property broken down into units		Flat Residential property broken down into units Properties under the MoF Decree	Flat Detached house All residential properties	Flat Residential property broken down into units	Flat Detached house All residential properties Agricultural land	Flat All residential properties Properties under the MoF Decree

*Note: The types of collateral shown are non-standardised responses provided by responding institutions on a descriptive basis.*  
*Source: Compiled based on the MNB 2021 survey*

#### 4. Availability and access challenges of data needed for statistical valuation internationally and in Hungary

For the success of statistical valuation methodologies and the accuracy of valuations, the content and quality of the underlying data set and the structure of the database containing this data set are of key importance. In addition to the legal applicability discussed above, one major barrier to the adoption of statistical valuation methods by market participants is the lack of access to appropriate data, which is difficult to remedy without legislative support: larger, better-informed institutions may develop data monopolies, while smaller institutions may be at a significantly greater disadvantage and thus be able to lend at a higher cost, weakening competition in the credit market. The information monopoly of banks that build up large databases can amplify structural systemic risks if certain actors dispose over much more and better information than their competitors. Financial institutions with smaller databases can only carry out poorer quality, slower and more expensive

collateral valuation, which can have a negative impact on their competitors using large databases, even at systemic level, through their potential losses.<sup>23</sup>

#### 4.1. International situation

In its questionnaire survey carried out in summer 2020, the MNB paid particular attention to the availability of databases that could be used by the countries to carry out statistical valuations. The responses showed that, without exception, all countries use data from both public and non-public databases (*Table 5*).

Government database	Buildings registry	Real estate register	Exchequer database	Real estate transaction database	Statistical data, house price index
	DK	PL	PL	CZ, HR, LT, PL	DE, FI, MT, RO
Non-governmental information	Valuation companies/bank databases	Banking Association database	Service providers' database	Advertisement data on real estate portals	Valuations of external valuers
	DK, ES, HR	PL	DE, DK, FI, LV, PL, RO	CZ	CZ

*Note: The table shows the responses to the following question: "From what kind of databases, data sources do the internal and external appraisers of credit institutions get data for the use of statistical valuation models, methods?"*

*Source: Edited based on the MNB 2020 survey*

Several European examples show that unified efforts are beginning to unfold in the professional fields involved in property valuation with the goal of creating multifunctional databases that can provide more accurate, faster and more cost-effective data to authorised parties. In 2015, the National Association of Romanian Valuers (ANEVAR) created the so-called BIG database, in which all valuers are obliged to enter the data of their valuation reports. The database contains anonymised data in addition to the mortgage lending value of the property and can also be accessed by financial institutions, in addition to valuers (*Stan 2015*). In Latvia, the most widely used database is the privately owned Cenu Banka,<sup>24</sup> which provides real estate transaction data. The database connects several data sources (e.g. the property market database of the real estate register) and offers the possibility to filter the data according to different parameters or even to mark the search area on a map. In Denmark, the accuracy of the statistical valuation has become a matter of political debates in recent years, given that it has been used for decades to determine the annual property tax that owners have to pay.<sup>25</sup> The valuation itself is carried out

<sup>23</sup> On market failures causing structural systemic risks, see *Freixas et al. (2015) Chapter 5*

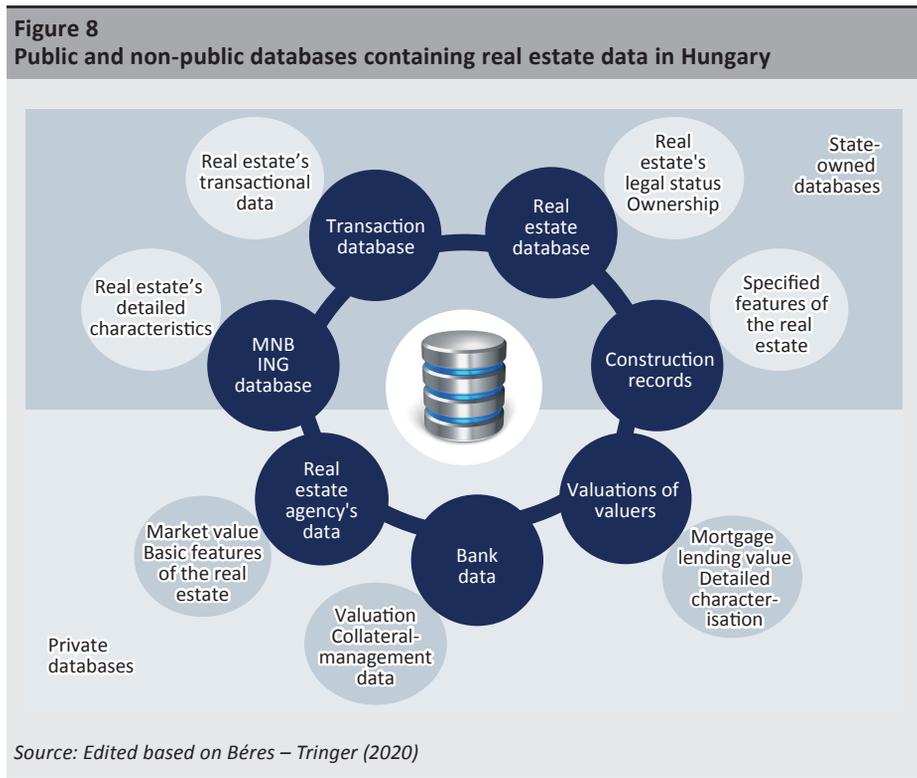
<sup>24</sup> <https://cenubanka.lv/en>. Downloaded: 8 October 2021.

<sup>25</sup> New Danish Property Assessments. <https://lead-roedl.dk/en/nye-ejendomsvurderinger/>. Downloaded: 8 October 2021.

by the local authority, with data available from the national land register (Wolters 2002). However, the data used from the land register were not sufficient to give an accurate picture of the true market price of a property. In response to these problems, the current government has extended the range of data that can be used, so that from 2021, the valuation can take into account photographs of the property, local features (e.g. forest, sea, access to transport) and, as a reference, transaction prices of properties sold in the area.<sup>26</sup>

#### 4.2. Situation in Hungary

In Hungary, there are also a number of databases containing real estate data, both public and private (Figure 8), the availability of which would greatly assist lenders in providing accurate statistical valuations.



<sup>26</sup> <https://lead-roedl.dk/en/nye-ejendomsvurderinger/>. Downloaded: 8 October 2021.

*Levy database managed by the NTCA:* the NTCA maintains a database based on the contract value of the property involved in the transaction in order to determine the appropriate level of levy for the transfer of real estate.

*Land register kept by the Land Registry:* the data in the title deeds on which the register is based, certify the rights, facts and changes in ownership of the property in question, in an up-to-date and complete manner, while ensuring public authenticity.<sup>27</sup>

*Data managed by bank valuers, valuer's final report:* valuer's final reports contain the broadest range of data that may be necessary to create a central database. The report includes a wide range of information affecting the pricing of the property concerned, as well as photographs that greatly support the possible replacement of a site inspection.<sup>28</sup>

*Real estate sites:* real estate sites generally populate their databases with the data content provided by the seller/landlord, but for larger real estate sites it is common practice for the data to be validated by the intermediary. The central element of the register is the offer price, but in addition to the size and layout of the property, it also includes other characteristics that affect the indicated sale price.

*The National Construction Register (5 sub-registers) operated by the Lechner Knowledge Centre:* a central system of web-based, database-driven IT applications serving the construction sector, operated by Lechner Non-profit Ltd. on its own IT infrastructure. The register consists of 5 databases<sup>29</sup> which contain data on properties that can be used for a wide range of purposes.<sup>30</sup>

*MNB Real Estate Transaction Database (MNB ING):* The MNB collects a wide range of information on financed residential real estate in Hungary as part of its supervisory activities, extending the institutional data reporting, which could also potentially serve as input for a central database in the future.<sup>31</sup>

Domestic banks are increasingly seeking to rely on databases from a variety of sources, not only for their statistical valuations, but also for their on-site valuations. From among the (10) banks surveyed by the MNB, 4 or 5 currently use one of the databases described above, but all respondents would use this information in the future (*Table 6*).

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<sup>27</sup> Part Two of Act CXLI of 1997 on the Real Estate Registry <https://net.jogtar.hu/jogszabaly?docid=99700141.tv>

<sup>28</sup> See Annex 4 to the MoF Decree

<sup>29</sup> Electronic Documentation System Supporting Building Authority Licensing Procedures (ÉTDR), e-construction log, e-Utility, e-certification, Cultural Heritage Protection

<sup>30</sup> <https://lechnerkozpont.hu/oldal/e-epitesugy>. Downloaded: 8 October 2021.

<sup>31</sup> The register contains, in addition to the data on real estate sales transactions that become known to financial institutions in the course of financing, detailed information on the real estate subject to the sale from the valuation related to the financing and, as regards the data used to identify the real estate, from the land registry.

**Table 6**

**Domestic banks' practices and future plans for the use of certain available databases**

	For on-site valuations		For statistical valuation methods	
	Currently uses	Plans to use	Currently uses	Plans to use
Valuations of valuers	5	5	0	4
Real estate agency database	4	5	1	7
Own banking database	4	8	2	10
Transaction database	4	7	4	10

*Note: The colour of the boxes indicates the number of respondents: red (0), orange (1–3), yellow (4–6), green (7–10). Respondents cover 95 per cent of household lending by credit institutions backed by residential property (December 2020).*

*Source: Plotted based on the MNB 2021 questionnaire survey*

### 4.3. Factors hindering domestic data availability

At present, the databases available in Hungary typically operate separately, and the data are often inaccurate or incomplete: consequently, access and usability are far from optimal. In addition, another issue is posed by the fact that the content of certain databases may be further reduced by regulatory changes, rendering the already limited data access even more difficult.

Obtaining the data needed to carry out a statistical valuation from fragmented databases that are difficult to link together requires significant time and money. This creates a competitive disadvantage for smaller institutions that do not have sufficient data in their own portfolios and have to turn to external sources. Even for larger institutions, access to verified data from different sources on a single, central platform would bring significant improvements. Based on the MNB's 2021 questionnaire survey, a market need to develop adequate and widespread access to real estate data assets is also clearly identified.

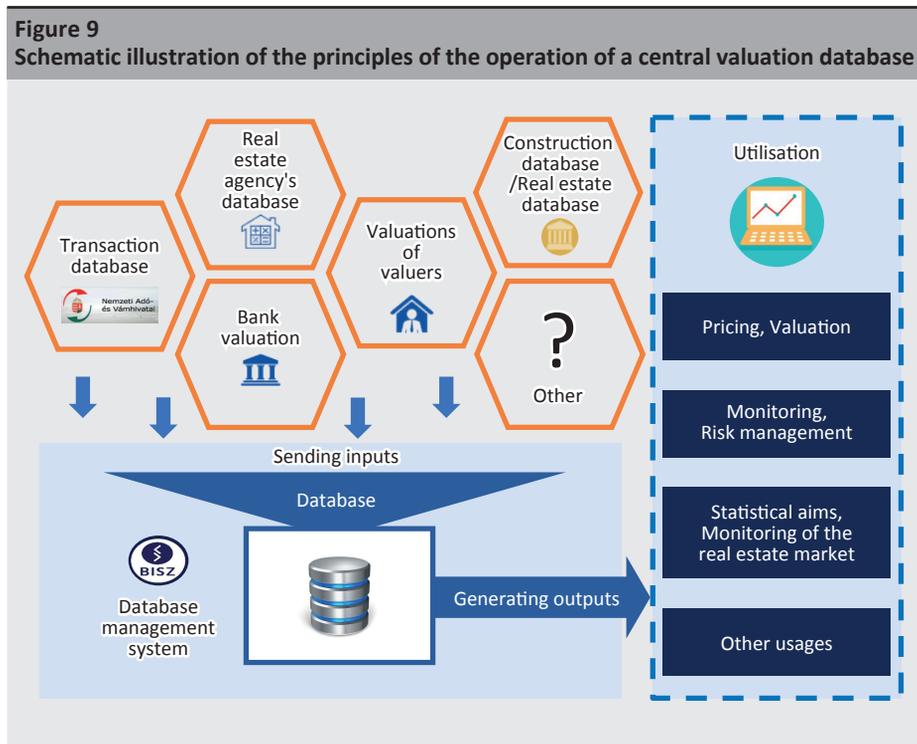
## 5. A proposal supporting the spread of statistical valuation methods in Hungary

Based on our proposal, a central database would be established in Hungary, which would contain for each property the data necessary for the statistical real estate valuation. The database would primarily integrate the content of existing registers. The central availability of data under uniform conditions will ensure that all actors have access to uniform information of equivalent quality for valuations via the same channel, thus creating a level playing field and stimulating competition in the development of valuation models and competition in the credit market, pushing the market towards cost efficiency and lower lending rates.

The creation of a separate database may be justified, as in that case it is not necessary to adapt to the data structure of any of the existing data providers, and as a separate system it is easier to make changes to it. In addition, due to the unique purpose of use, it requires a specific use and operational regime, the development of which may be more appropriate in a stand-alone system (e.g. information on a property can only be provided if the required amount of data on the property is already available). Particular attention must also be paid to adequate data quality: data from different databases must be matched, collated and cleaned to produce reliable value estimates based on these data.

### 5.1. Basic requirements for the central database

In designing the central database, it is important to ensure the availability a wide range of anonymised data to the sector, as this can best support the sophistication of risk management models and can also form the basis for conducting valuations at the time of loan origination without the need for on-site inspections (*Figure 9*).



Different “databases” have different methodologies and data sets recorded at different times. In this context, it is necessary to ensure with respect to the data relating to the property

- *connectivity*: the most common identifiers for properties are a combination of the name of the municipality, the lot number and the exact address (municipality name, postcode, name of the public area, type of public domain, house number, floor, door);
- *resolving inconsistencies between data*: temporal and methodological differences between the data records of different “databases” and misrecordings sometimes result in contradictory information, and therefore it is necessary
  - to ensure that the circumstances in which the data were generated (when the data were generated, what is the source of the information) are known;
  - to develop an appropriate structure (definitional framework) to ensure the standardisation of data;
  - to develop techniques to filter out and manage such contradictory information.

The design should take into account that the operating model should not create a competitive advantage/disadvantage for the actors in the sector, purely due to regulatory activity, by using IT solutions that are not available to all institutions or that would be disproportionately difficult and/or costly to implement. The institutions probably should be able to adapt quickly, with their own mechanisms and infrastructures, to the operational model developed for statistical valuation without on-site inspection, but it must be taken into account that not all actors will be able to prepare adequately for the launch of the system. To this end, the regulatory, oversight and (data) service provider side should strive for as much automation as possible from the start of the system, and for technological solutions that take into account the needs and tools of the user side.

Given that personal data will be processed when the data are entered into the database, appropriate data protection safeguards should be put in place for the information entered and processed centrally. The EU General Data Protection Regulation (GDPR)<sup>32</sup> contains strict rules on the processing of data subjects’ data. Article 5 of the GDPR gives a taxative list of principles that must be taken into account when processing personal data. In this context, it should be stressed that data must be processed for a specific purpose, only to the extent necessary and

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<sup>32</sup> Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32016R0679&from=HU>

with up-to-date accuracy, and stored in a form which permits identification of data subjects for no longer than is necessary for the purposes for which the personal data are processed. When setting up a central database, it would seem inevitable to regulate the mandates and technical requirements in legislation in order to enforce these principles on the one hand, and to ensure the lawfulness of data processing on the other.<sup>33</sup> In order to ensure that data already processed are used only to the extent and in the form necessary, technological solutions may be required to ensure that the output information cannot be decrypted by users in respect of the data subjects. In this context, a possible solution could be to have the data controller itself perform the necessary operations on the input data according to the operational principle of the valuation, based on a central methodology, and only deliver the final result to the end users. Another solution that seems to be applicable is that the data controller distorts the outgoing data (e.g. in terms of geographic data) to such an extent that it allows for the carrying out of valuations but not for the identification of the property and the related personal data.

## **5.2. Recommended structure of the central valuation database**

The set of required input data would be provided by specified data providers, and in the future it would be possible to extend the scope of specified data providers and possibly to provide optional data. In the case of the most important available data sets agreed with the data providers, it should be specified according to which set of rules they are updated and what ensures their reliability. In addition, the minimum amount of information per property on the basis of which disclosure can take place should be also specified.

It is advisable to involve a third party other than the data providers and data users in the management of the database; this party should have experience in database management and client relations and be able to coordinate client interests. This could be an existing database manager or a new entity set up specifically to manage this database. To ensure that the data are included in the database, a uniform definition system should be created, applicable to all data providers and covering all relevant data sets. To make the database operational, a number of technical details need to be elaborated. These include the development of custom templates for each type of information source, a common logical order for data management to resolve inconsistencies, mechanisms for data transfers and a data rectification scheme.

Based on our proposal, the use of the data would consist of an initial phase and a continuous expansion phase, and therefore the central database should be set up in such a way that subsequent expansions require as little modification as possible.

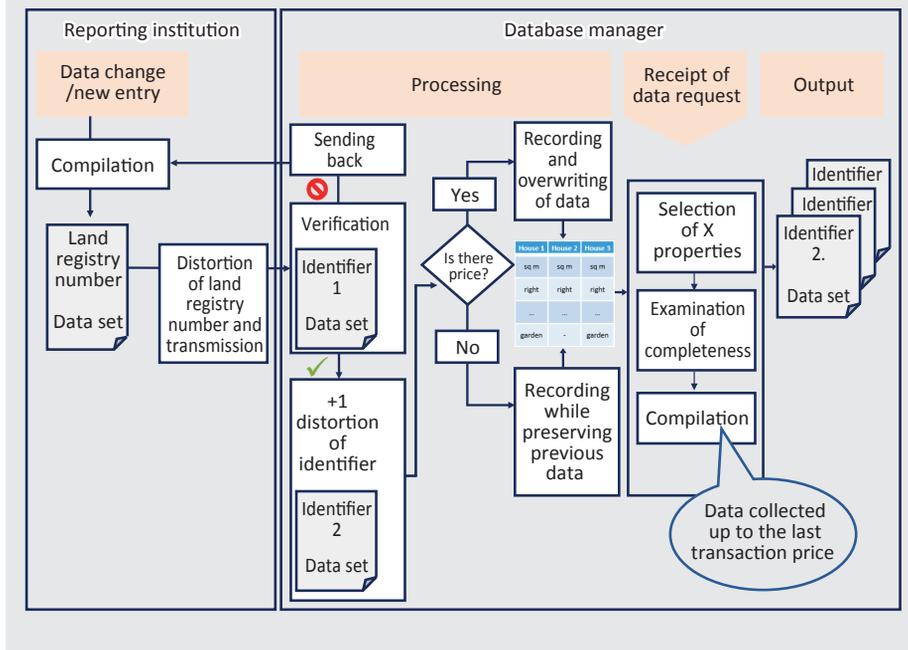
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<sup>33</sup> In the absence of legislative action, the consent of the data subjects may be sufficient to populate the database, but it will take much longer to achieve the volume of data needed to make it work.

Communication channels to the database should in most cases be able to provide two-way communication, but for some actors it may be required to send only inputs.

In our view, there are two necessary sub-processes for the database to work: the data provision process and the data request process. The timeliness of data provision is determined by the nature of the database: as we propose to create a stand-alone database, the data should be provided as soon as possible after the data is entered/changed, despite that it can only be taken into account when the next transaction price is recorded. The inclusion of data may, in addition to their processing, imply the need to delete previous data if a previously recorded data is modified and a new transaction price is recorded. In addition, it is necessary that data are only extracted from the database if the minimum set of data necessary to carry out the valuations is available. An important safeguard is that, although individual properties in the database must remain identifiable (even if based on distorted, anonymised identifiers), no parameter suitable for the identification of the property should be included in the output data (Figure 10).

**Figure 10**  
A possible operational model for data processing



Care must be taken to ensure that the operation model does not create a competitive advantage or disadvantage for any actor in the sector, simply because of the regulatory activity, by using solutions that are not available to all institutions or that would be difficult or costly to implement. The development and improvement of valuation models using a wide range of available data may require significant resources, and regulators will need to consider which of the possible options are the most effective ways to exploit the potential of the new database. In our view, there are basically two models for bank data requests:

1. *Centralised methodology*: in this case, data requesters only submit a request for the result of the valuation and the database runs a common methodology using its stored data, based on legal and regulatory requirements. The advantage of the solution is that it reduces the risks to the accuracy of the valuation, there are no direct development costs for the institutions using the service, and the conditions for use are therefore equal in this respect. However, institutions that have already developed advanced valuation methodologies but can no longer use them could be at a disadvantage. Moreover, it can also slow down the innovation of models and the incorporation of new model developments.
2. *Use of specific methodology*: in this case, each institution can submit a unique request for data to the database, while the valuation is carried out according to a unique methodology. The procedure can have a risk-mitigating effect at the banking system level through diversification and can provide a significant incentive for bank development, but it can also be detrimental to smaller institutions. Where institutional models are used, the regulator should establish the requirement for regular quality checks, the necessary compliance criteria and back-testing requirements to ensure that the specificity of the models does not lead to outliers.

### **5.3. Benefits, risks, challenges**

For actors in the real estate segments, particularly those in the financial markets, there are many benefits to be gained from the creation of a continuously accessible, comprehensive and reliable data set, in line with digitalisation efforts, and from ensuring the non-discriminatory retrieval of stored real estate data. In their responses to the MNB's 2021 questionnaire, Hungarian institutions stressed that they fundamentally expect the data to be up-to-date, of high quality, standardised and synchronised, and to eliminate uncertain data and extreme values.

By creating a central database, individual institutions can free up significant financial, technological and human resources, as long as they do not necessarily have to build their own database, maintain it regularly and adapt it to the changing infrastructure and regulatory environment. These cost savings can be used for other improvements, thereby further increasing competition between financial

institutions. On the other hand, a central database can make the valuation processes automated, faster and more reliable, providing institutions with a larger database and less uncertainty in the process. The system clearly supports the reduction of inconsistencies, which will ultimately be felt by the clients of the actors in the sector. However, exposure to database centralisation carries also risks if the database controller cannot react quickly enough to market events, its size makes existing infrastructures difficult to shape, and thus any upgrades and modifications thereof can be costly. The accuracy of data is also critical in such a complex, easily accessible infrastructure, given the systemic problems that can arise if information is incomplete, incorrect or out-dated.

To minimise inconsistencies and data quality issues, it may also be useful for the new database to use already established channels, so that the costs of development can be kept low for both public and market operators. The infrastructure already developed and tested has an added value not only in terms of system maintenance costs, but also in terms of easier database expansion and easier contribution of new data streams, if IT systems only need to be fine-tuned. However, in the initial period, it should also be taken into account that smaller actors may have difficulties in adapting their systems to access the data. They may therefore find it challenging to use a wider range of data, however, these differences could soon disappear with the reallocation of freed-up resources mentioned earlier.

The biggest practical challenge in setting up a central database is probably the “initial upload” at the time of creation. If sufficient data are not available initially, the development of a central database may be stalled and may generate disinterest from the relevant market. The accuracy and reliability of the valuation, if the right methods are used, depends largely on the suitability of the data used and the proper construction of the database. One of the main sources of error in the valuation results produced by the statistical methods used, disregarding the deliberate manipulation of any element of the process, can be the database used, for example, errors of individual database elements, inappropriate linking of elements, too little data or an unrepresentative data set. Accordingly, the central database should be able to integrate incoming data that have been organised by “third party” databases according to a different methodology, or it should be able to match similar or identical data (e.g. in the case of linking land registry records with NTCA data).

Operation of the database on which the statistical valuation is based is inconceivable without an appropriate legal framework. In our view, the “initial upload” with respect to a property database with sufficient data quality and quantity, as well as its subsequent operation, can only be achieved on the basis of legal authorisation. As regards the range of potential data providers, it can be seen that their operations are governed by different legislation, the processing of personal data held by them

is typically governed by sectoral laws, while the transfer of such data to third parties, in particular to the central database to be established, requires further amendments. With regard to the database controller, it is essential for the National Assembly to stipulate by law from whom it receives the data, for what purpose, for how long it may process such data and, where appropriate, to whom it may disclose such data. In our view, one central issue in the design of the data query model is the provision of data in anonymised form, which ensures that the problem of personal data processing does not arise for institutional users when applying the statistical model.

The acceptance and reliability of the system, as well as its legal framework, can have a major impact on the uptake of the scheme by actors. Market participants that have already built up their own large databases can only be voluntarily steered towards the need for the operation of a central database if these necessary preconditions are met. Owing to the geographical location of real estate, the potential number of loan transactions suitable for statistical valuation may be more limited if only a proprietary database is used, due to the different size and geographical presence of institutions (see *Figures 4 and 5*), but access to a central database would significantly increase the potential for use. An additional incentive can be provided by making data available in the system that would be difficult or impossible to access without joining the system. Participation in and reporting to the central database would increase the efficiency of the relevant actors, opening up potential new markets for them. By joining, the database-building real estate agents will be able to price the offered properties more accurately in their operations, thus enabling them to carry out more transactions per unit of time and indirectly influence the turnover rate of the domestic housing stock. Valuers should also be interested in entering, as they can also enter the statistical valuation market, in addition to the on-site inspection market. Under the EBA Guidelines, there will still be no way to fully circumvent valuers even in the case of statistical valuation (see *Section 3.1*), and it will be in their vital interest to establish and operate a central model if they have intention to follow market trends.

In determining the costs of developing and maintaining the system, account should also be taken of the essential purpose of the database, which is to ensure that all relevant operators can access the database and that their access to it brings clear benefits. Pricing must therefore necessarily reflect the extent to which each acceding party uses the database infrastructure. At the same time, during the set up and even during the subsequent expansion of the system, it is possible to envisage scenarios in which the participating organisations could contribute their own data assets to the development and maintenance of the system, thus benefiting from reduced costs depending on the extent and quality of these data assets, and could be interested in the greatest possible and most accurate transfer of and access to the data.

## **6. Conclusion**

The valuation of real estate collateral, like many other banking processes, is undergoing a major transformation. Instead of traditional valuations based on on-site inspections, the use of statistical valuation methods is becoming increasingly common internationally and expectedly also in Hungary. The legal conditions for this have been created by changes in European and Hungarian legislation over the past year, but in the longer term further changes are likely to be needed to make the method more widespread.

According to the views of domestic banks, statistical valuation methods are also expected to become increasingly important in various banking processes. However, for their functioning and the accuracy of the resulting value estimates, it is not sufficient to provide a legal framework. Data that are sufficiently detailed, accurate and regularly monitored are needed to ensure that they can be used effectively. The current databases on Hungarian real estate are highly fragmented and often limited in access, making it very difficult for market participants to access the quality and quantity of data they need, especially for smaller institutions or those with a shorter history, which weakens competition between actors. Therefore, by way of harmonising the existing separate databases, we propose to create a central database that provides a uniform, up-to-date set of data. A significant part of the data concerning real estate is recorded by various public bodies, which means that the management and use of the existing public data assets is of particular importance and can support the efficient functioning and competitiveness of the national economy in a number of processes. The creation of the National Data Assets Agency is a step in this direction, but the need for a flexible and open attitude on the part of public operators to manage data assets and to take the necessary steps in a timely manner remains a key priority. Such a database would help to create a level playing field in the market and would be able to serve data needs in an automated, cost-effective, fast and reliable manner. A central system reduces the chance of inconsistencies between data, and the integration of new types of data can be also simplified, without requiring additional IT development steps by each user. Banks would be able to produce valuations for their lending processes more accurately and faster, and could also rely on central data to improve other internal processes, whether it is product development or workout processes. In addition, there can be significant time and cost savings for borrowers by not having to do on-site inspections. We estimate that it would be possible to carry out statistical valuations for around 20,000–30,000 clients per year. With a 50-per cent reduction in the on-site valuation fee of HUF 30,000 due to the new method, as expected by banks, this could result in direct savings of up to HUF 300–450 million per year for mortgage loan borrowers, which could be complemented by a better client experience from faster loan approvals and lower shoe-leather costs.

Certainly, such a database also poses challenges, such as the need to react quickly to market developments, or the need to keep data up-to-date and correct data errors as quickly as possible. Regulators and the system operator both need to be prepared for such challenges.

Overall, we believe that a central database would greatly facilitate the future use of statistical valuation methods as a key tool in the valuation of real estate collateral. This would help create the optimal utilisation of the existing domestic data on real estate, to kick-start the data economy, further spread the digitalisation already underway in banking processes, strengthen banking competition, speed up transactions and to reduce costs for both market actors and clients.

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# Centripetal and Centrifugal Forces in the European Union\*

György Szapáry

*The economic crises of the 21st century have challenged the unity of the European Union. The initially strong centripetal forces started to be weakened by new, unexpected centrifugal forces. What does the future hold for the European Union, and how can it face the unforeseen challenges? Currently the most important divisive, centrifugal forces within the EU include the management of mass migration, the debates surrounding the EU budget, the lack of a common foreign policy and the issue of sovereignty versus federalism. The essay addresses these topics one by one, because a strong, influential and unified Europe cannot exist without a solution to the migration crisis which is accepted by all Member States, a more coordinated fiscal and foreign policy and an explicit, uniformly accepted interpretation of the sovereignty of nation states. These areas are likely to remain divisive, centrifugal forces hampering the progress of European integration for years to come, but they should be discussed to identify the most important things to do.*

**Journal of Economic Literature (JEL) codes:** N14, F53, H61, H63, H77

**Keywords:** European Union, migration, EU budget, foreign policy, sovereignty

## 1. Initial centripetal forces

In 1945, Europe was in ruins, reeling from the Second World War. When the war years ended, they left behind millions of orphans, starving citizens forced to leave their homes, and bombed-out cities. Everyone hungered for peace. This collective wish for peace was the most important cohesive force that initiated the European integration process. Although the continent experienced peace again, Europe was split in two, with Eastern Europe forced into the tyranny of the Soviet communist dictatorship and, on the other hand, a strengthening, democratic and economically rapidly developing Western Europe.

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\* The papers in this issue contain the views of the authors which are not necessarily the same as the official views of the Magyar Nemzeti Bank.

György Szapáry is a Chief Adviser to the Governor of the Magyar Nemzeti Bank. Email: szaparygy@mnk.hu

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At the proposal of Robert Schuman, the European Coal and Steel Community was established in 1951, to make war “*not merely unthinkable, but materially impossible*”, to quote Schuman, thereby making it impossible to arm for a new war. The proposal that later became known as the Schuman Declaration, began as follows:

*‘World peace cannot be safeguarded without the making of creative efforts proportionate to the dangers which threaten it. The contribution which an organized and living Europe can bring to civilization is indispensable to the maintenance of peaceful relations. [...] Europe will not be made all at once, or according to a single plan. It will be built through concrete achievements which first create a de facto solidarity. The coming together of the nations of Europe requires the elimination of the age-old opposition of France and Germany.’<sup>1</sup>*

The centripetal, cohesive force stems from this declaration which laid the foundation for the drive toward European integration with today’s achievements: the four freedoms, i.e., the free flow of goods, services, capital and labour, the Schengen Area and the common currency. However, the road leading to ever closer integration has not been without conflicts. One need only recall French President de Gaulle’s double veto on the United Kingdom joining the European Economic Community (the forerunner to the EU), the ‘empty chair’ politics by the French, when de Gaulle boycotted Council meetings for six months, or the debates surrounding the euro introduction and the Eastern enlargement. The ‘empty chair’ policy is worth recalling because it is related to an important issue that is currently one of the primary centrifugal forces: the clash between sovereignty supporters and federalists. The French boycott was intended to block the federalist initiative that the Council should make its decisions based on majority voting. France achieved that important decisions can only be made unanimously, a practice that has continued to live on in the Council until today. But the issue has become a hot topic once again, because more and more Western European countries wish to change this, and one of the main drivers behind it is the Eastern enlargement. This is discussed in more detail later.

As the four freedoms are now ensured and the common currency has been introduced, the age of centripetal forces seems to have ended, and new centrifugal forces have emerged. As pointed out by *Kiran Klaus Patel (2021)*, even *Jean Monnet* talked about European integration progressing “by zig and by zag”, and the need to use every crisis to strengthen integration. The past 15 years have seen many crises. The 2007–2008 Great Financial Crisis and the Covid-19 crisis brought to the fore issues that the European Union of 27 member countries (28 before

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<sup>1</sup> The full text of the Schuman Declaration is available on the European Union website: [https://europa.eu/european-union/about-eu/symbols/europe-day/schuman-declaration\\_hu](https://europa.eu/european-union/about-eu/symbols/europe-day/schuman-declaration_hu). Downloaded: 9 November 2021.

Brexit) had not been forced to face so far. In their book on creative destruction, *Philippe Aghion et al. (2021:312)* write, among other things, about the future of capitalism. The slowdown in economic growth, the rapidly widening inequality in the distribution of income, the anxiety caused by climate change and the emerging issues related to globalisation seem to call into question the belief in the efficiency of a capitalist economy. Capitalism has of course its drawbacks, it can cause financial crises, cannot ensure job security, and it is unable to provide a good solution to income inequalities. According to the authors, capitalism is now in the midst of an existential crisis, and the same goes for the European Union. As the achievement of the promised welfare has become uncertain, resistance to the political and social transformation entailed by integration has strengthened, and the viability of international cooperation based on compromises has become questionable (*Patel 2018:279*).

All in all, the initial cohesive force – the maintenance of peace – has become diluted over the decades. For most current policymakers and the public, the Second World War is distant history. For example, French President Emmanuel Macron was born in 1977, 32 years after the Second World War drew to a close. While he is committed to strengthening the European Union, this does not hold true for every country – one need only think of Brexit.

Eastern enlargement also brought with it a new dimension. The often and rightly cited 70 years of peace that the EU brought for Europe sounds differently for the 100 million people who spent 40 of these 70 years under Soviet rule, deprived of the opportunity to live freely, build democracy and prosper economically like people in Western Europe. The citizens of the post-Soviet satellite states are rightly proud of having gained their independence on their own, without any special assistance from the West. Moreover, certain Western European countries were initially worried about German reunification. Back then the saying that ‘I love Germany so much that I want two of them’ was still alive. On the contrary, post-Soviet countries were keen to support German reunification, and Hungary played an unquestionably key part in this. As German Chancellor Helmut Kohl said, Hungary knocked the first brick out of the Berlin Wall. Citizens suffering under Soviet rule knew that Europe would see no permanent peace without the reunification of Germany and the integration of Eastern European countries into the European Union.

Several authors have addressed the question of European identity, including *János Martonyi (2018)*, *László Trócsányi (2021)*, *Thierry Chopin (2018)*, *Uğur Tekiner (2020)* and *Szabolcs Janik (2021)* to name but a few of the latest publications. The thinking revolves around the issue of ‘shared identity’, in other words how a shared European identity can go hand in hand, or be reconciled with, national identity and how the latter can be defined. Thinking about European identity has changed over time as integration progressed and enlargement waves occurred.

The thinking was different when the community only consisted of the six founding members than it is in today's European Union comprising 27 Member States. At the time of the EU's founding, the question of European identity hardly interested decision-makers at the political level, and public opinion was not much preoccupied by it. The focus then was on the measures of economic integration, the 'European identity' in itself was not contested, and national identity was never called into question. The northern and southern enlargement revived the identity issue, which culminated in the failure of the planned constitution for Europe and the debate around the Treaty of Lisbon. The Eastern enlargement, i.e., the integration of the countries torn away from the West for 40 years, added new momentum to this debate, which is also one of the drivers behind the emergence of centrifugal forces as will be demonstrated. "We shall never forget that we remain diverse in being European", *Trócsányi (2021)* warns.

## **2. The emergence of centrifugal forces**

A large part of the issues dividing the European Union today are rooted in problems that were brought to the surface by the above-mentioned crises: different growth and unemployment rates, which determines fiscal dependency; mounting income inequalities, which increases social tensions and discontent; different healthcare systems and differences in the state of public health, which influence the management and the success in overcoming the pandemic. In poorer developing countries the effects of crises are much worse, and this – coupled with a war-torn environment – triggered a wave of mass immigration. These facts all generated divisive forces within the European Union which are multidimensional, spanning across traditional East-West and North-South divides. Four centrifugal forces are discussed: migration, fiscal policy, foreign policy and sovereignty.

### **2.1. Migration**

Illegal mass migration is one of today's most pressing divisive factor. This is strongly influenced by the varying historical experiences. The attitude of colonising countries has been shaped by centuries of experience in welcoming migrants from far away. The overwhelming majority of Western European countries had colonies, including the United Kingdom, France, Spain, Portugal, Belgium, the Netherlands, Italy, and even Germany before the First World War. These countries had a chance to familiarise themselves with the people and culture of their colonies. Immigrants primarily came from former colonies, first the more highly skilled who already spoke the language of the colonising country, later followed by the less highly skilled. This was a gradual process, and the public had time to get used to the presence of immigrants. Furthermore, immigrants from South Asia, Southeast Asia and Africa or their descendants earned the respect of the host nation because of their achievements in business, sports, music and literature, even reaching top

leadership positions in politics. Today this process is not void of tensions, due to mass immigration over the past decade. Yet, the countries that used to have colonies are more welcoming of immigrants, which is probably influenced by not only historical experiences but also a sense of responsibility felt by colonisers.

On the other hand, Central and Eastern European countries had no colonies, their population did not mix with immigrants from afar, they had no experience of gradually familiarising themselves with very different cultures. They were suddenly faced with huge masses of immigrants crossing or trying to cross their borders. Naturally they resisted. Following Hungary, Poland and the Baltic states have also started to construct fences to protect their borders. This divides the community of the EU, because the richer countries, where the immigrants are headed to, call for a compulsory distribution of migrants among EU Member States. In fact, the fences protect the richer Western European countries. The countries with coastlines are also in favour of compulsory distribution because it is more difficult, and more delicate from a humanitarian aspect, to stop immigrants at sea than on land routes, which, incidentally, are preferred by migrants because they are safer. The management of mass migration creates a centrifugal force rooted in the different historical experiences and is substantially influenced by the different standards of living in Western and Eastern European countries. The masses of people trying to enter Europe from war torn areas and drought stricken countries on the African continent caused by climate change will continue to be a divisive factor in the political discussions of the European Union for years to come. Europe is rich and appears unprotected, making the continent attractive for migrants from poorer countries.

## 2.2. Fiscal policy

The cohesion of the European Union is threatened by the large differences in unemployment rates and the room for fiscal manoeuvre. The average unemployment rate in the euro area is 8 per cent, but it is around 16 per cent in Greece and Spain<sup>2</sup>, for example. (*IMF 2021*). While government debt significantly exceeded the Maastricht criterion of 60 per cent of GDP in only six countries in 2007, 14 countries are projected to cross this threshold in 2021. There are huge differences here as well: the euro area average is 100 per cent of GDP, but in the countries with high unemployment, such as Greece, Spain and Italy, government debt is much higher, reaching over 200 per cent in Greece (*IMF 2021*)<sup>3</sup>. A common monetary policy would have to be coupled with a certain degree of common fiscal policy but that is non-existent, there are only fiscal rules, which have been mostly breached. It has been easy to find exceptions to the relevant rules citing changed circumstances and waive penalties for countries that have been under excessive

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<sup>2</sup> Forecast for 2021

<sup>3</sup> Forecast for 2021

deficit procedures for years. The possible changing of these rules is back on the agenda.

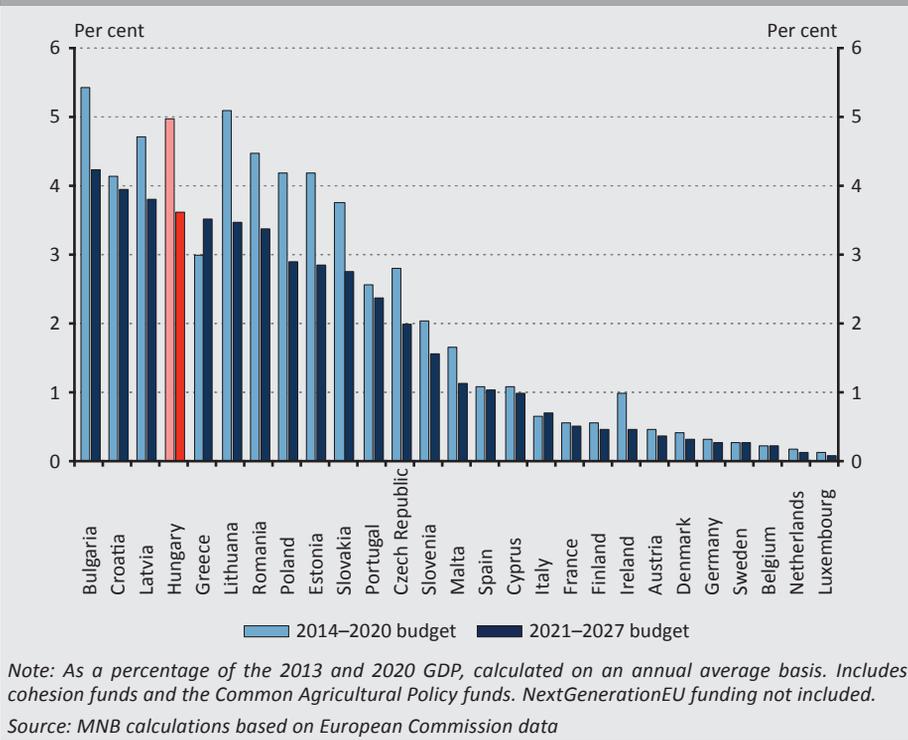
If a fiscal union existed, which is currently appears a utopian idea, automatic fiscal stabilisers would be able to partly manage the issues arising from the differences in unemployment rates, and the inevitable austerity measures could be eased, since a countercyclical fiscal policy tool would be at play. Currently, crutches are needed to provide external help. Here another centrifugal force can be detected, i.e., the newly emerging northern-southern conflict of interest, a clear sign of which is the successful demand of the 'frugal four' (Austria, the Netherlands, Sweden, Denmark) that the share of loans to the beneficiaries of the NextGenerationEU recovery fund should be increased at the expense of grants. This is a definite indication that the conflict of interest between richer and poorer countries will continue to accompany the EU's integration efforts. This blocks or hampers any further steps on the road towards bolstering economic integration, such the establishment of a European bank deposit insurance scheme or the replenishment of the bank resolution fund, because richer countries, especially Germany, worry that they will have to finance the losses of other countries' banks. More affluent countries emphasise risk reduction, while others are interested in risk sharing. Although the NextGenerationEU recovery fund has a redistribution aspect in the sense that the countries that suffered more due to the pandemic receive proportionately more, this only intensified the conflicts of interest between richer and poorer countries.

The original proposal was to offer to eligible Member States EUR 500 billion as grants from the recovery fund of EUR 750 billion and EUR 250 billion as loans. The 'frugal four' managed to change these shares to EUR 390 billion and EUR 360 billion, respectively, which is a significant shift from the original proposal. A new aspect is that Member States assume joint guarantee for the EUR 750 billion (at 2018 prices) to be raised on the market by the Commission. At current prices, Hungary is eligible for EUR 8.6 billion in grants<sup>4</sup> and EUR 9.7 billion in loans from the NextGenerationEU recovery fund. Out of the 2021–2027 seven-year EU budget, which is already smaller than the previous one due to Brexit, Hungary will get a smaller amount from the Cohesion Fund (*Figure 1*), because the formula determining the amount of cohesion funds has changed in favour of countries where the per capita income of their poorer regions is low. There are several Member States where the per capita income is lower in their poorer regions than the Hungarian average.

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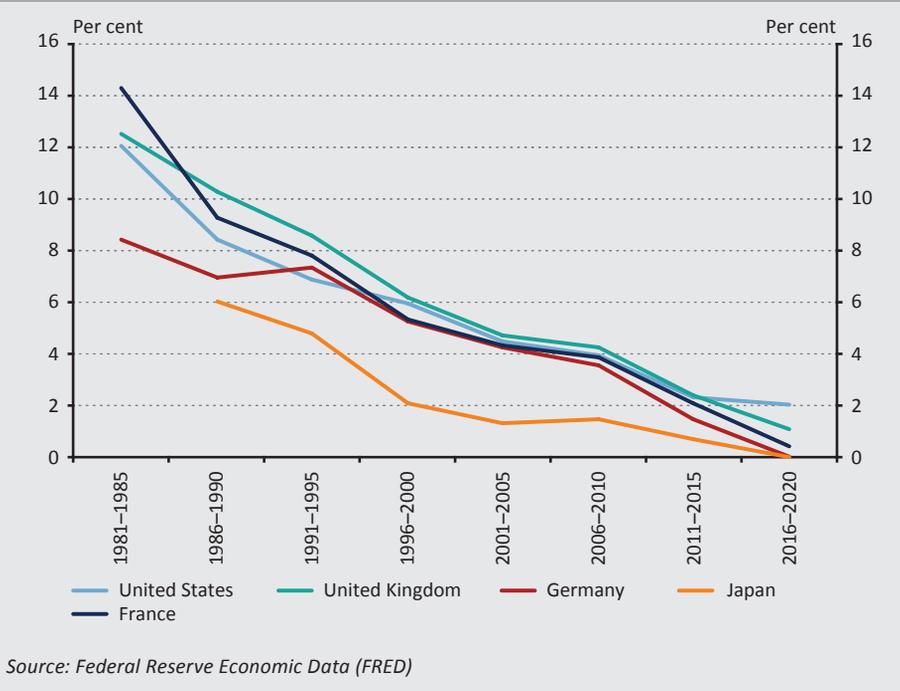
<sup>4</sup> EUR 7.2 billion from the *Recovery and Resilience Facility* (RRF) and EUR 1.4 billion from other funds. MNB calculations based on European Commission data

**Figure 1**  
Subsidies from the 2014–2020 and 2021–2027 EU budget (as a percentage of GDP)



The topic of government debt should be revisited briefly. Undoubtedly, budgetary spending had to be increased and may need to be increased in the future to manage the crises, maintain jobs, reduce unemployment and fight the pandemic. This led to a surge in government debt. Some well-known economists (*see, for example, Blanchard 2019*) have argued that government debt was not that important an issue in advanced countries, since a declining trend in long-term government bond yields can be observed due to structural reasons, (*Figure 2*). These economists maintain that even under an adverse scenario GDP growth will exceed this low interest rate level in developed countries, and government debt will melt away (*Szapáry – Hardi 2021*).

**Figure 2**  
**Nominal yield on 10-year government bonds (1981–2020, 5-year average, %)**



While this is true mathematically, it is dangerous to assume that this trend will continue in the future. Interest rates may diverge from the trend if confidence in the solvency of a country is undermined, precisely because of high government debt or current account deficit. There are many examples for this. To quote another well-known economist, “the world of finance could become dangerous if governments were to believe that we live in the wonderland where the budget constraint does not bite” (Wyplosz 2019).

### 2.3. Foreign policy

The European Union is divided on its foreign policy towards Russia and China. The annexation of Crimea and military intervention in eastern Ukraine has put Russia at loggerheads with NATO. Consequently, the European Union imposed sanctions on Russia, which was supported unanimously by the Member States. However, there was disagreement within the European Union. Poland and the Baltic states, which have borders with Russia, and possibly have had even more painful experiences with the Soviet Union than other socialist countries, expect the EU to take a tough stance. This view finds fertile ground in certain Western countries, although this attitude is not without ambivalence if one considers the understandably solid German support for the Nord Stream 2 project. While Germany suspended the approval process for

gas transport, it only did so temporarily. Hungary pursues a more nuanced policy towards Russia because it has experienced that when great powers clash over her head, Hungary suffers in the end. Moreover, Hungary's gas supply depends on Russia, even though the country seeks to diversify the sources of gas. Hungary shapes its Russia policy based on the logic of mutual respect. That is why certain Western European politicians started to say that Hungary was Mr Putin's Trojan horse in the European Union. Such narrative, like the attitude to mass migration, only serves to sharpen East–West conflicts and strengthens centrifugal forces.

The EU has rightful grievances against China. The lack of reciprocity in trade and investments and the country's attitude toward the protection of intellectual property have attracted harsh criticism from the European Commission and certain large Western European Member States. Central and Eastern European countries try to take full advantage of their trade and investment opportunities with China, which are much smaller than in the case of Western countries. The Chinese Belt and Road and 16+1 initiatives (which Lithuania recently left) have earned distrust from Western EU Member States, thinking that the post-Soviet countries are paving the way for China's political influence in Europe. This belief will probably strengthen as China's trade, investment, scientific and cultural ties will become stronger with many Central and Eastern European countries. The Western European stance is divisive on this issue as well, since the volume of trade and investments between China and Western Europe far exceeds that of Eastern European countries.

#### **2.4. Sovereignty**

Sovereignty versus federalism is the most hotly contested issue. It was already a key debate in de Gaulle's time. Brexit was also fuelled by this issue, as 'global Britain' envisioned the country reclaiming its full sovereignty. One might argue that this is the most important centrifugal force that, like a dormant volcano, erupts from time to time, it's lava causing damage to its environment the future effects of which are difficult to assess. Nowadays, the rule of law question in Poland and Hungary is causing a stir. Both countries claim that the European Union wants to use its institutions to make decisions about issues that were not transferred to the European Union by the Member States. These include for instance the protection of families and the compulsory distribution of immigrants which would change the cultural and religious mix of the population. The end result of this conflict is still uncertain. Although in the past other countries, in particular Germany, advocated the inviolability of constitutional identity, disputing the absolute and unlimited primacy of European law over Member States' legal systems, a conflict of views between East and West can be detected in the above-mentioned two cases. There are several reasons why some parts of Eastern Europe are concerned about Brussels' growing influence in topics considered domestic issues by the Member States which the latter claim not to have transferred to the EU. First, Eastern European countries

were not, and could not be present when the foundations for the EU were laid down, they did not take part in the discussion about it, they were only present when the Treaty of Lisbon was created, but that was not without antecedents. Second, the concerns are increased by the negative experiences with Moscow's rule. Finally, the rapid achievement of welfare, promised by European Union membership, has failed to be realised, which may also increase resistance to Brussels. These are feelings that cannot be measured by statistics, but they shape politicians' thinking nonetheless, even though most Eastern European citizens envision their future within the EU. The alliance between the East and the West is further hindered by statements by influential Western politicians, directed at certain Eastern European countries, that the European Union is not an ATM, or that Hungary should be brought to its knees. One knows that such statements are mostly directed at the politicians' own voters back home, but they highlight an important centrifugal factor, namely that Eastern European countries can, and should, be lectured.

There is no strong, unified European Union without new Member States being considered equals. The 'ever closer Europe' cannot be achieved without the assent of Member States and their citizens. There is unity in diversity, as it is often claimed, but differences are often not understood or welcomed. A nation lives in its language as well as its history and culture. Eastern Europeans' curricula include learning about the history of Western Europe. It is the author's personal experience, that people in the West know very little about the history or social composition of, say, Hungary, Romania, Bulgaria, or Croatia.

It is once again contested whether the best way forward towards a closer democratic European integration with more solidarity is a structure built on a federal state or one based on sovereign nation states. I argue that nation states do not threaten this integration. On the contrary, the European wars of liberation in the 20th century and the resistance to communist dictatorships show that strong European nation states are the best possible units or communities devised so far that can create the confidence and commitment for protecting freedom and democracy. The French resistance fighters and the Polish soldiers fighting on the side of the Allies during the Second World War were killed in action as French and Polish patriots loyal to their homeland. The people revolting against the Soviet rule in 1956 in Hungary were Hungarian patriots fighting for the independence of their country. These examples show the strength of national identity. Only strong and dynamically growing nation states can guarantee a powerful European Union.

### 3. Where to next?

The most important and most popular integration measures have already been taken: single market, Schengen, common currency. However, there are still major steps to be made that would strengthen economic integration and the European Union's resilience against future crises as well as its preparedness for new challenges. These steps include the completion of the banking union, further liberalisation of services and capital markets, harmonisation of fiscal policies on a more reasonable basis within the euro area and managing climate change. Closer cooperation should be sought in research, education and, *horribile dictu*, foreign policy, as well. As China rises and America's geopolitical influence visibly declines and its strategic attention turns towards Asia, only a strong and more unified Europe can maintain its competitiveness and influence in the emerging new world order (Szapáry – Plósz 2019). There are new calls for the EU to build a rapid deployment military force. Although common defence policy had been a key question for years, the conflicts of interest have prevented the creation of a European fighting force, the German '*Schuldkult*' might have played a role in it. The current geopolitical changes will hopefully convince politicians to bolster Europe's defence capacity.

Beyond the economic interests, Europe no doubt possesses a cohesive force, rooted in its shared though tumultuous history and the Christian roots of its society. Unfortunately, the newly emerging divisive forces discussed above distract attention from the crucial reforms and use up the energy necessary for implementing them. There have always been and will always be debates in a community like the European Union, in which members have different languages and culture and partly different history. The only thing necessary for a strong Europe is for everyone to acknowledge and respect these differences. It is well established that Germany and France are the engines of European integration, and the European project does not progress without their strong alliance. And no strong and unified Europe can exist without acknowledging the equality of Central and Eastern European countries, based on joint thinking and a mutual understanding of each other's history and culture. As János Martonyi (2018:109), the former foreign minister of Hungary put it: '*Central Europe is undeniably part of Europe... Central Europe is a more intense and denser Europe. A Europe at higher revolution speed.*' To quote French philosopher Henri Bergson: "*The future is not what will happen, but what we will do*".

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# Reflections on the Essay ‘Thoughts on the Dilemma of When to Introduce the Euro in Hungary’ by Péter Gottfried\*

Elemér Terták

*The Our Vision section in the September 2021 issue of the Financial and Economic Review included an essay by Péter Gottfried, member of the Monetary Council of the Magyar Nemzeti Bank (the Central Bank of Hungary, MNB), entitled ‘Thoughts on the dilemma of when to introduce the euro in Hungary’. This article is a response and supplement to that essay’s arguments and conclusions. In accordance with Article 140(1) of the Treaty on the Functioning of the European Union,<sup>1</sup> the European Commission (EC) and the European Central Bank (ECB) shall report to the Council on fulfilling the conditions of introducing the euro, at least once every two years. However, Péter Gottfried’s essay is deliberately not about this; instead, it makes important points about when and under what conditions the obligations regarding euro introduction should be fulfilled if Hungary already meets the conditions. It is high time to consider this, in particular for two reasons: on the one hand, Croatia, which joined the EU later than Hungary, and possibly even Bulgaria, may join the euro area soon, reducing the number of countries staying outside to five. On the other hand, Sweden became an EU member nine years before Hungary: it has the same obligation to introduce the euro and fulfils practically all of the criteria for joining the currency club, but still does not plan to introduce the euro in the foreseeable future. The analysis is also timely because we now have a perspective of two decades, and it could and should be assessed to what extent the euro has met expectations, and how the exit of the United Kingdom, as the internal ‘opposition’ to deepening the Economic and Monetary Union (EMU), is shaping the future of the EMU.*

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Elemér Terták is a Member of the Board of the Hungarian Economic Association and the Chair of the Supervisory Board at K&H Bank Zrt. Email: [elemertertak@gmail.com](mailto:elemertertak@gmail.com)

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<sup>1</sup> *Treaty on the Functioning of the European Union*. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=LEGISSUM%3A4301854>. Downloaded: 9 November 2021.

## 1. Introduction

Gottfried opens his essay with a serious remark: *'The downward trend in the share of the EU and the euro area within the global economy and world trade has not stopped, and no convergence within the euro area has been accomplished'* (Gottfried 2021:112–113).

He is completely right that the economy of the European Union, together with the euro area within that, has undergone momentous changes in the past two decades since the introduction of the euro, and due to this the reasons for the euro introduction have inevitably changed or been put in a new perspective. Therefore, the transformations that occurred, the current situation and the expected avenues of development in integration should certainly be assessed when considering the timing of adoption. In this process, the fact that the share of the EU and the euro area in the world economy and world trade has continued to shrink since the introduction of the euro does not seem to be a decisive factor, as even at the outset it was predictable that maintaining or even increasing the share of the euro area in the world economy and world trade could not be a long-term objective. Not least because the demographic conditions of the EU and the ascent of large Asian economies, such as China and India, which had already begun by that time, have foreshadowed the gradual decline in Europe's significance in the global economy. Nevertheless, the introduction of the euro has produced some advantages, for example, while the EU's current stake in world trade amounts to 17 per cent, the euro represents 21 per cent of the world's reserve currencies (IMF 2021), which is higher than the combined share of the 'forerunner currencies' in 1998 (Eichengreen – Mathieson 2000). Of course, the initial hope that the introduction of the euro may reduce the dominance of USD was shattered quickly, as the share of USD among reserve currencies has not declined at all since 1998.

It is also completely true that convergence among the euro area regions has not progressed much. Another pressing issue, which was, however, not highlighted in Gottfried's essay, is that since 2008 the euro area has grown by less than half as much as the USA. The primary reason behind the slow growth of the euro area is the moderate expansion of capacities on the supply side, mainly caused by the continued decline in the working-age population and the anaemic increase in total factor productivity. Looking ahead, the signs are not very promising: the demographic dependency ratio is expected to double in the EU by 2080. In theory, this problem could be alleviated by immigration, but there are major obstacles to this in several countries, and it can also have undesired social and economic consequences. As regards productivity, the problem is that the EU continues to lag far behind the USA and China in innovation, in particular in terms of digitalisation, even though the main theme of the Lisbon Strategy of March 2000 was to catch up with the US economy in creating and using new technologies.

## 2. On the reasons behind the euro introduction

The author's arguments are strongly influenced by the fact that the creation of the euro was shaped by political considerations at least as much as by economic ones. The fall of the Iron Curtain and the imminent prospect of German reunification and the slightly more distant perspective of uniting Europe did indeed raise the issue of the European balance of power once again, and rightly so. It was mainly the French who worried whether the new circumstances would lead to German dominance that could jeopardise the new-found stability, based on the assumption that Germany would gain strong influence in the Central and Eastern European region. Therefore, the French wanted some kind of guarantee that the changes would not disturb the balance. The common currency was considered to avert this threat and to be a condition that would ensure, like a steel hoops on barrel, lasting cohesion under the new circumstances, at least in Franco–German relations.

However, the birth of the euro was strongly influenced not only by French worries but also by German considerations. German Chancellor Helmut Kohl believed that the introduction of the euro was necessary for the acceptance of the reunification of the two German states, and also vital for preventing Germany's main European trading partners from devaluing their national currencies and thus securing an advantage against German products.

Hence, both influential European leaders had some kind of underlying motive for creating the monetary union, which they launched despite the warning of several economists that the European Economic Community did not constitute an 'optimum currency area'. Although the power of the initial motives has faded since then, the euro itself continues to keep the euro area together as a real barrel hoop. For example, in connection with the economic difficulties of Greece and Italy, the idea has been floated on several occasions that their chronic balance issues could be reduced considerably by leaving the euro area, but these proposals were always rejected, as an exit could cause turbulences that would lead to an even greater crisis, instead of bringing the desired improvement.<sup>2</sup>

The uniqueness of the euro lies in the fact that it was established as a currency without an underlying unified state structure. Economists used to consider money to be a feature, and even property, of the issuing state, but the euro became the currency of the European Economic Community without its own fiscal backing, and this later turned into the source of apparently unresolvable issues. Because when a crisis was unfolding in the euro area, it was hard to determine whether the

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<sup>2</sup> Reality resembles the idea that, according to many economists, was best captured in the final stanza of 'Hotel California' by the Eagles: 'We are programmed to receive. / You can check-out any time you like, / But you can never leave!'. Source: Hotel California lyrics. <https://genius.com/Eagles-hotel-california-lyrics>. Downloaded: 9 November 2021.

problems arose from the above-mentioned shortcoming of the common currency (which could have been tackled by completing the institutional system, in other words by creating the fiscal background), or whether they only followed the pattern of the disruptions in international capital flows.

Another design flaw of the euro area is rooted in the fact that EU Member States have vastly different conceptions and perceptions regarding the process and development of integration. The integration vision of Germany, or, more broadly speaking, northern countries, is based on consistent and strict compliance with the rules, while France and the southern countries place more emphasis on the necessity of flexibility, adaptability and solidarity. The northern attitude prevailed during the creation of the euro, and this determined the actual policy preferences. The rule-based approach assigns importance to avoiding devaluation and insolvency, and it is wary of using fiscal relief packages due to moral hazard. Based on these considerations, in accordance with Article 125 of the Treaty on the Functioning of the European Union, the Union shall not be liable for or assume the commitments of central governments, regional, local or other public authorities, other bodies governed by public law, or public undertakings of any Member State, and Member States shall not be liable for or assume the commitments of other Member States. Moreover, the ECB and the Member State central banks may not provide direct loans to the public sector of the EU and Member States. With respect to debt instruments, securities issued by the public sector may not be purchased on the primary market, and purchases on the secondary market may not be used to circumvent this prohibition. The ban on monetary financing, however, led later to a negative feedback loop ('vicious circle') between banks and the general government in southern countries, because large volumes of the national government bonds financing the budget deficit were amassed on the balance sheets of Member States' commercial banks (taking advantage of the general 0 risk rating of government securities), and 'in return' governments with a weak general government bailed out the banks that faced difficulties as government securities became illiquid.

According to Gottfried, *'The so-called New Hanseatic League led by the Netherlands is making some efforts, but the coordination and influence of the German–French–southern group seems to be increasing. At the same time, difficult compromises need to be forged in issues, such as the appropriate ratio of preventing and sharing financial risks or the method and extent of solidarity.'* (Gottfried 2021:115)

Unlike Gottfried, I cannot observe a rise in the coordination and influence of the German–French–southern group. Later, the author himself points out that *'Germany and the like-minded Netherlands, Austria, Finland within the euro area, as well as Sweden and Denmark outside the club use a market economy model based on solid public consultation...'* (Gottfried 2021:120). This is reflected in the fact that Germany paid lip service to Emmanuel Macron's European policy initiative from

September 2017, at least with respect to the reasonable proportion of preventing and sharing financial risks as well as the method and extent of solidarity, without really embracing it, and it was similarly reserved about the French president's vision about the 'European Renaissance', as spelled out in an open letter to European Union citizens in March 2019. Of course, in theory the attitude of the new government to be formed after the latest German elections may change, but one should not forget that the 2022 presidential elections in France could change the French stance.

I completely agree with the author that *'it would be interesting to examine the patterns outlined based on the experiences so far that can be useful for the future. Is the oft-cited pattern true that the euro has divided members into two groups: the southerners with recurring balance issues and the westerners with permanent balance of payments and trade surpluses?'* (Gottfried 2021:119)

### **3. Structural differences between the 'South' and the 'West'**

According to the Polish-born Jan Zielonka, professor of political science at Oxford University, the European Union has no strong and coherent sense of cultural identity, and there is even less of a European *demos* or *patria* (Zielonka 2005:4). To make matters worse, the monetary union comprises countries that are at different stages of political development and have different economic policy structures. It follows from the above that most of the issues faced by the euro area arise from the differences in the institutional background across Member States rather than from asymmetric economic shocks, as assumed by the theory of optimum currency areas. This makes it difficult to consistently implement the Stability and Growth Pact adopted in 1997 to facilitate the introduction of the common currency. Of course, many people hope that these institutional differences within the economic and monetary union will gradually disappear, but as the institutional set-ups are based on historical traditions, reforming and harmonising them will be a challenging and lengthy process.

The most important difference setting apart the 'coordinated market economies' of 'northern' Member States, including Germany, Belgium, Austria, Finland and the Netherlands, from the Mediterranean countries, including Spain, Portugal, Greece and Italy, along with France, which usually sides with them, is in the cooperation between employer and employee organisations and the government. Germany is a prime example of the northern European economies that can control unit labour costs to promote exports thanks to the agreements between the strong, sectoral labour unions and the solid employer associations, as social partners are accustomed to discussions aimed at reaching a consensus. However, southern Europe has a different market economy model. In Greece, Italy, Portugal, Spain

and even in France, employers' advocacy groups are often weak and face politically connected trade union confederations, which are, however, often pitted against each other. Although social pacts are made between the two sides with the cooperation of the government, no permanent wage agreement can be hammered out based on a solid arrangement. As a result, foreign competition limits wages in export industries, while wage demands can hardly be restrained in the sectors that are not open to competition, and this eventually pushes up unit labour costs in the economy as a whole, thereby undermining the competitiveness of exporters. This is exacerbated by the fact that southern countries usually do not have a vocational training system of sufficient quality that would facilitate production with high value added as well as continuous innovation. Therefore, in southern countries many exporting companies competed with goods produced by relatively cheap and unskilled labour, but their export capability eroded severely after 1989, first by the competition that arose with the firms from candidate Central and Eastern European countries, and later with the cheap and qualitatively competitive supply from Asian countries. Accordingly, the generation of external revenues became strongly influenced by tourism, which builds on natural and cultural heritage and resources, and this created a special dependence on the tourists arriving from northern countries and the rest of the world.

Obviously, the monetary union has different consequences for the two different market economy models presented here. Within the EMU, the northern countries that had introduced the euro were able to continue their long-standing export-led growth strategy. Moreover, after adopting the euro, their southern neighbours were unable to offset their competitive disadvantage caused by wage increases with devaluation, and in fact, this even benefitted the northerners because it 'curtailed' the appreciation of the (external) exchange rate of the euro. As a result, the trade surplus of the 'Northern League', and in particular Germany, began to soar both within and outside the EU. The ramifications of all of this led to an exchange of accusations between the two country groups after the euro crisis erupted.

I also agree with the author that it remains to be seen how to enforce the consistent compliance with the rules in the Stability and Growth Pact, especially in the case of large and influential countries, even though in the absence of a fiscal union, the key to the monetary union's stability is disciplined fiscal policy. However, this means that not every rule can be enforced in smaller and poorer Member States. Evidence shows that Orwell's *Animal Farm* rule applies here as well, namely that '*All animals are equal but some are more equal than others*'.<sup>3</sup> For example, in the case of France, the excessive deficit procedure has been on the table since 2003 with the exception of five years, but the Commission has always approached the repeated breaches of the deficit and debt limits benevolently and sympathetically.

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<sup>3</sup> Orwell, G. (1996): *Animal Farm: A Fairy Story*, Houghton Mifflin Harcourt, Chapter 10

The situation was similar with Germany in 2002–2003, when the country, which was ailing at that time, also received a ‘compassionate’ exemption from meeting its obligations. Other countries that found themselves in dire straits did not enjoy the same favouritism.

#### **4. What can be learnt from others in connection with Hungary’s euro adoption?**

What conclusions can be drawn from this for Hungary’s euro introduction, Gottfried asks. He claims that the answers can be found in three dimensions:

1. the further development of the euro area’s structure,
2. the impact of introducing the euro on Hungary’s European policy,
3. the cost–benefit calculation of the direct material effects of joining.

It is worth taking a closer look at the benefits of euro adoption for Hungary, based on the three aspects proposed by the author.

Since the introduction of the euro, it has not been proven that simply being part of the euro area confers a sort of higher quality upon the members, and that it would be definitely negative to stay outside and certainly positive to join. This is because countries can improve their economic structure while staying outside, and they can also lag behind as members, since it is not primarily the currency that determines which countries become winners or losers in the long run. For instance, according to the analyses by IMF staff in connection with exchange rate regimes between 2003 and 2016 (*Bakker 2017* and *Belhocine et al. 2016*), there were no major differences in terms of the average growth rate between euro area members, or countries using an exchange rate regime pegged to the euro and those with a flexible exchange rate regime. For example the data from Sweden, the Czech Republic and Poland all show that ‘there is life outside the euro area’. Staying outside does not necessarily hurt large exporting firms, because they usually use the euro for settlements among each other and their foreign partners, so they can avoid most of the exchange rate risk and the costs of FX conversion, and they can also take out EUR-denominated loans with favourable conditions, as most of their revenue is generated in that currency. On the other hand, in the sectors where revenues and incomes are generated in the national currency (e.g. HUF), such as in the case of households, the negative experiences have led to an almost complete elimination of FX debt. Companies that produce goods or services for the domestic market can obtain sufficient loans in the national currency and the FX debt of general and local governments has also considerably diminished. Granted, these countries continue to face an exposure to exchange rate risk due to imports, but its extent has proven

to be mostly manageable. Evidence suggests that the countries outside the euro area that are using a flexible exchange rate regime were better able to adapt to external shocks and thus grow somewhat faster. Recently, they have also been able to better deflect the deflationary pressure 'imported' from the euro area. Of course, this comes at a price, as they have a slightly higher inflation rate and convergence as measured in purchasing power also takes longer.

Sweden serves as an especially instructive example for those staying outside. A report commissioned by the Swedish government and prepared under the leadership of Lars Calmfors in 1996 (*Calmfors 1996*) was convincing readers that the arguments in favour of postponing the early adoption of the euro, in 1999, were much stronger than those supporting the quick introduction. Shortly before joining the EU, Sweden experienced a deep recession, with GDP declining by 5 per cent, unemployment surging to 9 per cent and the budget deficit jumping to 13 per cent of GDP in 1993. The most important disincentive was the risk of growing unemployment and budget deficit. Between 1991 and 1993, relative unit labour costs dropped by 20 per cent, which was primarily due to the devaluation of the Swedish krona. This made joining the avant-garde project of the euro too early unreasonable, as it would have forced the country, in which full employment was a traditional political priority, to tackle any arising asymmetric shocks with a very limited set of monetary instruments. At the same time, the report proposed to leave the door open to joining the euro area, pointing out the numerous potential drawbacks of staying outside the EMU, such as political marginalisation, unfavourable exchange rate fluctuations and the higher transaction costs of trading with the euro area. After the economic rationale behind the initial reserved stance disappeared, the government let the public make the final decision in a referendum held in the autumn of 2003. The results reflected the rejection of the idea, with 55.9 per cent of voters against adopting the euro and only 42 per cent in favour of doing so. According to exit polls, the distribution of the votes was a clear indication of the expected advantages and burden of joining as experienced by the different social groups. The 'no' votes dominated among voters employed in sectors protected from competition, such as the public sector, as well as low earners, the unemployed and the low-skilled, in other words among the groups that depend on public sector transfers. The 'yes' votes were predominant in the private sector, regions that had experienced rapid growth and among high earners and the highly skilled (*Jonung 2004*). The Swedish economy performs well even despite the country staying out, and it weathered the euro crisis with low unemployment and a balanced budget. Therefore, no binding referendum was demanded by the central bank, which had been a strong advocate of euro adoption (*Heikensten 1999*), or the influential large enterprise sector, because in 18 years no new strong arguments emerged that would have changed the opinion of voters. This is indirectly attested by the regular surveys prepared by Statistics Sweden (SCB), according to which

since 2009 majority of Swedish respondents have continued to believe that the euro should not be introduced.<sup>4</sup>

As supported by the example of Sweden, Gottfried was right to state that *'the introduction of the euro not only means a safety net but also the narrowing of the nation's room for manoeuvre. The question is whether the country believes that it can implement the necessary changes better and faster alone, rather than as part of a system with numerous participants. Furthermore, time is of the essence. If the external vulnerabilities can be reduced rapidly, the chance of success while staying outside is greater, but if not, it is better to choose the "common roof" that provides greater security.'* (Gottfried 2021:124–125)

The experiences of the Central and Eastern European countries that have joined the euro area show that they did benefit from the savings arising from lower transaction costs and exchange rate risk. Moreover, several governments promised people that their savings would retain their value and tourism would receive a boost from the elimination of exchanging money due to the euro introduction. Besides the above-mentioned considerations, in smaller economies, joining the euro area quickly was also justified by the fact that for them maintaining a flexible exchange rate policy is more difficult than for larger countries. This seems to be confirmed by the fact that since 2004 only smaller economies have adopted, or planned to adopt, the euro. The example of Slovenia and the Baltic countries also shows that those that joined early, in the 'sunny' period prior to the 2008–2010 crisis, were forced to endure a painful internal devaluation, by reducing wages and annuity benefits in nominal terms, during the euro crisis. In Slovakia, domestic political tensions ensued because the country had to contribute to the costs incurred from the Greek crisis, even retroactively, after joining the euro area. The data show no significant economic benefits in any country that joined the euro area, so the decision was justified more by political and/or social and psychological factors. These included the desire to be completely free from Russian economic influence in the Baltic states, the hope to shake off the legacy of Mr Mečiar's 'legacy' in Slovakia, or the gradual deterioration of the initial 1:1 exchange rate between the Slovak koruna and the Czech koruna, which could only be halted by introducing the euro. The importance of social and psychological factors can be seen in the fact that in Croatia and Bulgaria, which are on the brink of adopting the euro, public support for the introduction is lower than for example in Hungary or Romania. This seemingly paradoxical phenomenon is most probably explained by people's worries about upwards pressure on prices, as seen elsewhere after euro adoption (*European Commission 2021*).

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<sup>4</sup> *Sweden and the euro*. [https://en.wikipedia.org/wiki/Sweden\\_and\\_the\\_euro](https://en.wikipedia.org/wiki/Sweden_and_the_euro). Downloaded: 20 November 2021.

In the case of Poland and the Czech Republic, most economic policymakers and analysts explain ‘staying out’ with the incomplete real convergence to the euro area and the persisting structural differences. Furthermore, officials from both countries also claim that the introduction of the common currency not only brings expected benefits but also obligations, the burden of which needs to be taken into account when deciding on the timing of euro area accession. For example, the capital contribution to the European Stability Mechanism should be considered, as should banks’ contribution to the Single Resolution Fund, and countries would even have to relinquish their independent banking supervision system before joining the euro area, i.e. before banks become eligible for refinancing by the ECB.

In every country, support for any new step towards integration depends on the expectations regarding the impact on the economy and the standard of living in the long run: in other words, whether the deepening of integration brings long-term benefits even if it requires temporary sacrifices from certain groups. Right now, the governments of both countries believe that joining the euro area quickly would provide scant economic benefits, while the tangible costs seem to be hardly negligible. Therefore a ‘wait-and-see’ approach is considered as the best option in the present situation. This is consistent with the public’s opinion in both economies that their countries are less than prepared for the euro introduction. However, the Polish seem to be much more open to euro adoption than the Czech. The difference between the two countries can be attributed to the different level of fears about price hikes induced by adoption (*European Commission 2021*).

## **5. The relationship between the expected development of European integration and euro introduction**

The ‘wait-and-see’ approach applied by the Czech Republic and Poland seems to be reasonable also because *it is still unclear in which direction European integration, and in particular the euro area, will develop from here*. According to many politicians and renowned economists, there are several arguments in favour of conferring unprecedented fiscal powers on Brussels. Undoubtedly, many supporting economic reasons can be found for having a larger community budget and greater common risk-taking than now. However, considering the present structure and modus operandi of the European institutions, the legitimacy of further centralisation is highly questionable from a democratic viewpoint.

Nevertheless, the proponents of fiscal centralisation believe that the exceptional shared risk-taking under the NextGenerationEU programme and the related delegated power to collect own revenue was a progressive and historic step. Yet, the one-off measures taken on an ad-hoc basis to alleviate the negative economic effects of the coronavirus pandemic are a far cry from completing the fiscal

union that is considered a necessary supplement to the monetary union. None of the ideas floated so far about transforming the European Union or the euro area into a supranational democracy seem to be politically viable in all Member States right now. (One important lesson may be learnt from the referendum on a Treaty establishing a Constitution for Europe in 2005, which failed in the northern countries of Netherlands and Luxembourg as well as in France, which usually sides with southern countries, even though all three were founding countries of the European Economic Community in 1958.) In the absence of truly European political parties and efficient political competition among them, even the most ambitious plans for making the operation of European institutions more democratic offer only insufficient guarantees regarding accountability towards voters. Moreover, based on the experiences about the management of the euro crisis and the current coronavirus pandemic, the political support for conferring further powers on European institutions, such as the European Commission or the European Parliament, promises to be quite low.

This seems to run counter to the fact that in surveys most Europeans citizens continue to prefer the euro and EU membership. However, nowadays this support is not based on the experienced advantages, but rather on feeling the ‘side effects’ of Brexit on the one hand, and the fear that certain Member States and their citizens would suffer heavy losses in the event of the break-up of the euro area on the other hand. The experiences from the embarrassing negotiations during the euro crisis have already crushed the hope that using a common currency is a win-win game. Many citizens worry that any tangible benefits from an EU-level economic policy could only be gained after decades of conscious efforts (and smaller Member States do not seem to be certain about this either). This is not entirely false conclusion: the responses to the euro crisis and the pandemic have rather resembled a zero-sum game in which the benefits, risks and costs of new initiatives are distributed unevenly among the participants. No wonder that Member States are currently palpably less keen on further deepening the economic and political integration, and the influence of Eurosceptic parties has increased. In the foreseeable future, it will be difficult to acquire majority support for amending European treaties, and without that no qualitative changes can be introduced to integration.

Nonetheless, doubts not only arise in connection with the visions about the future of integration, but also in relation to how the central bank of the euro area, the ECB, will be able to phase out its bloated government bond purchase programmes, including the pandemic emergency purchase programme (PEPP) launched in 2020. Especially because these programmes offer almost infinite funds, and their allocation was not bound by either Member States’ share in the ECB’s capital, or by some proportionate cap on the bonds issued. Moreover, the ECB practically eliminated the role of the market in issuing government securities by Member

States with weak budgets, and many of those bonds ended up in the ECB's portfolio. Governments under pressure could increase their spending and debt beyond the limits of the Stability and Growth Pact, and also beyond their financial liability based on their capital share. It should also be borne in mind that over-indebtedness mainly characterises the euro area countries: the debt-to-GDP ratio was 75.9 per cent in the EU, while it was 85.8 per cent in the euro area at the end of 2020. Although every Member State was given a temporary exemption from the requirements of the Pact, and after the grace period the debt ceiling will likely be reviewed in some form, the massive debt portfolio will still remain in place. Some of the accumulated risks will also affect the new joiners of the euro area, while the concessions received in exchange are yet to be seen. To make matters worse, the ECB has gradually reduced its key interest rates since June 2014, before reaching -0.5 per cent with the deposit facility in September 2019. This was mainly intended to stimulate the lending activities of the euro area banks and thus boost the economy (*Schnabel 2020*). However, this interest rate policy had a side effect: it meant a huge income transfer at the expense of savers and benefitting debtors, in particular greatly reducing the interest expenses in the budgets of overindebted Member States. However, the consequences of the coronavirus pandemic, including the appearance of pent-up demand and the entailing overshooting of the ECB's inflation target in the euro area, do not allow this interest rate policy to be pursued much longer, which will inevitably increase the risks of the bloated debt pile. All in all, joining the euro area does not seem to be a favourable prospect for the time being.

## 6. Conclusions for Hungary

Due to the above, it is doubtful whether Hungary and the four countries outside the euro area (not counting Croatia and Bulgaria that are set to join the club soon) would benefit from joining in the immediate future. As Zsolt Darvas and György Szapáry already warned 13 years ago, *'the initial level of economic development as measured by per capita income and the speed of real convergence have a bearing on the strategies to follow and on the timing of entry'* (*Darvas – Szapáry 2008:833*).

The ideal time to join will come when Hungary's international competitiveness has converged to at least the top third of the Member States, and when the euro area has tackled its accumulated problems, making the concrete conditions and expected consequences of joining predictable. However, all of this may take many years. The citizens of the countries outside the bloc have a down-to-earth sense of the lengthy process of joining: according to a Eurobarometer survey, four out of ten respondents believe that the euro will be introduced in their country in ten years, and 17 to 51 per cent think that it will not be introduced at all (*European Commission 2021*).

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# **What Causes Inflation? – The Relationship between Central Bank Policies and Inflation\***

*András Balogh*

*This article uses examples from economic history and crises to examine the factors that contribute to the development of periods of high inflation, with a particular focus on the role of different fields of economic policy. With reference to the economic theories underlying economic policy considerations, the paper also briefly introduces an emerging approach, the Modern Monetary Theory, and discusses its messages on inflation.*

## **1. Introduction**

Many have tried to give an explanation for the relatively low inflation rates seen in recent decades. In the years following the high inflation experienced internationally in the 1970s, it seemed reasonable to argue that – along with appropriate monetary policies and seemingly well-functioning prevailing economic theories – increasingly open global trade, such as China’s entry into the world market, supported the low inflation environment. After the 2008–2009 crisis exposed the financial imbalances that had built up beneath the surface, the huge amount of liquidity injected into the financial system by central banks did not trickle down to the real economy, and inflation rates did not start to rise. The 2008–2009 crisis was followed by a protracted recovery period. The aim of different economic policy branches was no longer to bring down inflation, but to raise it to a target level.

The coronavirus crisis that erupted in 2020 was caused by a public health emergency, not by structural problems in the economic and financial system. In this environment, once recovery has started, demand recovers faster than supply, given that returning to previous capacities requires resources and time. This friction naturally leads to elevated inflation through an overdemand situation. This effect is reinforced by the huge amount of liquidity injected into the economy by the economic policy branches. What has changed, however, is that the programmes have been more targeted and have involved greater cooperation between the economic policy branches. Many policymakers emphasise the temporary nature of the phenomenon, given the underlying factors behind the rise in inflation. Nevertheless, if the current high inflationary trends become embedded in the

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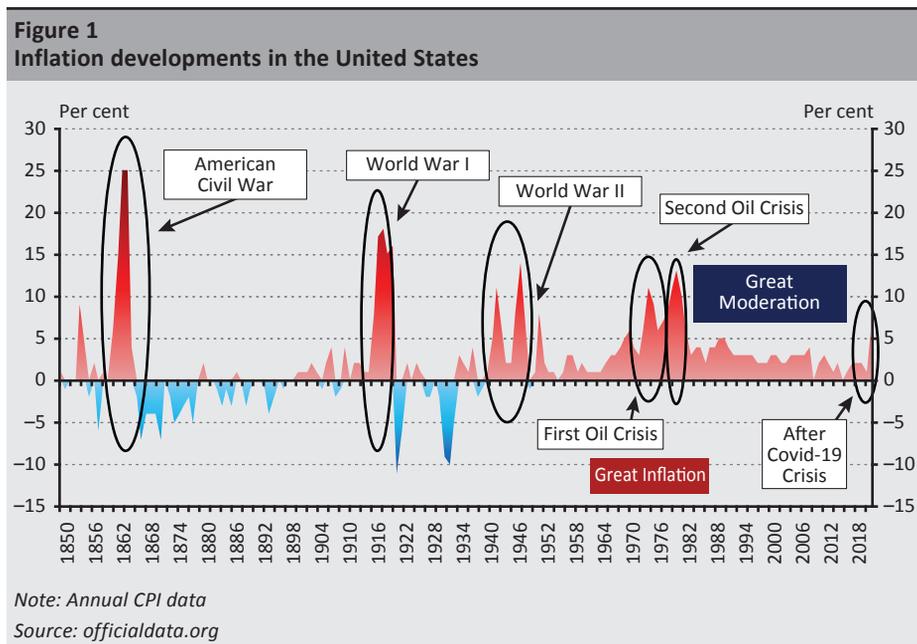
\* The papers in this issue contain the views of the authors which are not necessarily the same as the official views of the Magyar Nemzeti Bank.

*András Balogh is an Economist at the Magyar Nemzeti Bank. Email: balogh@mnbb.hu*

expectations of agents and influence their decisions, inflation, partly caused by temporary factors, may become persistent. However, based on an emerging economic approach, the Modern Monetary Theory (MMT), the current state of the economy does not allow us to take for granted that the high price dynamics we are currently experiencing will be sustained in the future.

## 2. Inflation from a historical perspective

If our goal is to understand the inflation that has emerged in the wake of the coronavirus pandemic, one important step in our investigation could be to summarise historical experiences. Inflation data for the United States over more than 150 years show that periods of particularly high inflation have been rare and, with few exceptions, relatively short, and were typically associated with wars and crises (Figure 1).



However, the 1970s are an important exception. This period is described in the Anglo-Saxon literature as the “Great Inflation”, when high inflation lasted for more than a decade due to a number of factors. While CPI inflation in the US averaged 2.4 per cent in the 1960s, it was 7.1 per cent in the 1970s. The first and second oil crises in 1973–1974 and in 1979 played a major role in the background of high inflation. However, high commodity prices alone do not guarantee the durability of high inflation, as the attitude of economic policymakers towards inflation was also a key determinant.

Economic policy was significantly influenced by the budget expenditures related to the Vietnam War and the collapse of the Bretton Woods gold standard system. At that time, full employment had been a key objective for policy makers for some time. Meanwhile, the Phillips curve view pervaded decisions, with policymakers believing that the only way to contain inflation was to increase unemployment. The rise in the oil price was seen by economists as a factor outside the central bank's control, but not the unemployment it caused. In this comparison, employment aspects were given higher priority. Inflation remained high, and the Federal Reserve allowed fiscal imbalances to increase, while unemployment did not fall (*Bryan 2013*).

The moderation in price dynamics was ultimately brought about by a significant change in economic policy and economic approach. By the late 1970s, inflation in the United States had become a clear enemy in the eye of the public: confidence in government and economic policy waned and business investments slowed. By 1979, with Paul Volcker at the helm of the Fed, the prevailing winds had shifted: reducing inflation was now seen as the key to policymaking targeting price stability and full employment. Volcker emphasised the Fed's commitment to fighting inflation, by raising interest rates while adjusting the pace of reserve growth to keep inflation down. In addition, gradual liberalisation of the labour market and the decreasing role of labour unions provided major support from the government in bringing down inflation (*Peters 2008*). Success did not come immediately, but credible monetary policy aimed at price stability laid the foundations for inflation control for decades to come.

At the same time, similar developments were occurring in the United Kingdom. Along with the liberalisation of the labour market under the Thatcher government formed in 1979, a tight central bank policy stance emphasising the monetary nature of inflation, in line with the international advance of monetarism marked by Milton Friedman, eventually resulted in a reduction in inflation in the UK (*DiCecio – Nelson 2009*).

The period of “Great Inflation” was followed by 25 years of inflation “peace”. During this period, central banks moved more widely to inflation targeting, the structure of the economy changed significantly, and megatrends such as globalisation and digitalisation, and the increasing role of services all pointed towards lower and less volatile inflation, without any major shocks hitting the economy in this period. Good economic policies seem to have delivered results, but they masked the financial imbalances that the 2008–2009 crisis then relentlessly exposed. The onset of the crisis did not mark the end of decades of low inflation. By then, however, the subdued price dynamics were already a threat, foreshadowing the nightmare of

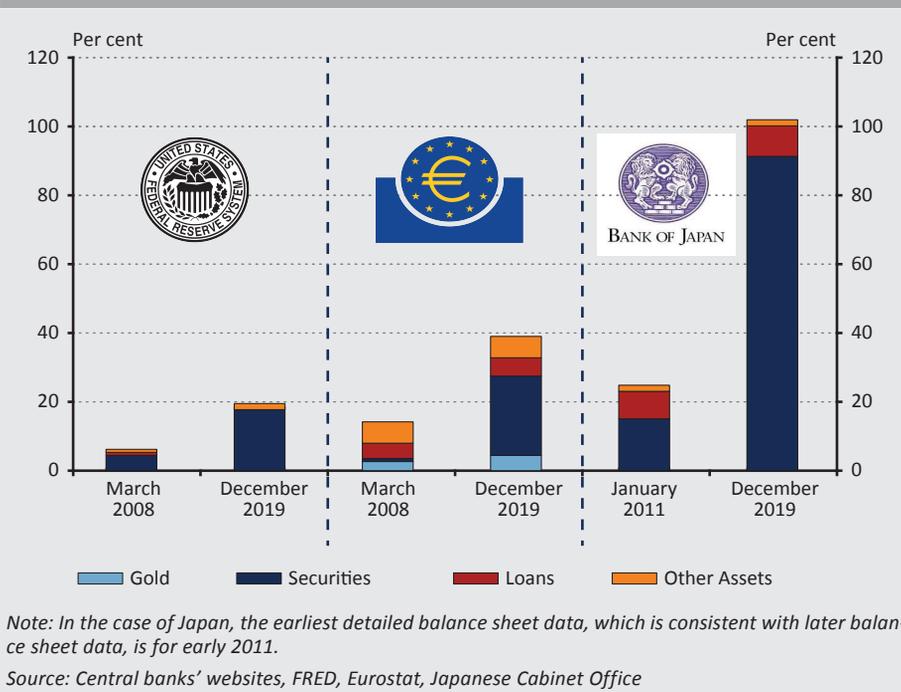
deflation. The winds changed again and, along with reviving economic activity, raising price levels in line with central bank targets became important.

### **3. The 2008 crisis management did not cause consumer inflation, but did cause asset price inflation**

The global financial crisis of 2008 posed a major challenge for economic policymakers, which also applied to monetary policy. On the one hand, in the initial, acute phase of the crisis, rapid intervention was needed in many countries to ensure the stability and proper functioning of the banking system and to mitigate the disruptions in market processes. On the other hand, the crisis proved to be extremely protracted, making the use of innovative monetary policy instruments essential to handle it. In the initial, acute phase of the crisis, central banks mostly tried to avert the interbank market turmoil and restore financial stability through various liquidity-providing measures. In addition, they reacted to adverse macroeconomic developments with significant monetary easing, starting with a cut in the reference interest rate, which reached or approached its effective lower bound within a relatively short period of time.

Responding to the problem of the lower bound of the policy rate, first the Federal Reserve and then other central banks introduced quantitative easing measures. In addition, most central banks sought to temper the longer-term interest rate expectations of economic agents with forward guidance to ensure further monetary easing. In addition to the globally important central banks, many other central banks pursued exceptionally loose monetary policies in the aftermath of the crisis. In general, with a few exceptions, unconventional easing measures led to a substantial increase in central banks' balance sheet aggregates following the crisis (*Figure 2*). The Fed's balance sheet total-to-GDP ratio more than tripled in just over 10 years, while the ECB's nearly tripled. The Japanese central bank's balance sheet as a share of GDP more than quadrupled in almost a decade. These balance sheet expansions were mainly driven by asset purchase programmes.

**Figure 2**  
**Breakdown of the expansion in central bank balance sheets as a share of GDP**



The specific characteristics of the financial systems of the economies concerned and the nature of the problems that emerged during the crisis determined the effectiveness of each asset purchase programme. Overall, however, the programmes were successful in reducing long-term yields, although in the case of the ECB they had different effects in different regions of the euro area (*Eser – Schwaab 2016*). In addition, the programmes contributed to an increase in the inflation of the prices of some assets, with most of the developed stock market indices, real estate and commodity prices all rising significantly. The rise in asset prices is well represented by the fact that by the end of the decade, the US S&P 500 index had more than tripled, the NASDAQ had nearly quadrupled, while the German DAX index and the Japanese Nikkei index had doubled compared to their levels at the beginning of 2010.

However, the asset purchase programmes did not fully achieve their original targets. The real economic impacts of the programmes are controversial: there are large differences between the macroeconomic variables estimated in the literature (e.g. *Engen et al. 2015; Weale – Wieladek 2016; Baumeister – Benati 2010; Hammerman et al. 2019; Andrade et al. 2016*). Inflation rates have remained below the central bank's targets since the crisis. Moreover, the additional real economic impact of

the additional stages of asset purchase programmes is estimated to have been decreasing (*Chung et al. 2011*). The difficulty of measuring the exact impact of programmes further complicates the understanding of their real economic impact.

The idea behind the asset purchases is that the central bank's purchases will make lending to the real economy relatively more profitable for banks as long as money market yields fall, leading to increasing consumption and investments, which will ultimately boost the real economy and inflation. However, in reality, the transmission chains were long and damaged. The central bank's asset purchase programmes opened up favourable investment opportunities in the capital and commodity markets, ultimately leading to higher savings rates. Declining yields thus supported rising asset prices instead of boosting real economic growth and inflation.

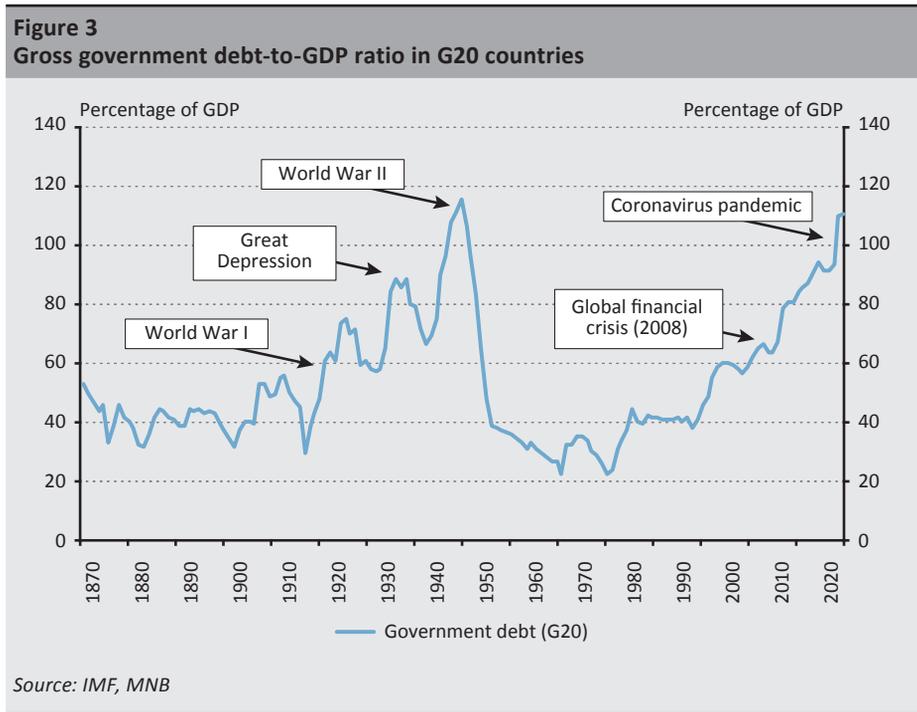
There could be several reasons behind the missing, disputed real economic impact. One of these is that the private sector was heavily indebted at the onset of the crisis, which affected consumption and investment decisions during the crisis and in subsequent years. This led to protracted balance sheet adjustments in the private sector, which hampered the effective transmission of the programmes to the real economy (*Csortos – Szalai 2015*). In addition, there was insufficient coordination between monetary and fiscal policy: while the globally important central banks implemented large-scale programmes, there were no government programmes to stimulate demand (*Aizenman – Pasricha 2010*). Monetary and fiscal policy coordination was hampered, in the euro area in particular, which may have contributed to the smaller-than-expected macroeconomic effects. Moreover, the nature of inflation has changed in recent decades: the strength of the link between economic cycles and inflation has weakened (*Balatoni 2018*). Megatrends (such as demographic trends, digitalisation or globalisation) that may have a downward impact on inflation have continued to strengthen.

#### **4. Why could the coronavirus pandemic trigger inflation?**

The current crisis has different characteristics compared to the 2008 crisis. One important difference between the two crises is that the root cause of the current crisis does not stem from structural weaknesses in the economic and financial system, as was the case in 2008. In addition, there were no credit crunches during the crisis caused by the coronavirus pandemic, and credit markets remained functional. This is mainly due to the fact that the 2008 crisis brought about a strengthening of financial systems and prudential policies, and thus the negative economic effects of the coronavirus pandemic were felt in a context of stable financial systems. In addition, the fact that central banks had to learn to use unconventional instruments during the 2008 crisis, which have since become an integral part of their toolbox, helped them to deal with the current crisis. Taking all

these factors into account, recovery will be determined by the effective containment of the spread of the coronavirus pandemic.

The economic policy response to the crisis has been swift and decisive in advanced economies. The globally important central banks' balance sheets have grown more than in the previous crisis: Between 2008 and 2013, the balance sheet total-to-GDP ratio of advanced central banks typically increased by an average of 2 to 4 percentage points per year, while in the year after February 2020, we observed an increase of 14 to 28 percentage points. This is mainly due to the higher volume of central bank programmes. Programmes have also been better targeted, helping to preserve the liquidity situation of markets. Crisis management has also been supported by stronger coordination between monetary and fiscal policy, with several programmes resulting from central bank-government cooperation. In Hungary, for example, a credit moratorium supported the stability of the private sector demand during the crisis. In addition, governments have implemented substantial fiscal economic recovery programmes. Consequently, negative impacts on the labour market have been less substantial. Due to the significant involvement of the government sector, public debt ratios have risen sharply (*Figure 3*).



Money supply or the monetary base has risen massively in both the United States and the euro area as a result of the huge amount of money issued through the enormous central bank programmes that were implemented in a short period of time. By August 2021, money supply had expanded by almost 40 per cent in the euro area and by more than 80 per cent in the US, compared with January 2020. While the rate of expansion was significant, it should be noted that the increase in money supply does not necessarily imply a surge in inflation: if it is not reflected in consumption but in household savings and corporate balance sheet cleaning, no significant acceleration in consumer prices can be expected (*Bofinger 2020*).

While there has been a rarely seen consensus between central banks and governments on how to deal with the crisis, there are views according to which the handling of the crisis itself has a potential inflationary impact. It is argued that, in addition to being in part a demand shock, the coronavirus crisis has had prolonged negative impacts on the supply side in relative terms. By contrast, the crisis response by different fields of economic policy has been mainly driven by demand stimulation, which could further widen the gap between supply and demand, potentially amplifying inflationary effects (*Larsen 2021*).

In any case, inflation is on the rise again: the negative inflation rate registered in the euro area in the last months of last year has now risen to over 3 per cent. On average, in the first half of 2021, the prices of all major commodities reached or exceeded their pre-crisis levels in 2019 by up to 70 per cent. The slower recovery of global value chains relative to demand has led to increasing cost pressures in global transport and industrial production. Compared to June 2020, the cost of shipments from China to Europe had increased by more than 8.5 times by the beginning of September 2021.

Although temporary at the individual level, the inflationary effects of reopening, and the global increases in commodity prices and transport costs entail the risk that – combined with the demand effects of crisis management – the ensuing higher price dynamics will become embedded in economic agents' expectations, possibly leading to a persistent high-inflation environment. Rising commodity prices open the door to further market speculation, which could push prices higher. Rising wages in a tightening labour market also point to the longer persistence of higher inflation and could even lead to a wage-price spiral. The role of expectations is reflected in the fact that long-term inflation expectations in the US and Europe have been rising steadily since mid-2020, while for the US they have been consistently above target since autumn 2020.

In addition to the above, as a structural factor, some of the current global megatrends may point towards relatively higher inflation in the longer term. Climate change could have an additional inflationary impact on commodity prices, and a shrinking working-age population could lead to tighter labour markets and thus higher wages. With the coronavirus pandemic and geopolitical developments in recent years, the world has moved away from globalisation towards deglobalisation or regional integration. Fragmentation of global supply chains and the appreciation of regional economic policies and production chains may ensue, as economies and major powers become more closed. The transition may also have a price-increasing effect, due to the reorganisation of supply chains.

As in the “Great Inflation” of the 1970s, cost-push inflation is back in the form of rising commodity prices and transport costs. In addition, the crisis management measures implemented by the different fields of economic policy may, within certain limits, contribute to making inflation more protracted, given that buoyant demand is coupled with slowly recovering supply. Expectations play an important role in this framework.

## **5. Introduction to Modern Monetary Theory (MMT)**

In the last century, crises have always brought the strengthening of new economic theories. In the wake of the Great Depression, which began in 1929, Keynesian economics came to the fore. In response to the “Great Inflation” of the 1970s Friedman’s ideas and monetarism came to the, and the ideas of the so-called Modern Monetary Theory (MMT) have increasingly emerged in the economic policy debates during the global financial crisis that began in 2008.

The basic assumption of modern monetary theory is that inflationary pressures depend on the extent to which capacities in the economy are under- or over-utilised (*Powell 2020*). This means that as long as the economy is moving towards full capacity utilisation, there is no risk of persistently high inflation. However, MMT representatives later nuanced the theory: there are many sources of rising inflation that are not reflected in the general state of demand. For this reason, it is important to look at capacity utilisation by sector, even if the economy as a whole is still below full capacity utilisation (*FT 2019*).

As far as economic policy is concerned, according to MMT, the main role is played by fiscal policy, which is responsible for correcting situations of under- or even overutilisation in response to the position of the domestic and foreign private sectors (*Szalai 2019*). Tax policy is an appropriate instrument of correction, and has subsequently been complemented by the development of appropriate regulation, which in some cases can become a more effective instrument. Fiscal policy can take

many forms: green programmes and investments, universal social security, or the solution receiving the most attention: public employment guarantee schemes (Job Guarantee). Anyone can participate in the public employment scheme at a fixed wage below the market rate. The programme contributes to full employment and acts as an automatic stabiliser in times of crisis. This means that in times of crisis, the number of people participating in the programme increases, while the workforce automatically flows back into the competitive sector after the recovery. As a result, there can be less downturn in times of crisis, less erosion of human capital and the basic wage provided under the scheme also supports the achievement of price stability. According to the proponents of MMT, the budget should be planned taking into account real inflation dynamics, and thus changing tax rates and other inflation-reducing items should be taken into account as early as when planning the budget for the year (*FT 2019*).

By contrast, according to the theory, monetary policy has to support fiscal policy and play a role in promoting financial stability (*Matthews 2019; Shirai 2019*). According to the advocates of MMT, monetary policy cannot control inflation and is not independent. This is because fiscal policy, through its spending or tax collection, affects the liquidity of the interbank market, which shifts yields. For example, if the government increases spending, interbank liquidity increases and yields fall. If the central bank wants to neutralise this effect, it sterilises the excess liquidity in central bank deposits. Debt is also monetised through government bond purchase programmes. Ultimately, the impact of fiscal programmes could lead to a rise in central bank balance sheets. Moreover, according to the representatives of MMT, interest rate policy leads to a redistribution among heterogeneous actors, and therefore it is not appropriate to rely on monetary policy alone.

MMT advocates take a novel and welcome approach in their theory. The job of economic policy is to move the economy towards full capacity utilisation. The theory welcomes capacity-increasing investments, encourages the stimulation of demand and is based on the principle that as long as the economy is moving towards potential output, inflation should not be a serious problem.

In theory, however, inflation is controlled by the government. Although with different economic historical and structural features, such as the presence of strong trade unions, the “Great Inflation” of the 1970s was first tackled by governmental means, including wage policy, without success. Moreover, the high public debt ratios of our time increase the risk of fiscal dominance, which suggests that keeping inflation high could be a good way to inflate away huge debts. Government operations are driven by political interests. In this context, reducing inflation through tax measures is a political risk: tax increases are unpopular with the public, and frequent tax changes make the tax system and price developments unpredictable.

The era of the “Great Inflation” ended when central banks stopped passively supporting fiscal policy and began to take full responsibility for fighting inflation. In practice, this laid the foundation of the concept of central bank independence, one of the pillars of which is that the political cycle and the mandate of central bank governors differ in time: central bank operations are not determined by election cycles, but by the primacy of price stability.

In the coronavirus pandemic, fiscal and monetary policies needed to work together to help economies recover as quickly as possible. Historical experience shows that, within the framework of this cooperation, when the current crisis is over central banks – working as the primary responsible agents for price stability, empowered by economic actors – can do the most to achieve the new goal: maintaining economic stability.

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# Successful Convergence in the Visegrád Region: the Example of Czechia\*

Zsolt Becsey, Jr. – Áron Máté

*Czech economic development has been characterised by a steady convergence process over the last almost three decades, with Czech GDP per capita now almost reaching the EU average. In our study we present the factors behind this development in relation to the V4 region and especially to Hungary. Our main finding is that the source of economic growth over the past 20 years has been efficiency and technology improvements, along with improving labour market conditions and a high, favourably structured investment rate. The important factors in this regard include high domestic ownership in most priority sectors, investment in human capital, a relatively balanced regional structure, support for R&D and the rise of digitalisation. The stability of the Czech economy suggests that Western European living standards will be achieved and maintained.*

## 1. Relative level of development of the Czech economy

*In 2000, the relative level of development of Czechia was similar to that of Hungary today, and over the last 20 years it has managed to break out of the medium development level to reach 94 per cent of the EU average. In the following, we look at the cornerstones of this success by the Czech economy. Per capita value added in the Czech economy<sup>1</sup> reached 94 per cent of the EU average (Figure 1). Compared to the other three V4<sup>2</sup> countries, Czechia had a higher level of development at the start. It has not lost this developmental advantage over the last three decades and has continuously maintained it. Although the Hungarian economy has experienced strong growth in recent years, the Czech economy (and for that matter the Polish economy as well) has shown similar economic dynamics. This shows that although Hungary has come significantly closer to the EU average, it has not caught up with Czechia.*

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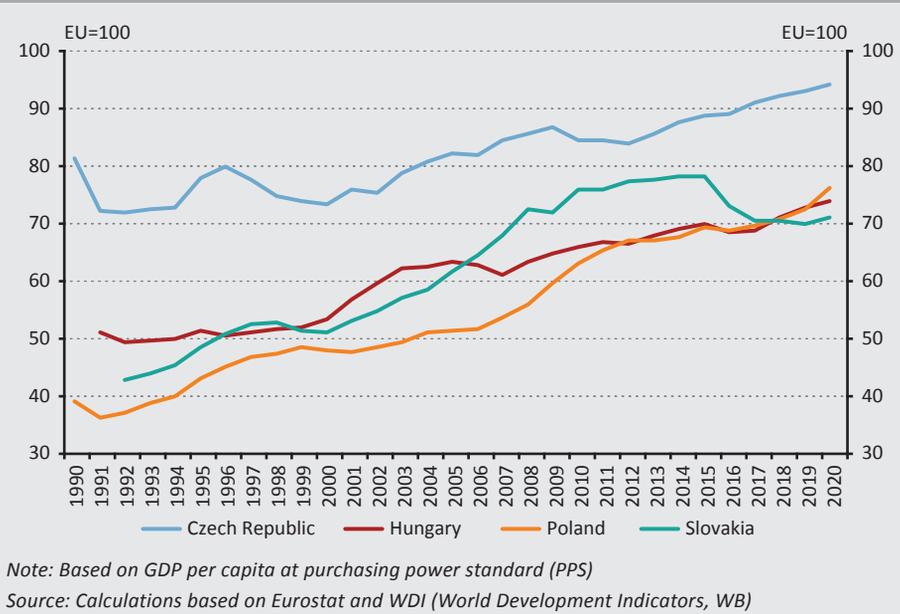
\* The papers in this issue contain the views of the authors which are not necessarily the same as the official views of the Magyar Nemzeti Bank.

Zsolt Becsey, Jr. is an Economic Analyst at the Magyar Nemzeti Bank. E-mail: [becseyzs@mnbb.hu](mailto:becseyzs@mnbb.hu)  
Áron Máté is an Analyst at the Magyar Nemzeti Bank. Email: [matear@mnbb.hu](mailto:matear@mnbb.hu)

<sup>1</sup> Value calculated at purchasing power standard (PPS).

<sup>2</sup> Visegrád or V4 countries: Czech Republic, Poland, Hungary and Slovakia.

**Figure 1**  
Development per capita in the V4 countries compared to the EU average between 1990 and 2019

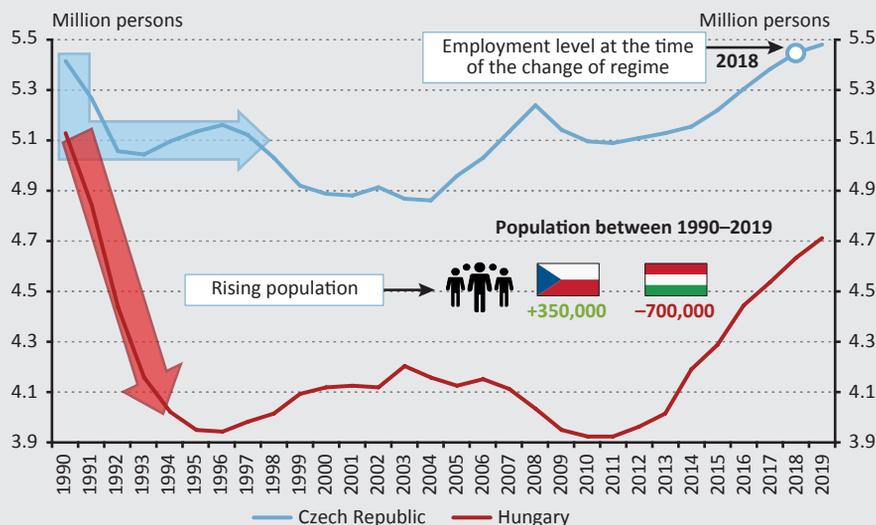


Even before the change of regime, Czechia enjoyed favourable economic conditions, mainly due to its high level of industrialisation. Even during the Habsburg Empire, the Czech provinces had considerable industrial capacities, supported by the “division of tasks” within the empire and the system of internal customs duties, in contrast to the agricultural dominance of the Hungarian territories. Before the outbreak of the Second World War, Czechoslovak industry already accounted for 53 per cent of the total economy, nearly one and a half times the 36 per cent of the Hungarian economy (Solimano 1991). The Czechs maintained their industrial base during the socialist period, which was a favourable starting position also at the time of the regime change, although during this period economic development stagnated in relative terms.

The transition in the Czech labour market in the early 1990s was much milder than in Hungary (Figure 2). While in the years immediately after the regime change employment in Hungary fell by more than 1 million in four years, the Czechs had only about 300,000 fewer workers. Then, after several cycles and an upswing in the labour market in recent years, in 2019 the number of people employed in Czechia still exceeded the Hungarian level by almost 800,000. This is partly explained by the fact that during the same period, the population in Czechia declined significantly less than in Hungary due to natural processes. The roughly 800,000 difference in employment between the two countries is explained by the 500,000 higher working-age population (in this case, the 15–64 age group), while the composition of the population is also

more favourable in Czechia because the share of lower-skilled workers is lower, about two-thirds of that in Hungary (Table 1). Unemployment reached a lower level by the end of the decade, with a rate of 2.6 per cent in 2020 for the 15–74 age group. The labour market has been tight for years: the number of vacancies has been consistently high, above the EU average since 2015. In 2020, job vacancies accounted for 5.3 per cent of all jobs, a record at the EU level and more than three times the EU average. The current higher employment in Czechia is therefore due to the size of the population and the lower share of people with primary education.

**Figure 2**  
Employment in Czechia and Hungary (1990–2019)



Source: Penn World Table 10.0

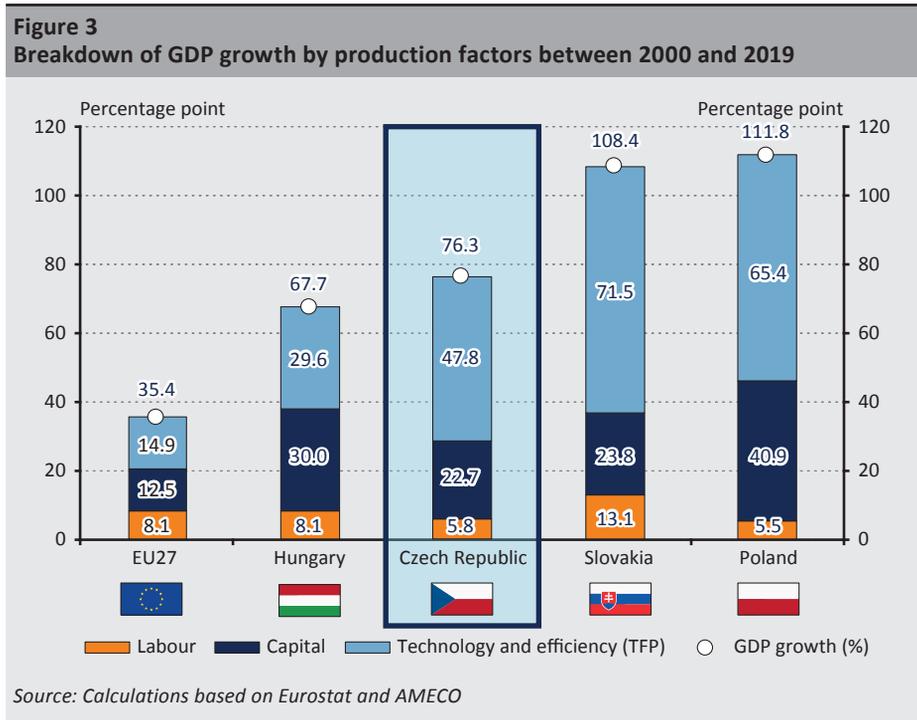
**Table 1**  
Key labour market figures for Czechia and Hungary (2020)

	CZ	HU
<b>Population (million)</b>	<b>10.7</b>	<b>9.7</b>
15–64 age group (million)	6.8	6.3
Employed (million)	5.1	4.4
Employment rate (15–64 age group, per cent)	74.4	69.7
<b>Share of people with primary education (per cent)*</b>	<b>12.3</b>	<b>19.7</b>
Share of people with secondary education (per cent)*	65.6	56.7
Share of people with tertiary education (per cent)*	22.1	23.6

Note: \* as a share of the 15–64 age group.

Source: Calculations based on Eurostat (LFS)

Looking at the developments from the side of production factors, improvements in technology and efficiency have accounted for more than half of the growth in Czechia over the past 20 years (Figure 3), while total cumulative growth has also exceeded the Hungarian figure by almost 9 per cent between 2000 and 2019. A breakdown of growth by production factors shows that the structure of economic expansion in Czechia has been favourable. With the tight labour market, the contribution of labour to growth may have been capped, and firms have been able to boost production by increasing efficiency. As a result, the Czech economy is characterised by strong growth. GDP growth still lagged behind Slovakia and Poland, but those two countries started from significantly lower levels of development than the Czech Republic.

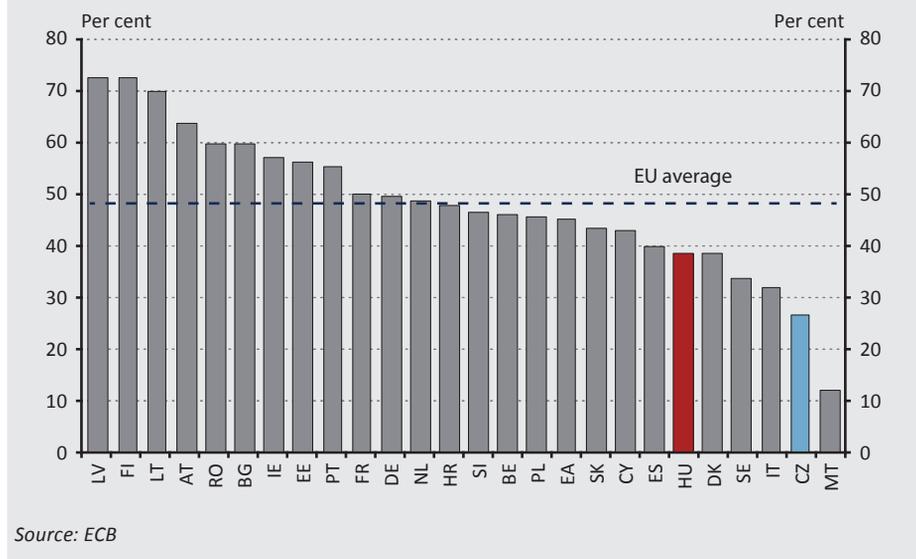


## 2. Structural factors underpinning Czech growth

*Historical factors and fiscal discipline have played a crucial role in Czechia's convergence process.* Already between the two world wars, the Czech economy was on a different path from the rest of the region, with an external debt ratio of less than 20 per cent in 1930 (56 per cent in Hungary at the same time). This was due to the fact that the Czechoslovak territories in the region suffered the least war damage and the country had no reparations obligations. Even after the change of

regime, there was no change of direction in the Czech economy. In 1995, Czechia’s debt-to-GDP ratio was only 14 per cent, a much better level not only compared to countries in the region, but also compared to most EU Member States. Even during the European sovereign debt crisis following the 2008–2009 financial crisis, public debt did not exceed 50 per cent of GDP. The composition of debt, similarly to the ratios seen in the 1920s, remained favourable after the change of regime, with the dominance of domestic financing despite the fact that the majority of the Czech banking system was foreign-owned. Over the past 25 years, Czechia has had the second-lowest share of foreign funding in the EU (Figure 4).

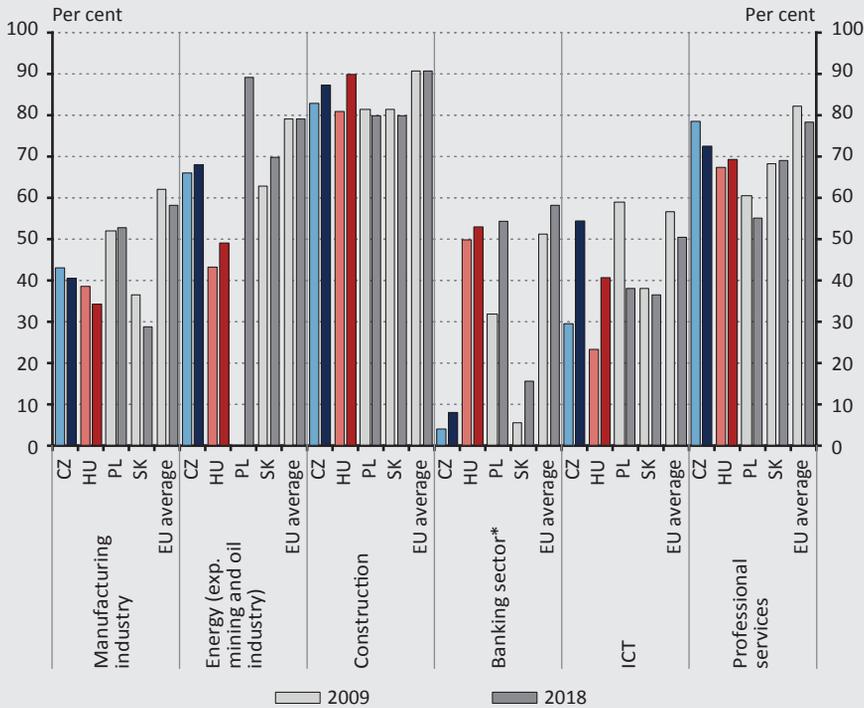
**Figure 4**  
Public debt held by foreign agents as a percentage of total debt (average 1995–2020)



Since the First World War, the current account balance has been continuously supported by a broad industrial base. As a result, the Czech economy can operate with lower spreads (risk premiums) than other former socialist countries.

*Domestic ownership is in the minority in the banking system, while in other key sectors domestic ownership is typically higher than in Hungary (Figure 5). Counterintuitively, higher domestic ownership does not result in a lower GNI/GDP margin in Czechia than in Hungary, which is due to the fact that Czechia had a higher implicit rate of return on foreign direct investment (FDI) income and consequently a higher allocation of FDI income (Balogh et al. 2018).*

**Figure 5**  
Evolution of domestic ownership share in some sectors, in terms of value added



Note: \* Based on the assets of the banking sector

Source: Eurostat or, for the banking sector, ECB

Higher domestic ownership compared to Hungary has resulted in greater embeddedness, higher production multipliers and higher capital exports for Czechia. Production multipliers mean the additional domestic production that is generated through production links as a consequence if the economy produces one forint worth of a product. The multiplier of the Czech processing industry is almost 0.3 higher than the Hungarian multiplier, which means that the use of domestic production inputs as a share of output is twice as high (Figure 6).<sup>3</sup> On the one hand, Czech industry already provided a strong base for the economy before the forced communist industrialisation, and thus, due to historical circumstances, domestically-owned industry is stronger than in Hungary. On the other hand, the Czech privatisation technique during the change of regime was more conducive to

<sup>3</sup> The meaning of the multiplier in the case of Czechia is: one unit increase in gross output results in an additional 0.6 units of output. The multiplier is calculated from the input-output balance generated from the tables of use of resources for 2017, using a Leontief inverse. On multiplier models, see for example Koppány (2017): *Makrogazdasági és regionális hatáselemzés multiplikátor modellekkel (Macroeconomic and regional impact analysis with multiplier models)*.

keeping a significant part of key companies in domestic hands (for more details see *Tóth et al. 2003*). As a result, the share of imports in the manufacturing industry is also lower than in Hungary, but the lower share is also due to the fact that Czechia has a better supply of raw materials than Hungary (ores and mining materials). Due to the higher wage share ratio, the multiplier effect through income channels is also higher than in Hungary (*Figure 6, last row*).<sup>4</sup> The wage share is higher in Czechia, despite the fact that the share of knowledge-intensive (probably highly paid) workers is lower than here.

**Figure 6**  
Indicators explaining the multiplicative characteristics of the Czech manufacturing industry (2017)

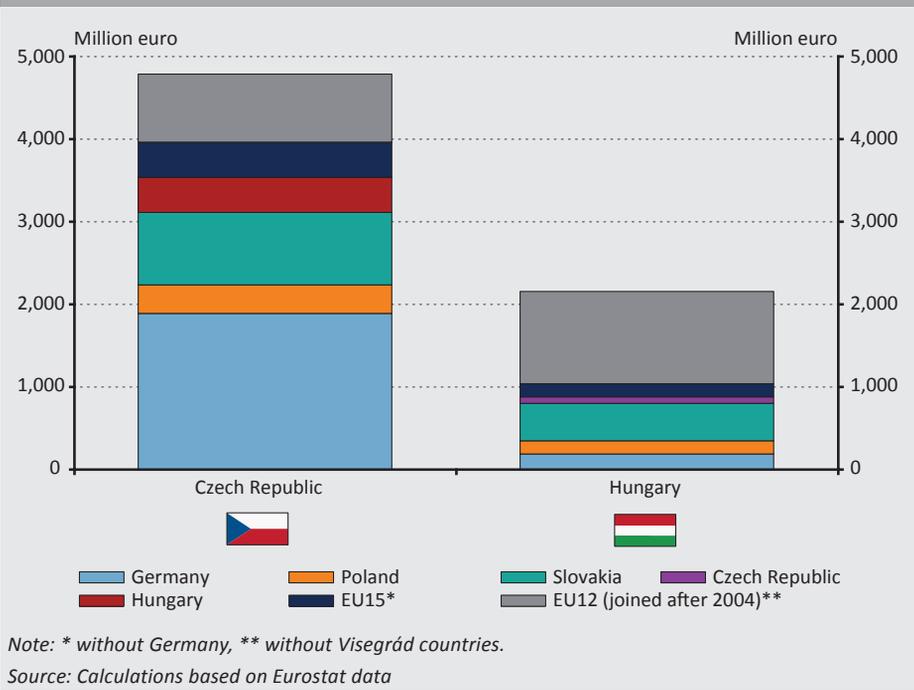
				EU27*
<b>PRODUCTION</b>	<b>Multiplicator (output)</b>	1.6	1.3	–
	Proportion of knowledge-intensive workforce (%)	9.6	12.1	16.2
	Import ratio (output) (%)	36.6	51.3	33.1
	Proportion of domestic ownership in manufacturing (%)	40.5	34.2	65.8
<b>INCOME</b>	Wage share (%)	56.4	50.1	57.7

Note: \*EU27 import share based on data from 19 Member States  
Source: Calculations based on Eurostat data

In terms of capital exports, although neither country has experienced large FDI outflows, Czech firms generate a significant amount of value added abroad, amounting to around EUR 5 billion. Foreign affiliates of Czech entrepreneurs generate more than twice as much value added as Hungarian companies abroad (*Figure 7*). Germany is unsurprisingly the top destination for Czech investment, accounting for 40 per cent of the production (in terms of value added) of Czech companies' foreign interests. In Germany, Czech companies generate about the same value added as Hungarian companies abroad combined. Czech companies are also active in Slovakia, which is explained by historical and cultural factors.

<sup>4</sup> The indicator is not corrected for differences in the tax systems between the two countries, so the wage share as measured by disposable income may give different results.

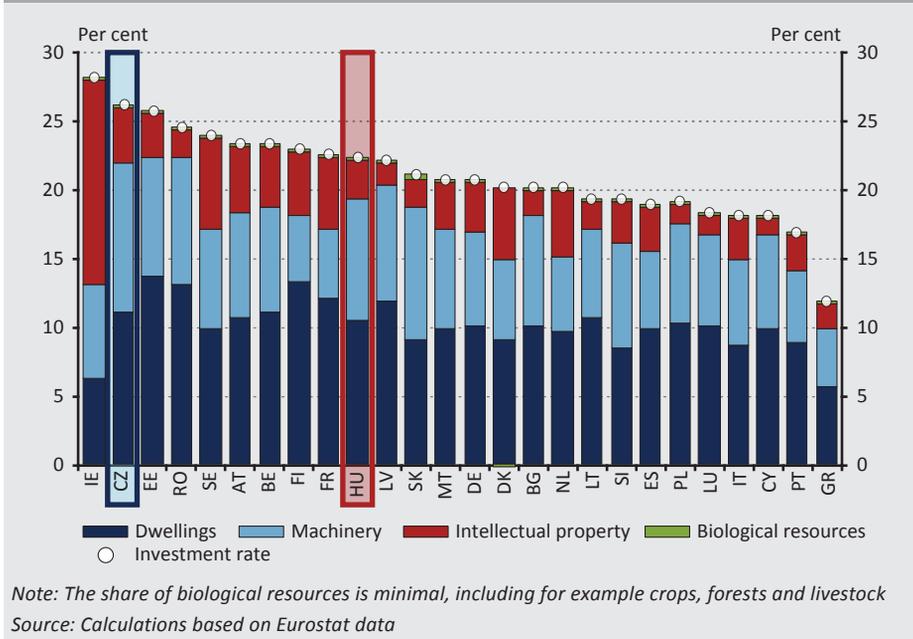
**Figure 7**  
**Value added generated abroad by Czech- and Hungarian-controlled companies in the largest destination countries (2018)**



In addition to high domestic ownership, smart investments have been another important pillar of the Czech convergence process. On the one hand, this is reflected in the fact that the share of intangible assets (e.g. software, databases, R&D assets) has been higher on average over the last 10 years than in Hungary (Figure 8). On the other hand, according to the survey of the directorate of the European Commission examining state aids, the Czech Republic has spent a significant share of state aids on environmental protection purposes in the recent period, which shows that these aids are designed with a long-term perspective.<sup>5</sup>

<sup>5</sup> A large proportion of environmental aid was spent on infrastructure investments aimed at reducing pollution (e.g. railway construction).

**Figure 8**  
**Decomposition of investment rate between EU Member States in the average of 2010–2020**



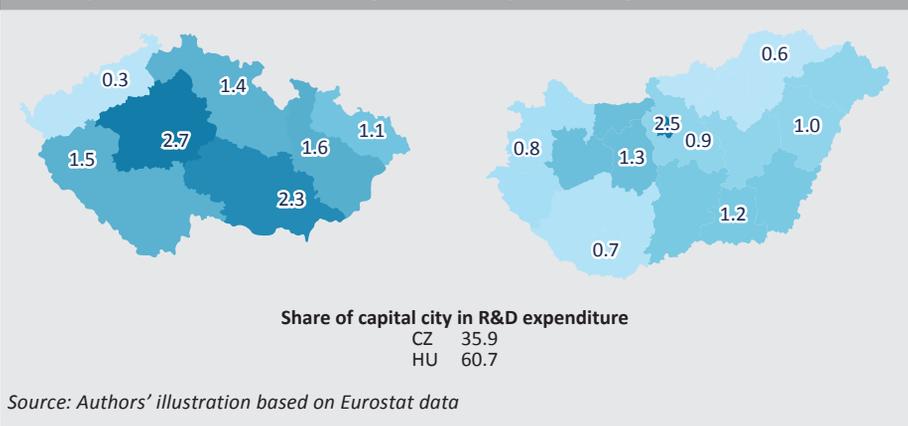
The third important pillar of Czech economic policy was investment in human capital. Although the share of public spending on education has been lower than in Hungary or the EU over the past 20 years, Czechia is ahead of the EU and OECD averages as well as of many developed Western European countries (Austria, the Netherlands and Switzerland) in the PISA tests. The country currently has 3 universities in the world’s top 500, the best ranking among the countries that joined the EU after 2004.<sup>6</sup> In a survey measuring adults’ competences, Czechia ranked in the top third of EU Member States (see MNB 2021, Chapter 4.9). The researchers’ relative labour income exceeds the UK’s per capita expenditure as well as the EU average (expenditures calculated in purchasing power standard). However, there is potential for improvement in health care and disease prevention in Czechia. The adult obesity rate is the 5th highest in the EU, and life expectancy at birth is below the EU average, as in other countries in the region.

<sup>6</sup> Based on QS Rankings, taking all disciplines together. The best Czech university, Charles University, ranked 266th.

### 3. More favourable innovation environment and higher digitalisation in Czechia

Czechia's competitiveness has a broader territorial base than that of Hungary. Prague accounts for 39 per cent of the country's gross value added, while the Brno–Ostrava–Plzen trio together account for 25 per cent. By contrast, Budapest contributes 47 per cent to the country's value added, while the Miskolc–Székesfehérvár–Debrecen trio together only adds another 13 per cent. As a result, the Czech Republic not only has one global competitiveness centre, but at least two (Prague and Brno). This can also be seen in the R&D expenditure data. R&D data are a good indicator of regional competitiveness because R&D should by definition be world-class, and a high level of expenditure indicates a high-quality local ecosystem (possibly with a favourable support system). In the Czech Republic, the Brno region's R&D expenditure as a share of value added (2.3 per cent) was close to Prague's (2.7 per cent), and the region around Prague (Středočeský kraj) also spent 2.7 per cent of its value added on R&D. By contrast, although Budapest's R&D expenditure is similar to the leading Czech regions (2.5 per cent), Pest County is below 1 per cent and the gap between the capital and the countryside is generally wider in Hungary than in the Czech Republic (Figure 9). Funding is also more organic in the Czech Republic, where only 15 per cent of corporate R&D expenditure comes from state support, while in Hungary the share is more than double (32 per cent<sup>7</sup>); thus, Czech R&D companies rely more on their own resources than on state funding.

**Figure 9**  
R&D expenditures as a share of regional GDP by NUTS2 region (2018, %)



<sup>7</sup> <https://stats.oecd.org/Index.aspx?DataSetCode=RDTAX>

*Czech companies are characterised by a high level of digitalisation, especially in online commerce (Figure 10). The digitalisation of Czech businesses is above the EU average – they are ranked 9th – and significantly higher than in Hungary. New technology can help every job in a different way. Solutions that support the flow of information, such as a dedicated web site, e-commerce, the use of computers and communication tools, customer relationship management and business management software are all digital technologies that can significantly raise the productivity of businesses. Czechia is well placed in these technologies.*

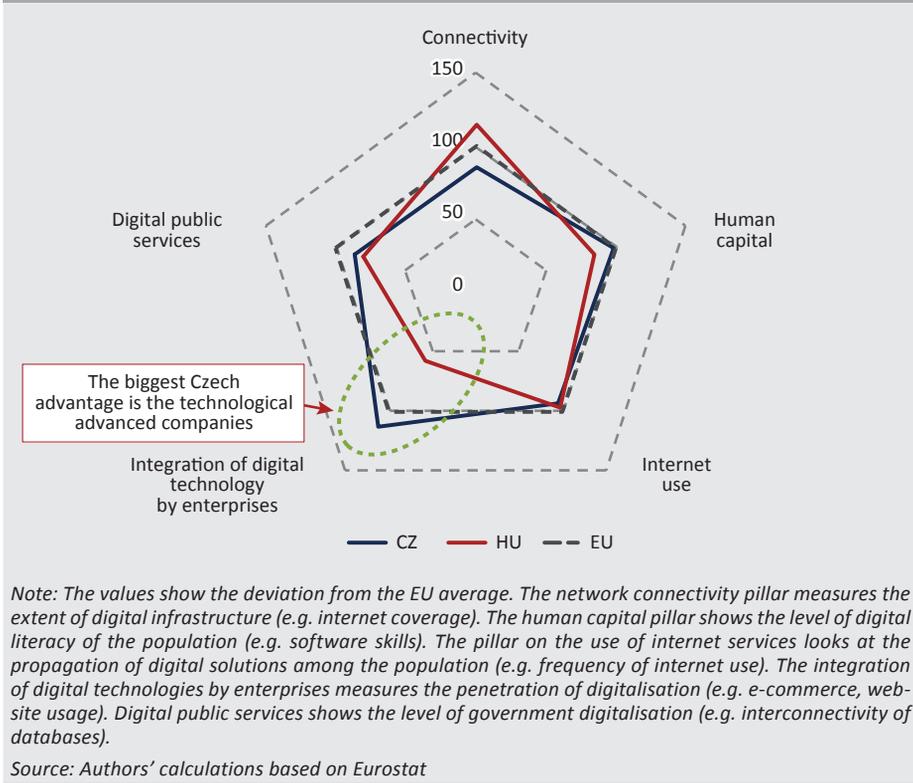
*It is worth noting that e-commerce accounts for one fifth of SMEs' total turnover, the second highest in the EU (Eurostat 2020). 28 per cent of SMEs use online commerce, which also facilitates export activity. Czechia has a high share of digitally intensive SMEs, which provides a pull factor for other companies. The situation is nuanced by the fact that the use of big data and cloud computing is not yet widespread, with between 8 and 16 per cent of companies, which is below the EU average, but the government's strategic programmes are intended to change this in the future.<sup>8</sup> The latter is much needed in Czechia as there is a shortage of digital professionals, which alone may have represented a loss of EUR 11 billion for Czech companies in 2019.<sup>9</sup>*

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<sup>8</sup> The Czech digital strategy for 2020–2027 would receive EUR 361 million to support high-tech start-ups, infrastructure development and artificial intelligence-based digital services, innovative solutions and digital training.

<sup>9</sup> PwC (2019): *Central and Eastern Europe Private Business Survey 2019*. <https://www.pwc.com/gx/en/entrepreneurial-and-private-companies/emea-private-business-survey/cee-epbs-report.pdf> and [https://blog.pwc.cz/pwc\\_ceska\\_republika\\_news/2019/07/nedostatek-zam%C4%9Bstnanc%C5%AF-bude-%C4%8Desk%C3%A9-soukrom%C3%A9-firmy-letos-st%C3%A1t-p%C5%99es-280-miliard-.html](https://blog.pwc.cz/pwc_ceska_republika_news/2019/07/nedostatek-zam%C4%9Bstnanc%C5%AF-bude-%C4%8Desk%C3%A9-soukrom%C3%A9-firmy-letos-st%C3%A1t-p%C5%99es-280-miliard-.html). Downloaded: 30 August 2021.

**Figure 10**  
**Pillars of the Digital Economy and Society Index (DESI) compared to the EU average (2019)**



#### 4. Summary and conclusions

*In this article, we examined the structural and historical factors behind the Czech economy's steady recovery since the mid-1990s. After the change of regime, the transition of the labour market in the Czech economy was more successful (partly thanks to a more favourable form of privatisation), which resulted in Czechia's growing at least as fast as the other former socialist countries, despite its relatively higher level of development. Over the past 20 years, the source of growth has been the improvement of efficiency, in parallel with a tightening labour market and a more favourable investment structure. From a macro-financial point of view, the prudent management of the Czech state (in line with its historical traditions), the fact that the majority of public debt was held by domestic actors and the stable industrial base provided sufficient support for the current account balance provided favourable fundamentals for growth.*

The Czech economy is also structurally well positioned for further growth. The share of domestic ownership in key sectors is higher than in other countries in the Visegrád region (except banking), which may play a role in maintaining the quality of Czech production networks and helping the country to generate nearly EUR 5 billion of value added from Czech companies operating abroad (Hungarian companies produce EUR 2.2 billion abroad). On the innovation side, a more even spatial distribution of R&D expenditure, relatively high researcher wages and a high share of internal resources support Czech economic growth. Czech companies have responded well to the challenges of the 21st century by adapting online sales platforms relatively quickly. A survey also shows that 91 per cent of Czech SMEs have introduced sustainability measures, which is much better than the 77 per cent in Hungary (EC 2020). As a result, we believe it is fair to say that the Czech growth stands on a solid footing and has many lessons for other former socialist countries to learn.

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# **Situation and Financing Capacity of the Hungarian Insurance Market\***

*András G. Szabó – Koppány Nagy*

*The article presents the size of the insurance sector and looks at recent developments and regulatory changes. It briefly describes the impacts of the 2020 coronavirus pandemic on the insurance sector, while also outlining further growth opportunities for the future, in line with a previous publication by the Magyar Nemzeti Bank (the Central Bank of Hungary, MNB). It also highlights the potential of insurance investments to finance public debt and the economy.*

## **1. Introduction**

The primary purpose of insurance is to prepare against risk events in everyday life in a risk community with other customers. The related financial products are mainly contracted at the individual level and can therefore be seen as an important form of self-reliance. Claim and service payments mitigate the losses suffered and, in the case of life insurance for savings purposes, contribute to the redistribution of lifetime income.

Payments following insurance events stabilise the evolution of the economy at the individual level, making its operation more predictable. The relative size of the sector may go hand in hand with its stabilising effect, and thus higher insurance penetration may increase the positive impact of the insurance market on the economy as a whole. The importance of the sector is enhanced by the fact that small, regular payments are made into life insurance for savings purposes, mainly from households, and most of these payments do not divert resources from other investment vehicles, thus increasing the savings rate. The customer wealth thus accumulated can function as a source of additional financing for both the public and private sectors.

## **2. Size of the insurance market**

One measure of the economic importance of the Hungarian insurance market is the ratio of the sector's revenue to gross domestic product (GDP), i.e. its penetration. The gross premiums of insurance joint stock companies and large insurance

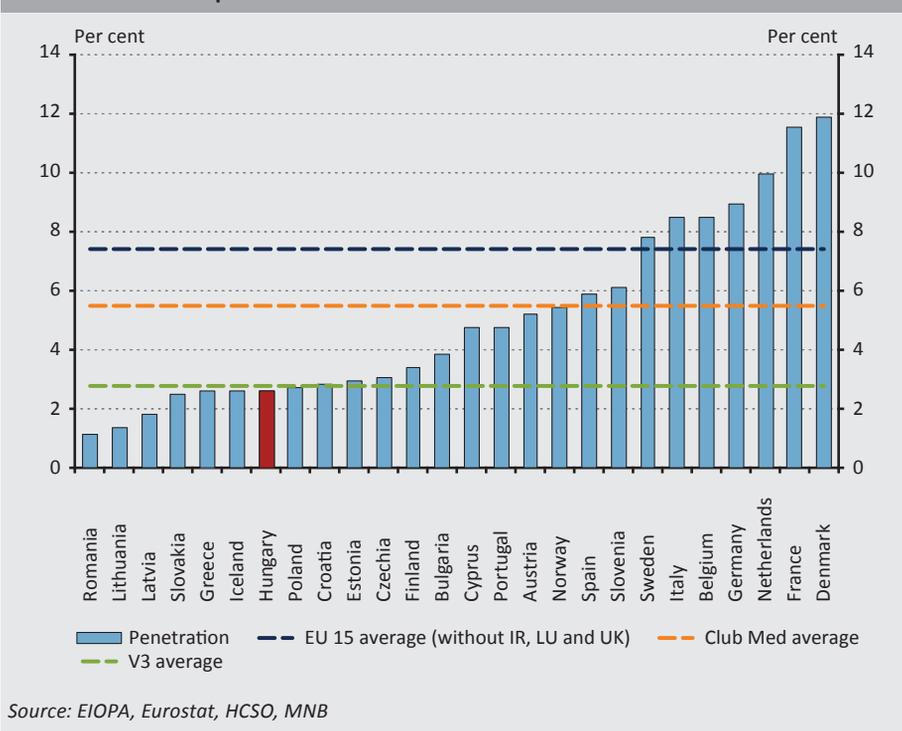
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\* The papers in this issue contain the views of the authors which are not necessarily the same as the official views of the Magyar Nemzeti Bank.

*András G. Szabó is a Senior Analyst at the Magyar Nemzeti Bank. Email: szaboandr@mn.b.hu  
Koppány Nagy is a Director at the Magyar Nemzeti Bank. Email: nagykoppany@mn.b.hu*

associations as a share of GDP was 2.5 per cent in 2020 (Figure 1). Thus, Hungary was in the bottom third of European countries, with the penetration rates in Poland (2.7 per cent) and Czechia (3.0 per cent) being higher among the countries in the region. As a result, the average penetration rate of 2.7 per cent for the other three Visegrád countries also exceeded the rate of penetration in Hungary. Other groups of countries with more advanced economies, such as the Club Med (Greece, Italy, Portugal and Spain) and the EU15, had higher values than the Visegrád countries (5.3 and 7.3 per cent).

**Figure 1**  
Penetration in European countries in 2020



Penetration in Hungary is also low compared to countries with similar levels of economic development, which in itself indicates the potential for expansion in the insurance market. Prior to the 2008 economic crisis, the indicator had been rising steadily, reaching a historic high of 3.6 per cent in 2007. The negative impacts of the crisis decreased demand for the services of the insurance sector, forcing some customers to withdraw their savings in life insurance. The preferential repayment of foreign currency loans during 2011–2012 had a smaller impact, but also reduced savings.

To a large extent, a sustained upturn in the insurance market depends on the macroeconomic environment. On the one hand, non-life insurance, e.g. compulsory motor third party liability insurance (MTPL) or home insurance, requires the existence of an insurable asset, i.e. an increase in the wealth of society. On the other hand, the inflow of savings into the sector from the life insurance side is a source of growth, which can take place at sufficiently high income levels. Finally, as insurance is not currently a basic need of society (life insurance coverage is low), the growth in the demand for insurance can only be achieved with a slight time lag in the context of sustained economic growth.

As a result of the above, the impact of economic growth, which gradually recovered from 2010 onwards and stabilised from 2013, only became more visible in the premium income of insurers years later (from 2016). In addition, growth in the non-life segment was significantly influenced by the evolution of MTPL fees. The decline that started after 2007 was caused by a reduction in claims payments, which are the main determinant in the calculation of premiums, and the spread of the use of digital comparison sites, which increased price competition between insurers' products and pushed down premiums on products. The combined ratio<sup>1</sup> for the MTPL market peaked in 2013, when the product's sector-wide loss was at its highest. Insurers have started to increase premiums on their MTPL products in order to consolidate their losses and as claims payments started to rise again. Consolidation of the business at the sector level was achieved in 2016, when the premiums collected exceeded costs and claims payments again. From that point onwards, MTPL premium income has been a major driver for the non-life segment and for the insurance sector as a whole. The inclusion of the insurance tax in the premiums for this product category from 1 January 2019 also contributed to this over the last 2 years. In addition, growth in the MTPL business has been boosted by an increase of the insured vehicle portfolio, with the number of contracts increasing by almost one fifth (by 1 million contracts) at the sector level over the past 5 years.<sup>2</sup>

One factor behind the unfavourable changes in loss ratios in the MTPL market was the competitive, low premiums from insurers, which led some institutions to underprice due to a lack of full knowledge of the market. The detailed contract and claims database for compulsory MTPL insurance (known by the Hungarian abbreviation 'KKTA'), which was established by the MNB in 2018 and has been in operation since then, provides support to all institutions in the MTPL market to price their insurance contracts prudently. In addition, the granular data stored in the KKTA allows for deeper surveillance analyses than before for the whole market, with territorial (postal code-based) data on contracts and tortfeasors.

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<sup>1</sup> The sum of the cost of a given product and the amount of claims payment in proportion to its earned premium.

<sup>2</sup> MNB (2021): *Report on Insurance, Funds, Capital Market Risks and Consumer Protection*. Magyar Nemzeti Bank. <https://www.mnb.hu/letoltes/kockazati-jelentes-2021-hun-0621.pdf>

A noticeable lack of information was also felt on the consumer side on the MTPL market. The MTPL index developed and published by the MNB in 2021 also allows the average customer to monitor the evolution of premium levels. In addition, by taking into account the estimated average change in damages and tax, it is able to illustrate how the average premium has changed after filtering out the change in damages and tax. The MTPL index can provide the public with a comprehensive picture of the market thanks to data from the KKTA, because it covers not only those who switch insurers, but also the contracts that remain unchanged as well as new entrants.

With the expansion of the range of consumer-friendly financial products, the MNB launched the Certified Consumer-friendly Home Insurance (CCHI) qualification in 2019. With the CCHI, the MNB aims to standardise the content and raise the quality of products in the other major non-life product group, home insurance. Following the insurance product developments in 2020 and the submission of tenders, CCHI-qualified home insurance already became available to customers in 2021. Standardised content has the potential to increase customer confidence via stronger competition and increased transparency.

Turning to life insurance again, mainly due to the importance of life insurance with savings purposes, the stabilisation of economic growth from 2013 onwards brought a return to sustained growth. This was strongly supported by the introduction of personal income tax relief for pension insurance policies taken out after 2014. Pension insurance, along with other life insurance products with a savings purpose, is one of the products for long-term self-reliance, and thus along with an appropriate economic environment, it is essential to build and maintain confidence.

To build customer confidence and avoid the mis-sellings that have occurred in the past, the MNB has worked with legislators and market players to create ethical life insurance regulation.<sup>3</sup> The primary objective of regulating life insurance policies that include a savings element was to increase transparency and comparability at fair value for money. The annual cost rate (ACR), which has been used by the insurance industry in the past and was determined by the MNB at the level of a regulation, has made a significant contribution to achieving the comparability of individual products on the one hand, and the ACR limits set in the MNB's unit-linked recommendation (No. 8/2016) have provided an opportunity to move towards the cost level acceptable to the MNB on the other hand.

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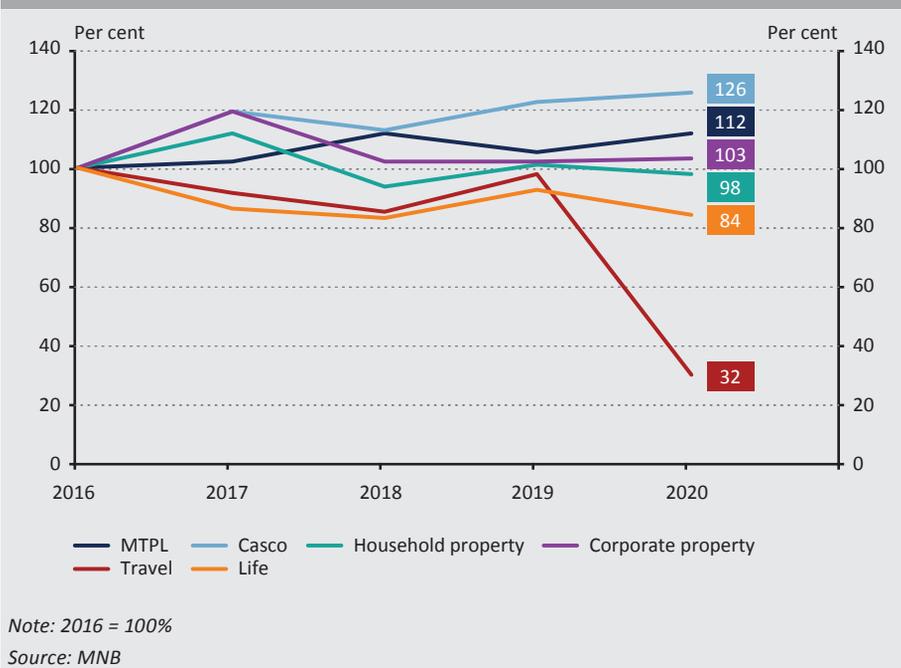
<sup>3</sup> Mátyás, M.D. – Nagy, K. – Szajkó, K. – Szekeres, D. – Szegedi, M. (2016): *Etikus életbiztosítás: evolúció vagy revolúció – Az etikus életbiztosítási szabályozás előzményei, elemei, hatása, nemzetközi párhuzamok (Ethical life insurance: evolution or revolution – The road to ethical life insurance regulation, its elements, impact and international parallels)*. *Biztosítás és Kockázat (Insurance and Risk)*, 3(4): 12–37. <https://mabisz.hu/wp-content/uploads/2018/08/biztositas-es-kockazat-3-efv-4-szam.pdf>

By strengthening customer confidence, ethical life insurance regulation enables the development of a stable portfolio over the long term, making the sector's operation and profitability more predictable than in the past. The regulatory framework, which became complete from 1 January 2017, has not caused a significant decline in life insurance sales, but the targets have been met or there is a shift towards them. Acquisition commission rates have been reduced in line with the new rules introduced, and thus retention (sperative) commissions have been given more emphasis, encouraging sellers to maintain the durability of their portfolio. For the products concerned, the cost levels have decreased in line with the ACR limits set in the unit-linked recommendation, and the direct and indirect costs of asset management have also fallen accordingly. The average duration of the maturity structure of net cash flows associated with unit-linked life insurance contracts has increased, with more emphasis on longer maturities, implicitly indicating the build-up of a stable, long-term contract portfolio.

### **3. Growth after the coronavirus pandemic**

The economic measures taken to mitigate the effects of the coronavirus pandemic had a significant impact on the economic environment in the insurance sector. The average growth rate seen in previous years (2016–2019) was 9.0 per cent, slowing to 4.7 per cent in 2020 due to the adverse environment. If we look at the time series from 2019 onwards, net of the inclusion of the MTPL insurance tax, we can calculate increases of 7.8 per cent and 3.7 per cent for the same periods.

Based on the increment in the number of insurance contracts, however, in the vast majority of products' sale significant decline was not experienced in 2020. Demand for life insurance was somewhat affected by the pandemic. The increment in the number of life insurance contracts for death risk rising slightly, while the number of contracts with savings purposes fell. At the same time, the non-life insurance market continued its normal course, with the exception of one product. Only in the case of travel insurance has there been a significant drop in demand, as lockdowns and international travel restrictions led to a significant drop in demand for the product (*Figure 2*).

**Figure 2**
**Development of the number of contracts**


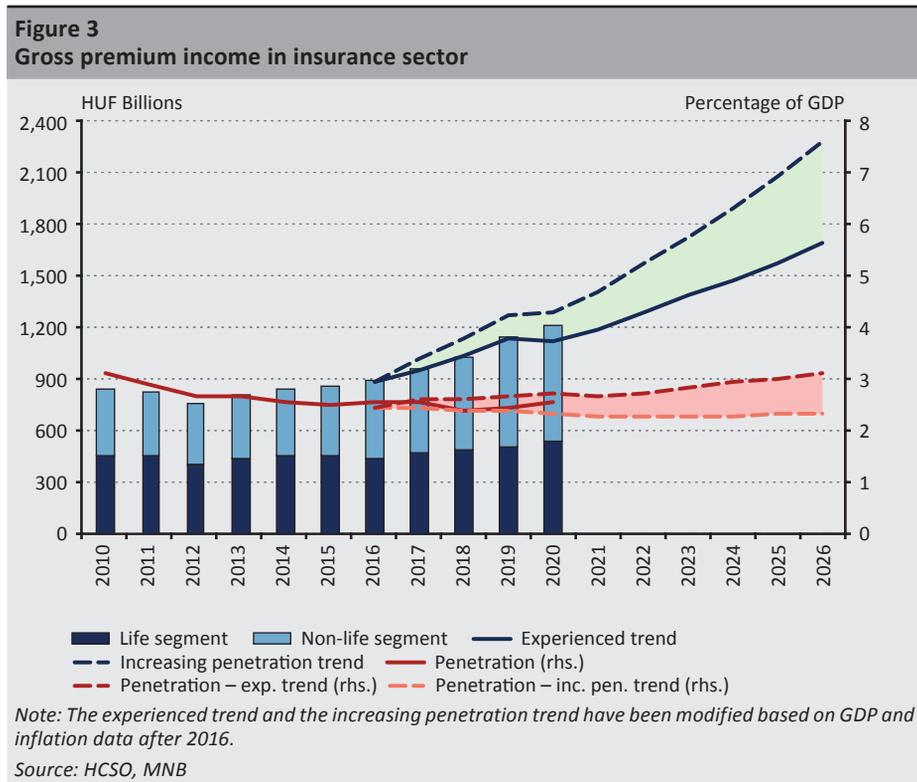
In 2020, it was possible to prevent the decline in premiums that characterised the post-2008 economic crisis thanks to a number of factors that made a difference. The number of people in employment probably remained high among customers with insurance with a savings purpose, and thus they were still able to pay their premiums, even if the overall number of new acquisitions declined compared to the previous year. In addition, the absence of the credit crisis that characterised the previous crisis and the option of a credit moratorium also helped to prevent customers from withdrawing their accumulated long-term savings in life insurance. Following the opening of the borders, the travel insurance business started to grow again, mitigating the impact of the coronavirus pandemic, and the growth in the insurance sector that started after 2016 may continue.

In 2018, the MNB published its paper entitled “10-year future of the insurance sector in 7 points” (hereinafter: FIS) on the future trends envisaged in the insurance sector (and partially the voluntary pension funds).<sup>4</sup> In this publication, the central bank set out the trends and expectations for catching up with mature markets, with a starting point of 2016. Among other things, the MNB outlined several trends for

<sup>4</sup> MNB (2018): *10-Year Future of Insurance Sector in 7 Points – with a Self-care Outlook*. Magyar Nemzeti Bank. <https://www.mnb.hu/letoltes/pst-2018-eng-0319.pdf>

the possible development of premium income, which showed the possible dynamics of the expansion of the insurance sector. Two of these have relevance in the light of the growth in recent years: the experienced trend and the increasing penetration trend (Figure 3).

The experienced trend suggested sectoral growth slightly below GDP growth, based on the past. The evolution of insurance premiums followed this growth path until 2019, but then diverged positively in 2020, due to the fall in GDP caused by the measures taken in response to the coronavirus pandemic. In about 5–6 years from next year, if insurance market growth approximates this trend again, the market size could be one third larger than today.



The increasing penetration trend sets the aforementioned 3-per cent penetration target for the sector by 2026, expecting the rise in penetration to be faster than GDP growth. For this reason, the economic downturn in 2020 brought the sector closer to reaching the target, but in the long term, steps will be needed to facilitate market expansion. The targeted penetration level would be a return to the level achieved in the past (most recently in 2010) and would move Hungary to the top

of the regional ranking. This would require the insurance sector's premium income to grow by roughly an additional HUF 1,000 billion by 2026, from the current level of HUF 1,204 billion, which would exceed the penetration rate in Czechia in 2020.

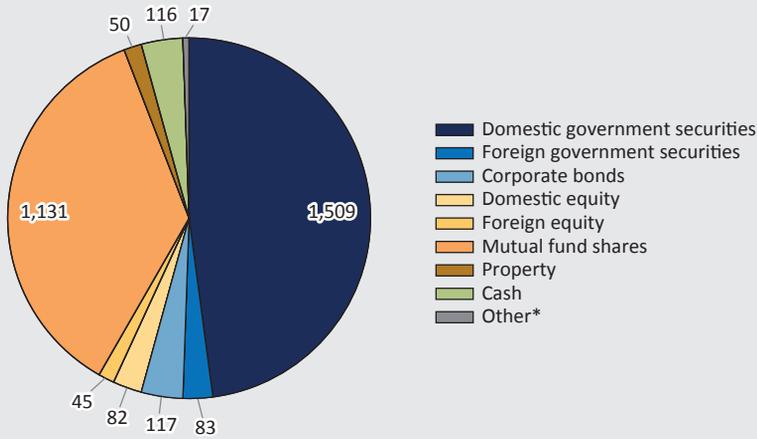
Between 2016 and 2020, growth was mainly driven by the non-life sector, and this trend may continue in the next few years if Hungary's economic convergence proceeds. This is because consumer needs have so far taken precedence over self-reliance, so that there has been demand for insurance products linked to the assets purchased (e.g. homes, vehicles, etc.). In the longer term, however, life insurance could be the main driver of market expansion as wealth needs gradually become saturated and confidence is boosted by the ethical life insurance regulation, and the need for self-reliance increases as demographics deteriorate.

#### **4. Investments**

One of the socially beneficial features of insurance investment is its ability to accumulate small amounts of regular savings from the public and convert them into substantial amounts of investable assets. As premium income strengthens in the life segment, life insurance technical reserves, which are also backed by assets that are part of the customer wealth, may increase further. If the above-mentioned factors help boost savings, significant resources can be made available to support the economy. In addition to reserves, insurers also invest their own funds (which, since the transition to Solvency II in 2016, has been above the 150 per cent capital level recommended by the MNB for the vast majority of market participants), which can thus also serve as a source of funds for the economy.

At Solvency II value, insurance assets in 2020 were HUF 3,150 billion, of which 48 per cent was invested directly in Hungarian government securities (*Figure 4*). Taking into account the underlying asset composition of investment fund shares, this ratio was 52 per cent, totalling HUF 1,650 billion, which was 5.7 per cent of Hungary's HUF-denominated debt. The significant government bonds portfolio in domestic currency is mainly part of the assets underlying the non-unit-linked portfolio.

**Figure 4**  
**Asset composition of insurers' investments (HUF billion) in 2020**



Note: The source of asset values is Solvency II reporting. \* Other category: mortgages, structured products, futures, swaps, options, derivatives, loans, funds of funds.

Source: MNB

On the one hand, insurers prefer liquid assets with a secure yield, which allow them to reliably plan their expected future cash flows, and on the other hand, the advantage of forint denomination is the elimination of foreign exchange risk (investing in the same currency as the expected payouts), for which the Solvency II regime sets a lower own capital requirement. In recent years, the only factor that was able to override these considerations was the low yield environment, but the forint yield curve has not declined to the extent that it would have been worthwhile for insurers to shift their investments into higher-yielding but riskier assets. Because of these two favourable features of Hungarian government bonds, insurers are expected to continue to be stable buyers of these instruments, providing a secure source of funding for Hungarian government debt.

An additional advantage of the insurance sector is that the maturity structure of life insurance cash flows extends beyond 20 years, which may make institutions interested in buying long-term (up to 20-year) government bonds. Currently, a total of 18 per cent of the 2041/A and 2038/A government bonds are held by insurers. As pension insurance continues to grow and life insurance retention in general improves, the institutions could also play an additional debt-financing role.

The second largest group of direct investments is investment fund shares which accounted for 36 per cent of the insurers' assets in 2020. This asset category is used almost entirely to cover the reserves of unit-linked life insurance policies. Shares account for 54 per cent of mutual fund shares, showing that clients prefer riskier forms of investment over institutions in order to have higher return potential.

The economy-supporting nature of investment fund shares is more nuanced than that of government bonds, as 63 per cent of them cover foreign-backed assets. This means that overall, one quarter of the direct and indirect investments within the insurers' assets is used to fund foreign economies, and three quarters of them supply resources to the domestic economy. However, with the convergence of Hungary's economy (including the expansion of the corporate sector), the domestic investment rate may improve, making insurers a natural ally of the Hungarian stock market and economic policy in the long run.

## **5. Summary**

Regarding the relative size of the Hungarian insurance sector, it covers 2.5 per cent of the economy, which is low compared to countries with a similar level of development. The low penetration rate is due to the 2008 crisis and the economic difficulties that followed. However, the sector's premium income improved with the economic recovery, and the positive trend was not interrupted by the economic slowdown due to the coronavirus pandemic that unfolded in 2020, it was only slowed slightly. The portfolio of insurers has proved durable despite the adverse conditions. This was also supported by the MNB's measures, which may further strengthen customer confidence in the sector in the future. There is a good chance that the sector's revenues will grow in line with Hungary's economic performance, and that by 2026 insurance penetration will return to above the 3-per cent level seen in previous periods. Customer wealth accumulated in reserves may increase in line with life insurance premium income. A significant part of the assets invested by insurers is already part of the financing of public debt and represents a relatively large share in providing resources for financing long-term public debt. In the long run, not only can the insurance sector become a growing player in the economy, but it can also help achieve economic policy goals and finance the domestic stock market by converting small, regular savings into substantial amounts of investable assets.

## Urban Planning in an Economic Approach\*

Géza Salamin

*Edward Glaeser:*

*Triumph of the City: How Our Greatest Invention Makes Us Richer, Smarter, Greener, Healthier, and Happier*

*Penguin Books, Reprint Edition, 2012, p. 352*

*ISBN: 978-0143120544*

*Hungarian translation:*

*A város diadala – Hogyan tesz legnagyobb találmányunk gazdagabbá, okosabbá, környezetkímélőbbé, egészségesebbé és boldogabbá?*

*Pallas Athéné Könyvkiadó, Budapest, 2020, p. 428*

*ISBN: 978-615-5884-97-9*

Issues related to urban development processes, planning and improvement had remained far from the mainstream of the science of economics. Although the discipline of regional economics, which became active from the early 1960s, and within it so-called urban economics (cf. *Mills 1987; McCann 2001*), gradually brought the spatial dimension into economic thinking, the role of cities and city-regions in economic growth only visibly appreciated from the 2000s onwards, closely linked to the work of *Krugman (2003)* introducing the so-called new economic geography and *Porter (2008)* introducing competition and the competitiveness of regions. Although the importance of cities in economic development can be considered unquestionable, the urbanist interpretation of urban growth and urban development looking at the broader social, environmental, governance and spatial contexts – i.e. beyond the conceptual framework of economics – has only received more attention from the economic side in the last decade and a half.

In his highly successful book “*The Triumph of the City: How our greatest invention makes us richer, smarter, greener, healthier and happier*”, *Edward Glaeser* deals with the wider context of urbanisation, urban development and even urban planning to such an extent that his work has introduced a kind of economic urban planning approach into broader international thinking. The highly successful book was first published in 2011 by Penguin Press. It was published in Hungarian by Pallas

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\* The papers in this issue contain the views of the authors which are not necessarily the same as the official views of the Magyar Nemzeti Bank.

*Géza Salamin is the President of the Hungarian Society for Urban Planning and Associate Professor at the Corvinus University of Budapest. Email: president@mut.hu*

Athéné Publishing House in 2020. Edward Glaeser (1967- ) is an internationally renowned professor of economics at Harvard University, who has long devoted his career to research on urban processes and the urban economy. His work on the relationship between urban segregation, urban crime and the housing market has received considerable attention, while his most cited work is on cities specialised for consumption (*Glaeser 2000; 2001*). More recently, he has increasingly explored the correlation of innovation and clusters in urban contexts (*Glaeser et al. 2012*).

Even with the somewhat provocative subtitle of the book, the author makes it clear that he does not intend to be unbiased in his assessment of the economic importance of cities, and indeed in many parts of the book he contradicts what is generally considered to be prevailing public opinion. He considers the city to be the greatest “invention” of human civilisation, an answer to the myriad challenges of society, and one that, in his words, actually magnifies the strengths of humanity. The volume is both scientific and educational. As can be seen in the extremely rich notes of the volume, the work is based on the author’s extensive academic work, yet it is written in a way that encourages reading. The narrative, enriched with stories and case studies of specific cities, brings the economic context and consequences of different forms of urban development closer, even to a wider audience.

At the beginning of his book, Glaeser makes clear his view of the economic importance of cities. This means that cities have the potential to generate new ideas and innovation through denser interactions resulting from high population density; they have a hub-and-spoke role, in which transport systems play a key role in node formation and urbanisation; they carry the potential for productivity and thus higher income generation. The importance of cities is illustrated by the strong correlation between economic growth and urbanisation rates when analysed in international patterns. In general, if the proportion of city dwellers in a country increases by 10 per cent, GDP per capita increases by 30 per cent over the same period.

In addition to the introduction and conclusion chapters, the book is divided into nine parts, each of which bears a title formulated as an attention-grabbing question. The chapters deal with familiar urban issues which are also analysed in social science works on cities, but typically with a different and sometimes provocatively positive approach. The main themes of the book include urban knowledge production and innovation, urban decay, slums and tenements, urban scale efficiency and consumption, vertically increasing urban growth (e.g. skyscrapers), urban sprawl, environmental load and urban success, and smart cities.

Above all, cities are emerging as focal points of knowledge. From ancient Athens onwards, it has always been cities that have been the most effective transmitters of knowledge between civilisations, with urban proximity allowing cultures to interconnect. Today, big cities and their sufficiently concentrated inner areas are the

ideal medium for new knowledge, for sharing and exchanging knowledge, and thus for innovation. The author gives the example of Bangalore, India, where a prominent university, a pleasant cultural environment and the attractive climate, as well as the presence of an international company, contribute to connecting Indian talents with the US market. Human capital explains the real success of cities much better than physical infrastructure. Based on his calculations examining US urban areas, the author suggests that if an area's adult population with a university degree grew by 10 per cent in 1980, it resulted in a 22 per cent increase in per capita gross urban product over the next 20 years. Understandably, the recommendations in the book's conclusions highlight the development of human capital as one of the main urban development priorities. The key to cities' real success lies in their ability to attract talent, and he cites Singapore as a good example.

In relation to a number of issues, *Glaeser* argues that phenomena that are commonly perceived as urban problems are not in fact negative side-effects of urbanisation, but positive ones that provide socio-economic solutions to various challenges. For example, the author explains and demonstrates that the presence of urban poverty is not in itself a bad thing, but an essential social function. Indeed, the city attracts poverty because it offers the possibility of upward mobility, i.e. the visible presence of poverty is a sign of social mobility.

Glaeser places particular emphasis on the fact that cities are not only spaces of production, productivity and creation, but have also become centres of consumption, and it follows that they are also, in his words, the most important spaces of happiness (of entertainment). Along with the increase in prosperity, people are increasingly choosing their place of residence and living space according to their lifestyle, consumption and recreational needs, as their financial means increase.

The book also presents a rather provocative view on the environmental challenges facing cities. The idea of returning to a green environment close to nature has a strong tradition in American culture, with housing in a green-natural environment being a major demand in American society. According to *Glaeser*, this kind of love of nature is a false and harmful illusion. He believes that the best way to respect the natural environment is to stay as far away from it as possible and live in dense cities instead. The suburban, mainly semi-natural lifestyle results in a much larger ecological footprint, as commuting distances by car are significantly larger for those living further from the city, while detached houses with gardens consume much more energy and the more dispersed settlement morphology generally results in lower utility efficiency. Traditional, denser cities emit significantly less carbon dioxide by not requiring transport by car (as much). A good example is that less than a third of New Yorkers drive only, compared to 86 per cent of commuters in the US, and New York City has the second lowest per capita energy consumption in the USA.

And the US has a huge global responsibility, accounting for one fifth of all carbon dioxide emissions, which is more than that of Europe and Latin America together. 40 per cent of this comes from car use and residential buildings, both of which are closely linked to the nature of urbanisation lifestyle and the urban structure of the country. According to the author, the suburb model, the dominant trend in urban planning from the early twentieth century to present days, is therefore particularly damaging.

This is not, however, the only urban planning approach, which is typically publicly respected, that the author opposes. He also takes a strong stance against urban zoning that severely restricts construction in cities, especially more intensive development. In his view, where town and country land use planning imposes rigid restrictions on construction because of building or even historical monument considerations, the scarcity of land supply means that property quickly becomes very expensive, limiting development, which generates outward migration from the city. This process contributes to the physical sprawl of cities, what – in line with the mainstream urban planning approach – even he considers as a problem and is dealt with in a separate chapter. At the same time, he elaborates in detail on the advantages of skyscrapers and vertically extensive urban growth in general, which is a hotly debated issue in the current mainstream urban planning thinking that tends to prefer livability and human connections or even the protection of the traditional urban landscape, which is in contradiction with very high buildings.

*Glaeser* analyses the close link between urban development and the economy through historical periods, using a large number of cities as examples. Although his examples seek a global perspective, his basic approach reflects the world of the United States – a large country with a single market – and therefore, from the perspective of European and Hungarian practice, the book is particularly provocative. Despite the growing role of the private sector, in European spatial and urban planning the land-use regulation orienting and restricting development is still very strong. In the US, the mobility of citizens is very high, which also fuels the dynamics of internal migration and relocation from depreciating cities. And the mobility of the wealthy is even more pronounced, so that urban depopulation and growth is more evident, as reflected in the rapid depopulation of former industrial cities (e.g. Detroit), while the geographical mobility of capital within the US market is also higher. The author believes that just as competition is necessary in the world of business, competition between cities and their municipalities is healthy for people and businesses. Competition encourages cities to provide better services and keep prices low. From a Hungarian and, more generally, European perspective, the author's view that the world would be a more productive and fairer place if policies were space-neutral may be particularly strange. Instead of the territorial policies that are present strongly in the European Union, it argues that solidarity should

not be about helping poor places, but only poor people. In East-Central Europe and e.g. in Budapest, we can see that, partly encouraged by EU policies, territory-based and integrated urban regeneration programmes have been explicitly appreciated in urban development over the past two decades, with strong state involvement and significant EU cohesion policy support, although undoubtedly accompanied by increasing involvement of the market sector (cf. *Kocsis 2015; Salamin 2019*). At the same time, the recognition of the economic stimulating role of urban development implemented from public funds is gaining ground also in Hungary, where the economic development-oriented domestic use of the EU Cohesion Policy grants dedicated to urban development became the main approach in the 2014–2020 development period (cf. *Péti 2014; Péti – Salamin 2016*).

The author's USA specific approach and geographical context is well illustrated by the way he expounds migration between cities and states of the USA. While in Europe, living in the reality of nation-states, we may have many social, economic and public budgetary reasons for avoiding large-scale, intra-continental migration, *Glaeser* puts it this way about migration within the US: "When people move to places that are more productive, the country as a whole becomes more economically vibrant. When people move to pleasant places, they enjoy life more, and when they live in more temperate climates, they use less energy."

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## **The “Old Lady of Threadneedle Street” – The Bank of England and the Development of the British Banking System\***

*Bence Varga*

*Richard D. Richards:*

*The Early History of Banking in England*

*P. S. King & Son Ltd., Orchard House, Westminster, London, 1929, 345 p.*

The reference library of the Magyar Nemzeti Bank has a large number of old books that are difficult to find in both domestic and foreign libraries. In this review, I present one of these books, which is considered a seminal work in foreign economic and banking history literature. Published in 1929, the work describes the early days of banking in England. The author of this volume is Richard D. Richards (1881–1937), born 140 years ago this year, who served in the First World War and published extensively after the war, mainly on economic and banking history topics. His research focused on the history of the Bank of England and the development of the British banking system, and he published a number of articles on the subject in various periodicals. Although the present volume deals mainly with the English banking system of the 16th and 17th centuries, it also provides an insight into English banking before that time and in the 18th century as well.

In England, bills of exchange were in use as early as the 14th century, but became more widespread during the Tudor period (1485–1603) as trade expanded. The main trading partners for Britain at this time were France and Flanders, but the wide-ranging connections of English merchants are also shown by the fact that they also traded with African countries, among others, obviously in the context of colonialism. One of the first companies formed by the pooling of capital (joint-stock) was the Company of Adventurers of London Trading to the Ports of Africa, founded in 1553, or “The Guinea Company” as it was then called, which operated some 15 merchant ships and imported African larch from the continent, among many other commodities.

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\* The papers in this issue contain the views of the authors which are not necessarily the same as the official views of the Magyar Nemzeti Bank.

*Bence Varga is a Senior Supervisor of the Magyar Nemzeti Bank. E-mail: [vargabe@mnbb.hu](mailto:vargabe@mnbb.hu)*

In the time of Elizabeth I (1533–1603) and James I (1566–1625), the financial intermediaries in the major English cities were mainly merchants, vendors, money changers and goldsmiths, who were the first “bankers” in England and were then called by that name. In rural areas, it was mainly wool producers and cereal growers who were involved in the trade, so it was common practice for merchants to provide credit to wool producers as advance compensation for the subsequent supply of wool. In addition to the expansion of trade, another important factor that contributed to the proliferation of financial intermediaries was the relatively high level of interest rates that could be charged, which were regulated by law. Act VIII of 1545 allowed an interest rate of no more than 10 per cent to be charged, and although it was gradually reduced in later years (8 per cent in 1623, 6 per cent in 1660, and capped at 5 per cent in 1713), this initial 10-per cent interest rate, which could be considered significant, combined with the nascent insurance products, certainly encouraged entrepreneurship.

In terms of the importance of financial transactions, *Sir Thomas Gresham* (1519–1579) can be highlighted, a merchant who did business in the 1550s, mainly in Antwerp through the Fugger family’s representative office there. Regarded also as the founder of the London Stock Exchange, *Gresham* also played an active role in brokering municipal loans as the “banker of the royal court”. He was also able to provide London with substantial loans, which contributed to London’s later rise to the rank of a financial centre. The city loans were initially granted in large part by English merchants on fairly favourable interest terms for them, as evidenced by records showing that on 24 December 1610 the City of London repaid six English merchants 30,000 pounds of loans at an interest rate of around 3,000 pounds. Later, in addition to merchants, pawnbrokers also became increasingly involved in lending, and in the 1660s and 1670s, especially in the context of unauthorised pawnbroking, usury and the sale of stolen pawned goods were common, posing significant regulatory challenges. “Deposit taking” in England was first started by money changers: there are references from 1616 to “deposits” being placed with the money changers for safekeeping (not for interest at that time), which the money changers could also use to provide loans.

Private banking by goldsmiths also contributed significantly to the economic development of England in the late Stuart period. London’s goldsmiths’ shops were almost like banks during the Stuart Restoration period after the 1660s, as they paid interest on deposits, lent money, discounted bills of exchange in large numbers, exchanged gold bars in their shops, were active in the exchange of money, and recorded all these in ledgers. Several goldsmiths (who in many cases also engaged in pawnbroking) had not only domestic but also foreign clientele, and were involved in financing the royal court and the army. The latter was particularly prevalent during the Cromwellian period, mainly during the First Anglo-Dutch War (1651–1654), but

was also prevalent earlier, in the years of the Civil War (1642–1649). One goldsmith carrying out such complex activity was *Sir Charles Duncombe* (1648–1711), who was later elected to the British House of Commons and mayor of London between 1708 and 1709. Duncombe amassed a fortune of around 400,000 pounds from his business activities, making him the richest member of the House of Commons at the time. Some goldsmiths were commissioned to provide banking services to other goldsmith bankers. They also issued promissory notes, initially guaranteeing the repayment of deposits at all times. Goldsmiths, on the other hand, could later outsource their deposits, and the promissory note they issued was not necessarily backed by money. Thus, it is fair to say that the goldsmiths also performed some of the functions of the later Bank of England by performing banking activity, issuing promissory notes i.e. actual negotiable “paper money”, and acting as creditors. The promissory notes issued were also more widely accepted, subject to certain conditions, first under the Commercial Code, and then, after their incorporation into the civil law system, they became transferable by statute from 1704. The issue of promissory notes was not yet regulated by a central body, and it was precisely this unregulated financial activity that highlighted the need for a central body to carry out the “paper money issue” in an organised, regulated and supervised manner. This circumstance thus contributed in large part to the creation of the Bank of England in 1694. Such goldsmiths exercising banking activities as well were among others the Smiths of Nottingham, the Backhouses and Peases of Darlington and the Vaughans of Bristol who were able to continue their private banking business successfully even after the 1672 Treasury moratorium.<sup>1</sup> Several modern banking houses grew out of the goldsmiths’ earlier private banking businesses, such as the Child’s Bank – mentioned by *Charles Dickens* in his book *A Tale of Two Cities* – which was still in operation in 1923, but the National Provincial Bank, founded in 1692, and the iconic Lloyds Bank also have a similar goldsmith background.

Proposals for the creation of a national bank appeared in great numbers in England in the second half of the 1550s; they sought to organise the institution mainly on the basis of examples of Amsterdam and Venice. In general, the creation of a national bank was proposed at this time to meet credit needs (especially in the cities of London, York, Coventry, Bristol and Exeter), to “subsidise” less well-off citizens, to finance the army and the expenses of the monarchy as well as to expand trade following the Venetian example. In this context, Attorney General *John Cooke* (1608–1660) proposed that the poor should be allowed to receive small loans from the bank without interest. Several proposals were made for the payment of the capital necessary for the establishment of the bank, notable among them a so-called collective payment initiative, under which it was proposed to provide the funds

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<sup>1</sup> The temporary one-year moratorium (“*Stop of the Exchequer*”) of 1672 was introduced by Charles I (1600–1649) to enable the Treasury to use its revenues to prepare for the coming war rather than to pay off public debts.

necessary for the establishment and continued operation of the national bank by a weekly payment of halfpenny per member of households (except the poor and minors), 4 pounds for the wealthy and a regular special tax to be paid by companies and office clerks (since they rarely or never took part in military service).

But it was *Francis Cradock's* (?–1667?) pamphlets "Expedient", published in 1660, and "Wealth Discovered", published in 1661, that made the biggest impact. *Cradock* proposed to divide England into 100 districts, with a national bank (or "Royal" Bank as *Cradock* named it) and a branch bank in each district, replacing the private banking activity of the goldsmiths. He proposed a uniform interest rate ceiling of 3 per cent, that the loan should be secured mainly by real estate, and that the branch banks should also provide loans upon pledges, as *Cradock* envisaged. This idea of creating a regionally based provincial banking network ("land" or "country" bank) was also raised in later years by several writers, such as *Hugh Chamberlen* (1632?–1721?), physician and financial expert, in his "Dr. Hugh Chamberlen's Proposal to make England Rich and Happy", published in 1690, and *Daniel Defoe* in his "An Essay Upon Projects", published in 1697. It is worth mentioning that, in addition to his literary work, *Defoe* was also a frequent commentator on economic issues, and he advocated the Orphans' Fund<sup>2</sup> (or Orphans' Bank as he called it). However, the idea of creating a rural banking network was not widely accepted by the professional community, but these opinions contributed to the creation of the *Asgill and Barbon's Land Bank* in 1695 and the *National Land Bank* a year later. However, land bank-type institutions were less successful, probably due to a lack of public confidence and the extensive and successful lending activities of goldsmiths. Their expansion was further hampered by the fact that in many cases these banks were undercapitalised and found it difficult to raise capital in the face of existing and worsening currency problems.

With the *Tunnage Act* of 1694, passed during the reign of *William III* (1650–1702), the *Bank of England* (or as it was then referred to: "the Bank", and later, from 1797, after *James Gillray's* notorious caricature, "The Old Lady of Threadneedle Street") was created to perform what could be considered primarily traditional central banking functions. Unlike, for instance, the *Bank of Amsterdam*, which has also had a significant influence on the operation of the stock exchange, for example. The *Bank of England* was founded in a rather unfavourable economic environment: the wars with France and the defeat suffered meant that not a single year between 1690 and 1699 was a prosperous one for the English economy. This is probably why, in the early years after its creation, the *Bank of England* was already lending

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<sup>2</sup> Unfortunately, the purpose of the Orphans' Fund changed in later years. In 1766, Parliament decided that the fund could be used for public improvements, so it was renamed the Orphans' and Improvement Fund, and, as orphan relief gradually faded into the background, its name was changed to the *London Bridge Approaches Fund*. However, the Orphans' Fund was the most reputable "institution" after the *Bank of England* at the time.

substantial sums (1.2 million pounds at 8 per cent interest) to the government. Alongside the economy, the English currency was in a very poor state, the silver coins in circulation had been heavily worn and their value (weight) had declined significantly making it difficult for them to be widely accepted, especially abroad, and by 1696, around 10 per cent of the coins in circulation were counterfeit. This led to the Great Recoinage, which took place between 1696 and 1699, at a cost of not less than 2.7 million pounds involving the Royal Mint, led by *Isaac Newton*. Branches were also set up to mint coins in the cities of Bristol, Chester, Exeter, Norwich and York. However, the coin exchange did not go smoothly, the process was preceded by a number of professional debates, minor panic on the part of the public and considerable volatility in the value of the precious metal and the exchange rate. Before the recoinage was completed, there was a chronic shortage of money, which was addressed by the decision of *Charles Montagu* (1661–1715), Earl of Halifax, Chancellor of the Exchequer, to issue treasury bills to replace the coins. The recovery of the economy, the stabilisation of the currency situation and the establishment of the Bank of England were therefore the result of a rather lengthy and resource-intensive process; *Richards* summarised the overall situation as follows: “Avoiding national bankruptcy was a remarkable achievement. That the Bank of England did not immediately collapse was even still more remarkable.” *Defoe*, in his aforementioned work “An Essay Upon Projects”, expressed similar praise for the creation of the Bank of England under these circumstances, calling it a “particular glory” of the English nation.

The challenges did not disappear in the years following the establishment of the Bank of England as the volume of new coins put into circulation through the recoinage was initially insufficient and the cash shortage intensified in later years. These circumstances led to a bank run and a partial suspension of cash payments in May 1696, as a result of which the price of the central bank’s shares gradually fell. This tendency intensified on the eve of the forthcoming War of the Spanish Succession (1701–1714), and the fall in the exchange rate was exacerbated by the fact that several shareholders were unable to pay their contributions to the capital of the central bank, forcing them to sell all or part of their parcels of shares. As a result, no dividends could be paid in the years following the Bank of England’s creation in order to consolidate the capital position. However, the following period was more favourable, leading to a strengthening of the Bank of England’s status (for example, through the capital increase implemented or the restriction on the rights of rural banks to issue banknotes). It is worth noting that until 1826, the Bank of England was the only English joint-stock bank. The central bank was finally granted the exclusive right to issue banknotes in 1844.

Although book reviews are typically given on recently published books, we think that it may be useful to pick up literature such as this and similar must-read books from time to time. It can also be observed that there has been a growing interest in textbooks on banking history, presumably as economic crises have become more frequent. Thanks to this book, which was published more than 90 years ago, it is possible to find much new information, as it is unfortunately difficult to find a book published in Hungarian, not only this volume, but also in this field. Finally, as we approach the centenary of the founding of the Magyar Nemzeti Bank, it is worth remembering that the circumstances of the Bank of England's foundation were not the only crisis in the history of European banking systems: the Magyar Nemzeti Bank was also established under extremely difficult circumstances, as the defeat suffered in the First World War, the human, material and territorial losses suffered by the country, and the problems of currency stabilisation also posed significant challenges for Hungarian economic policy. It can be mentioned as a further parallel that Hungarian currency stabilisation was strongly facilitated by a loan from the Bank of England, which was made possible to a large extent by the dynamic boom in foreign relations between the United Kingdom and Hungary during this period, not least thanks to the personal prestige and widely accepted professional recognition of Hungary's first central bank governor, Sándor Popovics.

## **Report on Discussions at the 2021 Annual Congress of the Hungarian Economic Association on Finances, the Euro, Green Finance and Competitiveness\***

*Ferenc Tóth – Pál Péter Kolozsi – Balázs Lóránt – Katalin Juhász*

On 23–24 September 2021, this time in a hybrid format, the Hungarian Economic Association (HEA) held its 59th Annual Congress, which is one of the most significant annual conferences of the Hungarian community of economists, and also the largest. At the Annual Congress, in addition to the opening and plenary sessions, video recordings of the interesting panel discussions of 22 thematic sections were available on the Internet. The opening plenary addresses were given by *György Matolcsy*, Governor of the Magyar Nemzeti Bank (the Central Bank of Hungary, MNB), *Diána Ürge-Vorsatz*, physicist, climate researcher, professor at the Central European University and vice-president of the third working group of the United Nations Intergovernmental Panel on Climate Change (IPCC), *Kaushik Basu*, former President of the International Economic Association and former chief economist of the World Bank, and *László Domokos*, President of the State Audit Office of Hungary. This report gives an account of the roundtable discussion of bank executives, the exchange of views between the vice-presidents of the central banks on the introduction of the euro, the issue of green finance, and the section meetings on the state providing incentives for competitiveness and sustainability.

Moderated by *Barnabás Virág*, Deputy Governor of the MNB, roundtable discussions were held with senior executives of Hungarian commercial banks. The participants were *Éva Hegedüs*, President & CEO of GRÁNIT Bank Zrt., *László Bencsik*, Deputy CEO of OTP Bank Nyrt., *Radovan Jelasić*, President & CEO of ERSTE Bank Hungary Zrt., President of the Hungarian Banking Association, *Balázs Szabó*, Head of Corporate Business of CIB Bank Zrt., and *Gábor Soós*, Deputy CEO of UniCredit Bank Hungary Zrt., Head of Corporate and Investment Banking Division.

The discussion addressed the Hungarian banking market and international banking trends. By way of introduction, *Barnabás Virág* offered a brief assessment of the

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*Ferenc Tóth is a Senior Economic Analyst at the Magyar Nemzeti Bank. Email: tothf@mnb.hu*

*Pál Péter Kolozsi is a Director at the Magyar Nemzeti Bank. Email: kolozsip@mnb.hu*

*Balázs Lóránt is a Junior Analyst at the Magyar Nemzeti Bank. Email: lorantb@mnb.hu*

*Katalin Juhász is an Analyst at the Magyar Nemzeti Bank. Email: juhaszka@mnb.hu*

current situation: one of the general global lessons of the 2008–2009 crisis was that banks tend to behave pro-cyclically, i.e. they increase lending in times of economic boom and reduce lending in the event of problems, aggravating the severity of the crisis. By contrast, in Hungary the experience over the last year and a half has been that both the retail and the corporate credit markets have been particularly important pillars in crisis management, assisting the economic recovery with their activity. *Barnabás Virág* asked the participants about the underlying reasons. In their responses, the participants explained that in 2008 there was a global financial and confidence crisis, and while the epicentre of that was a vulnerable banking system, all sectors were equally affected. The current crisis is structurally different, as it has affected some sectors very negatively, while allowing others to grow considerably, the significant development of digital infrastructure being a case in point. In 2008, Hungary was facing a grave macroeconomic and lending situation, whereas now the fundamentals of the economy were particularly good, and customers were helped by a number of measures, the banking system had a high level of capital and sufficient liquidity, and therefore lending could increase. One key step was the MNB's Funding for Growth Scheme, which provided the banking system with long-term, interest-free funds, contributing to the restoration of trust between customers and banks. As bank managers had learned a great deal from the previous crisis, they were now better prepared, and state guarantees and guarantee schemes also facilitated lending to a large extent. The fact that the health crisis has been managed adequately and the performance of the economy as a whole has been excellent gives grounds for optimism both internationally and from a Hungarian perspective.

*Barnabás Virág* pointed out the existence of a credit expansion in all segments of lending. The credit dynamics of small and medium-sized enterprises remain above 20 per cent. The volume of new housing loans is at a historic high. The volume of loans subject to the moratorium is gradually decreasing, although it is still significant. The question was raised as to expectations in that regard. Banks are unable to provide accurate figures and their estimates are broad in scope. They consider the regulation to be very permissive, allowing borrowers to stay in the moratorium in some cases where this is not justified. At the same time, there is no liquidity problem at the level of the banking system, and given the conservative lending, the healthy functioning of firms and the resulting good credit portfolio, it is thought that fewer and fewer borrowers have problems that would compel them to stay in the moratorium. He pointed out that it was in the interest of those customers who were able to repay their loans to do so as soon as possible. Compared to the past, a major difference with the third moratorium is that it requires customers to opt in and will not apply automatically. Banks are engaged in ongoing communication with their customers and will conclude individual agreements when there are actual problems. In neighbouring countries, moratorium periods have already ended, and international experience has clearly

shown that the non-performing loan portfolio has not increased significantly. Banks are optimistic about the evolution of the Hungarian non-performing loan portfolio.

*Barnabás Virág* then moved on to the evolution of the corporate credit market. As inflation emerged, the MNB started a tightening cycle and the FGS was phased out. Under these circumstances, what trends do banks expect? The senior bank executives said that the interest rate increase is not the biggest problem for companies. This is due in part to the fixed interest rate on FGS loans, and in part to the fact that problems result from the shortage of raw materials and increases in prices, as well as from workforce-related difficulties. The MNB's Bond Funding for Growth Scheme has given companies enormous liquidity. Despite the increase in the base rate, demand for loans (mainly related to investments) did not decrease; indeed, it even increased as companies remain able to finance their operations at negative real interest rates. Dynamic retail credit growth is expected in the area of families' first home allowance (CSOK). Consumer lending will also be strong thanks to rising wages. Tight competition between banks will also help to ensure that loans do not become too expensive, and bank margins are expected to fall.

The next subject was digitalisation. *Barnabás Virág* said that although Hungary had a developed IT infrastructure, the penetration of internet banking was still relatively low, with only 60 per cent of internet users using it. What could be the reason for that? According to the commercial bank executives, while this is partly an educational issue, the penetration of internet banking is increasing and is higher in Hungary than in the neighbouring countries, and customers are increasingly open to the use of internet banks and mobile banking applications. In addition, the further uptake of digitalisation is also a legal issue in that the legal environment should not prevent the digitalisation of the widest possible range of banking products. In this context, the issue of the entry of BigTech into certain banking sub-markets was raised. Currently, particularly in the European Union, banks are regulated much more strictly than BigTech companies, resulting in a lack of level playing field, which can be dangerous. In particular, the rules on the processing and availability of data should be consistent. The banking system must retain its stability in a rapidly changing world. BigTech companies are not able to compete with banks in all areas, only in certain sub-markets such as payments, but are not suitable for long-term lending.

After that, *Barnabás Virág* mentioned banking consolidation and efficiency due to economies of scale, which was an important message of the 2008 crisis. According to the banks, this process is taking place all over the world, representing a natural direction, and is a necessary step also in Hungary, one example being the Hungarian Bank Holding.

With regard to cryptocurrencies, the bank opinion was that bitcoin, for example, is the money of illegal trafficking (e.g. in humans and drugs) and has taken off on the back of money laundering, because it falls outside the regulatory framework. It is also a speculative and volatile instrument that is not expected to be competitive with legal activities in the long run. At the same time, 86 per cent of the world's central banks are actively conducting analyses in connection with the introduction of a central bank digital currency, and about 60 per cent of them have already reached the phase of pilot projects, indicating that the digital transformation has also reached central banks. The commercial banks said that such efforts should be supported, as CBDC could be a regulated currency, unlike market cryptocurrencies, which are not subject to any regulations, including in terms of investment protection. However, when the technology is used by a central bank, it will create a completely different situation that can contribute to the reduction of cash payments, and this can be a realistic direction as opposed to market cryptocurrencies. *Barnabás Virág* recommended to the participants the book published by the MNB on this subject a few months before.<sup>1</sup>

The session was concluded by a discussion about the green transition, which will determine the operating model of the future. The key to the 21st century is sustainable development, in which banks must participate actively. *Barnabás Virág* noted that the MNB is the first central bank in Europe with a green mandate and has already developed its green strategy, as part of which it launched its Green Mortgage Bond Purchase Programme and its Green Home Programme. Nevertheless, the carbon exposure of the Hungarian banking system remains high and has not decreased in recent years. The commercial banks indicated that they have an adopted strategy and comply with the call in this regard, participate in green finance, and even address the issue of social responsibility, taking sustainability criteria into account. Hungary will have a carbon-neutral bank as early as next year.

In the European Union section, the deputy governors of the central banks of five Central European countries – Croatia, Czechia, Hungary, Poland and Slovakia – expressed their views on the conditions, advantages, disadvantages and risks of introducing the euro, in the panel discussion *Monetary decisions in Central Europe. Euro today, tomorrow or after tomorrow?* attended by *Marta Kightley*, First Deputy Governor of the National Bank of Poland, *Marek Mora*, Deputy Governor of the Czech National Bank, *Michael Faulend*, Vice-Governor of the Croatian National Bank, *Barnabás Virág*, Deputy Governor of the Magyar Nemzeti Bank and *Ludovít Ódor*, Deputy Governor of the National Bank of Slovakia, and moderated by *Gábor Iván*, Chair of the European Union Section of the Hungarian Economic Association.

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<sup>1</sup> *At the dawn of a new age – Money in the 21st century*. Magyar Nemzeti Bank. <https://www.mnb.hu/en/publications/mnb-book-series/at-the-dawn-of-a-new-age-money-in-the-21st-century>

The discussion started with a statement by *Ursula von der Leyen*, President of the European Commission (EC), that “the euro is a tangible symbol of European unity, prosperity and solidarity”. The question was to what extent this has been reflected in the results achieved so far and in the lessons learnt from the introduction of the euro. In that context, *Ludovít Ódor* first reviewed the latest results of the Eurobarometer surveys. 80 per cent of respondents think that the euro is a good thing for the European Union (EU) as a whole, because they believe that its use makes it easier to conduct business. In his opinion, the euro as a single currency reflects European unity. The signs of solidarity were readily apparent even during the sovereign debt crisis, and so they are in the Covid-19 crisis. While there are both good and bad examples in relation to prosperity, he stressed that the most important issue when joining the euro area is to change our mindsets and approaches, along with our policies, because eventually it is not the euro, but our economic policies that may succeed or fail.

*Marta Kightley* began her contribution by saying that European integration is a very important political initiative aimed at improving the economic prosperity of EU citizens by supporting balanced economic growth. That said, in weighing the costs and benefits of euro accession, the balance of the two depends on a number of factors. Convergence in the euro area has stalled over the last ten years; indeed, in some countries divergence and the increasing dispersion of economic cycles can be observed. The euro area was able to respond to the 2020 crisis in a completely different way than to the previous one. In the previous crisis, Poland was better off pursuing an independent monetary policy, which enabled it to avoid a recession as the depreciation of the zloty improved price competitiveness. During the current crisis as well, Poland’s policy-makers responded quickly, and although the country dipped into recession, it was one of the mildest in Europe.

*Michael Faulend* agreed with the EC President, as the euro served and continues to serve as an umbrella for the euro area, especially during the coronavirus outbreak. The euro is clearly the most tangible Community symbol, and European citizens feel European precisely because the single currency has become part of people’s daily lives. In addition, the euro is the second most important reserve currency in the world. Whenever a country adopts the euro, its economic and political reputation immediately improves. The attractiveness of the euro is due to its direct and positive impact on growth potential, to the enhancement it provides in resilience to negative shocks, in cost-effectiveness and in competitiveness, and to the fact that it improves access to international financial markets. This contributes to the growth of investments, employment, and the economy as a whole. As regards solidarity, he stressed that the countries hardest hit by the crisis had received subsidised emergency funding.

*Marek Mora* shared his reservations about the statement of the EC President and explained why Czechia is the most sceptical about the euro. In his opinion, the picture is somewhat mixed when it comes to prosperity and unity. For example, in terms of GDP per capita, the eurozone still lags behind the United States, Japan and the United Kingdom, and in the first decade of the euro GDP per capita growth was weaker than in these countries, although it performed better in terms of the activity rate. Despite the objective, economic convergence has not been achieved in the euro area, while Czechia, which is not a euro area Member State, is steadily converging towards the euro area average, as its monetary and economic policies are functioning properly. The euro area was essentially established with political considerations in mind, which differed significantly from the Maastricht criteria, and this is causing a persistent problem within the euro area due to its structural weaknesses.

*Barnabas Virág* was sceptical and considered that the EC President overestimated the role of the single currency in terms of European unity, prosperity and solidarity. He agreed that in the last decade, significant results have been achieved, whereby the perception of the euro has improved. The fact that the current crisis has been managed much better compared to the previous crisis is another major accomplishment. Nevertheless, a number of areas remain to be improved. Over the last two decades, the share of the euro area in global GDP has declined, and the relative size of GDP per capita has also declined or stagnated in a significant number of euro area Member States, casting doubt on the role of the euro as a symbol of prosperity. The institutional reform of the euro area is still incomplete, despite progress regarding a number of important aspects. Previous current account deficits have been eliminated in the southern Member States of the euro area, but GDP levels in Italy and Greece, for example, still fall considerably short of those seen in 2008. As a country outside the euro area, Hungary faces the task of achieving sustainable convergence in the long run and adequately timing its adoption of the euro.

The next question by the moderator was whether the CEE region was sufficiently competitive and whether it has succeeded in achieving the level of convergence required for the introduction of the euro. *Marta Kightley, Deputy Governor from Poland*, said that Poland and the region as a whole have done a lot to catch up over the past 20 years, but much remains to be done. Although the country has integrated into regional value chains and has increased its share of world trade, Polish development is based on cheap labour and is less innovative than in countries of the euro area, while the structure of its economy is also different from that of the euro area.

According to *Michael Faulend, Vice-Governor from Croatia*, the euro area's problems are not due to the euro, but to the flawed economic policies of some countries, in particular fiscal and wage policies, and the limitations of monetary and exchange rate policies must be taken into account. Croatia is a small euroised economy, and as such it has a vested interest in joining the euro area as soon as possible. The level of convergence achieved or the criterion for an optimal currency area are not appropriate indicators against which to take an accession decision.

*Marek Mora, Deputy Governor from Czechia*, said that they had addressed the issue of accession annually since 2008, and that on each occasion they had concluded that accession was not yet needed. In his opinion, the country meets almost all of the conditions and could accede to the euro area at any time and would easily stand its ground subsequently, but accession is essentially a matter of political will. In fact, he advises against accession because of the major structural weaknesses of the euro area.

According to *Barnabás Virág, Deputy Governor from Hungary*, the most important lesson of the euro area is that improving the competitiveness of a country or solving its structural problems is a much more difficult task within the euro area than outside it, especially in a crisis situation, and this may slow down the convergence process. The additional inflation resulting from convergence could be too high. If the financial system is not sufficiently developed, the introduction of the euro will be undermined in terms of both financial stability and monetary policy. About two years ago, the MNB developed a new, broader set of criteria for the assessment of euro readiness, based on which it concluded that joining the euro area would be premature. In pursuit of a sustainable convergence path, the MNB is committed to the safe and successful introduction of the euro, which is conditional on optimal timing.

*Ľudovít Ódor, Deputy Governor from Slovakia*, was of the opinion that joining the euro area is a very complex issue, which is influenced by the institutional background of the country, its exchange rate system, the structure of its economy, and even public opinion. In fact, all a candidate country needs is a strong leader who dares to take some risks, because there is no full guarantee of success. In his view, the Visegrád countries outside the euro area could adopt the euro at any time and would manage well if they applied appropriate policies. Member States, both within and outside, need a successful euro area. At the same time, he pointed out that depreciating exchange rates could not solve the problems around competitiveness. Countries that are used to this will have a very difficult time in the euro area, where this option is not available. Slovakia had to complete a major structural reform package before its introduction of the euro. An EU Member State seeking to join the euro area must adjust its mindset rather than waiting for everything to be perfect. The closest attention should be paid to fiscal, macroprudential and labour

market policies. Unfortunately, Slovakia has been unable to make progress in terms of structural indicators over the last decade, and currently seems to be struggling with the trap of middle income.

The next question to be discussed was whether the price of the solidarity and stability mechanism is commensurate with its benefits. According to the *Vice-Governor from Croatia*, the benefits so far have definitely outweighed the costs, and he considers the mechanism to be very important for the euro area as a whole. What is involved is a huge, low-cost and long-term lending capacity and significant transfers, which ensures resilience and stability in times of crisis, provides for budgetary savings, and helps to prevent negative spill-over effects.

From the *Czech side*, concerns were expressed about the consistency of this mechanism with the Maastricht Treaty and the fact that this mechanism to cushion the crisis, as well as the European Central Bank's policy of seeking to push down risk premiums, could lead to the postponement of the structural reforms that would otherwise be necessary. This, in turn, raises the issue of moral hazard, while non-competitive countries will still fail to make any progress despite the huge transfers.

The *Hungarian side* voiced the view that it is early to judge how the advantages and disadvantages of the solidarity and stability mechanism are balanced, but the balance was nevertheless much better now than it was ten years ago. Meaningful progress has been made, for example, with the creation of the banking union, although the deposit insurance scheme has not yet been established. However, many problems remain unresolved, as illustrated by the issues of the fiscal union or internal imbalances.

The *Deputy Governor from Slovakia* pointed out that the attitude whereby only the balance of financial costs and benefits is examined in connection with the operation of a system is flawed in his opinion. The issue is about a kind of insurance mechanism rather than a profitable investment. On the other hand, a number of very important elements of the European institutional system, which would be essential for success, are still missing. Unfortunately, for example, there is no ex-ante sovereign restructuring mechanism, there is no clear schedule for greater fiscal integration, a vicious circle remains between the banks and the state, specific examples being the lack of concentration limits and sovereign risk premia.

According to the *Deputy Governor from Poland*, the European Stability Mechanism and the banking union are very positive developments, but, for example, a single deposit insurance fund is absent. In terms of benefits, utility in the broader sense should be taken into account. As regards costs, consideration must also be given to the need to pay for the transfer of powers to the European level where this makes the policies to be implemented less suited to the needs of the local financial system.

The last topic was the future of the common monetary policy. For *Croatia*, the common monetary policy appears to be clearly beneficial due to the country's strong integration into the euro area both financially and commercially. In addition, there is a high level of euroisation, which is a key factor in the issue of joining the euro area, because the applicability of exchange rate and interest rate policies is limited as a result. The monetary policy of the ECB appears to be appropriate for Croatia. In addition, the Vice-Governor underlined that the synchronisation of economic cycles has improved.

From the perspective of *Poland*, the economic cycles are not yet sufficiently harmonised with those of the euro area, while the growth rate, inflation and long-term interest rates in Poland are also much higher than in the euro area, and the temporary depreciation of the zloty continues to represent an advantage in the case of external shocks.

It is also important for *Czechia* that the monetary policy of the euro area is successful, irrespective of whether it is a member of the euro area or not, as this affects all EU Member States. However, the euro area still suffers from fundamental structural weaknesses stemming from its composition. It is a big question how crisis-proof the current architecture of the euro area is. Creating a common fiscal capacity could play a stabilising role, but it could also entail the risk of permanent transfers from competitive Member States to less successful ones, which is very difficult to manage politically.

According to the *Deputy Governor of the MNB*, the common monetary policy faces significant challenges. Inflation is rising globally, although it is not yet known whether this is temporary. However, it is at levels around 1 per cent in some Member States of the euro area, meanwhile reaching up to 5 per cent in other Member States. How the ECB will respond is a big question. The other important factor is the green revolution, which has become a trend with the world's central banks and is expected to be followed by the ECB. The third factor is digitalisation and digital means of payment, which is a very topical issue at the global level. In the 21st century, the countries winning the competition in the field of digital currency will also gain a significant advantage in the real economy.

According to the *Deputy Governor from Slovakia*, digitalisation and the green aspects present both opportunities and challenges. He was less concerned about inflation, which has been very low over the past ten years in the euro area. He considers it desirable for inflation to remain close to its target in the long term. At the same time, caution should be exercised to avoid an environment of uncontrolled inflation. It is a major challenge that European monetary policy has had to deal not only with monetary policy issues, but also with those that more appropriately belong to the domain of fiscal policy. The other key issue is that the euro area focuses too much on its internal problems and loses sight of the global picture.

Overall, it was a very enjoyable and thought-provoking panel discussion, during which a number of thoughtful topics emerged, enabling the audience to gain a comprehensive understanding of central banks' views on the major questions and challenges expected in the near future.

This year, the sustainability section offered four presentations and a panel discussion. In his presentation, *Csaba Kandrács*, Deputy Governor of the Magyar Nemzeti Bank and a Board Member of the Sustainability Section of the HEA, addressed the evolution of the Green Programme launched by the MNB in 2019 and the supervisory steps taken in accordance with it. In a brief assessment of the situation, the Deputy Governor of the MNB explained that, based on a survey on climate risks, low preparedness is accompanied by high risk in the case of Hungarian banks; moreover, the exposure of some institutions may also pose a stability risk. He also underlined that the domestic bond market is rapidly greening, even though the uptake of green financial products has not been sufficient to date. He then moved on to present the Green Programme, its three pillars and its practical implementation. As part of the first pillar – measures affecting the financial system – the supervisory arm of the MNB had prepared a Green Recommendation for credit institutions, introduced a Green Preferential Capital Requirement Programme to kick-start green financing, while a sustainable capital market strategy document and a climate stress test are also being developed.

Next, Deputy Governor *Csaba Kandrács* briefly presented the MNB's educational and networking activities, comprising the second pillar of the Green Programme, and finished off with the presentation of the steps taken as part of the third pillar: the MNB seeks to cut emissions by 80 per cent in its own operations in 5 years and neutralise the remaining part with its tree planting programme, and will also publish a financial report on climate change, the so-called TCFD report.

After an overview of 21st-century megatrends, *Pál Péter Kolozsi*, Director of the Monetary Policy Instruments, Foreign Exchange Reserves and Risk Management Directorate, explained why the action of central banks in relation to climate change and environmental sustainability is justified. He stressed that sustainability is closely linked to the traditional mandates of central banks, i.e. the achievement and maintenance of price stability, the stability of the financial system and support for the real economy. This is confirmed by the fact that the world's leading central banks are also actively addressing the issue. MNB has been a pioneer in greening among central banks, and in spring 2021 it received a sustainability mandate from the Hungarian parliament. Another important milestone was the July 2021 creation and publication of the MNB's green monetary policy toolkit strategy, which shows the directions for greening monetary policy after the previous, mostly supervisory green measures. After the description of the vision and mission set out in the strategy document, he concluded his presentation with two designated and already

implemented directions of greening the central bank instruments. Accordingly, he presented the Green Mortgage Bond Purchase Programme, which started in August 2021, its objectives and parameters, and finally the concept of greening collateral management.

*Sándor Vízkeleti*, CEO of Amundi Asset Management, Chairman of the Board of the Hungarian Association of Investment Fund Managers and Asset Managers (BAMOSZ) and a Board Member of the Sustainability Section of the HEA, delivered his presentation entitled “*Sustainability and what is behind it*” in Q&A form. He emphasised the increasing importance of sustainability criteria in investment decision-making. While previous efforts sought to incorporate these criteria subjectively in the evaluation of companies, a toolkit has now become available in the form of the ESG methodology, which is based on the United Nations’ 17 Sustainable Development Goals and helps investors in decision-making. Citing Volkswagen Group’s diesel scandal as an example, he noted that while many companies initially experienced ESG as an extra burden, many have realised the importance of investor opinion. Driven by the uptake of ESG criteria, many companies now prepare a sustainability strategy, taking into account the views of different stakeholders. He also underlined that, seen from the investors’ side, ESG criteria are increasingly becoming a part of investment strategies, and that demand is growing for impact products, which are dedicated to sustainability. Finally, he presented the aspects related to the customer information obligation as set out in the EU Sustainable Finance Disclosure Regulation (SFDR).

*Máté Lóga*, Director of the Structured Finance Strategy Directorate of the Magyar Nemzeti Bank, gave a presentation on green bonds and the possibilities for their issuance in the Bond Funding for Growth Scheme (BFGS). First, he reported briefly on the results of the BFGS so far with regard to green bonds and then presented in detail the two leading international standards on green bonds, the ICMA Green Bond Principles (GBP) and the Climate Bonds Standard of the Climate Bonds Initiative (CBI). In relation to the two standards, he also explained the certification processes, the types of external reviews and the differences between the two standards. He then moved on to present the advantages of green bond issues, including positive marketing value, reaching ESG investors and the MNB’s Green Preferential Capital Requirement Programme. Finally, he provided an overview of sustainability-linked bonds and their differences from green bonds.

In addition to the four presentations, a panel discussion was also featured in the sustainability section this year. The discussion was moderated by *Richárd Végh*, CEO of the Budapest Stock Exchange and Chair of the Sustainability Section of the HEA; the panel comprised *Attila Chikán, Jr.*, CEO of Alteo Plc. and a Board Member of the Sustainability Section of the HEA, and *Attila Vajda*, founder, owner and managing director of Vajda Papír Plc. First, the two executives described the operations of

their companies briefly, then moved on to discuss the effects of the pandemic, among which *Attila Chikán* highlighted that executives had to try a new kind of trust in their colleagues, while soft criteria earned higher esteem among employees. In agreement with this, *Attila Vajda* emphasised a strengthened environmental awareness and the importance of their knowledge gained by virtue of their Norwegian headquarters. In response to the question about supply chains, *Attila Chikán* noted that the optimum is being sought in the combination of operational safety, cost-effectiveness and sustainability, in line with the needs of the partners. He then highlighted the popularity of decentralised energy production and the fact that the pandemic had led companies to rethink their energy strategies. According to *Attila Vajda*, the great challenge of the future will be whether there will be enough employees in the production sector and how they can be trained, and how robotisation will affect operations. Moving on to financing aspects, he explained that Vajda Papír Kft. was the first production company in Hungary to issue a green bond.

In connection with the equity market, *Attila Chikán* explained that in major markets the value of companies with better ESG ratings has been significantly higher in the past years. With regard to bonds, he noted that their two issues, implemented under the auspices of the MNB BFGS, were oversubscribed. He also said that the integration of ESG criteria was not only a duty, but could also provide a competitive advantage, and that access to funding may be easier for a company complying with ESG criteria; indeed, this could even be a condition for the company's survival over time. *Attila Vajda* added that any company can do something for sustainability, and the savings that can be derived from the use of water and electricity, for example, constitute a significant competitive advantage for them. Finally, in another reference to employees, he stressed that sustainability is an important factor in the competition for workers and that young generations are much more sensitive in this respect.

In 2021, the Hungarian Economic Association's Annual Congress convened its Competitiveness Section Meeting for the sixth time. Hosted by the Competitiveness Section of the HEA, it focused on the post-coronavirus period and examined the *key issues of competitiveness and sustainability* in an opening presentation and a roundtable discussion. The opening presentation, entitled "*The Incentive State for Competitiveness and Sustainability*", was delivered by *Bianka Parragh*, member of the Monetary Council of the MNB and research and development adviser at the University of Public Service. The roundtable discussion of the section was entitled "*Key issues of competitiveness and sustainability after the coronavirus pandemic*", and the panellists were *Magdolna Csath*, university professor and member of the Competitiveness Council, *László Lovászy*, ministerial commissioner for strategic government research, and *Levente Jánoskúti*, McKinsey's managing partner. The wide-ranging discussion, featuring representatives of the public, academic and corporate sectors, was moderated by MNB's Executive Director *Gergely Baksay*.

In her presentation, *Bianka Parragh* explained in detail how the incentive state model can promote long-term competitiveness and sustainability. Only a strong state can create an effective incentive system that *compels other market participants to cooperate on a permanent basis*. This incentive state model was also successful in Hungary in the 2010s, first in the field of tax reform, then in the monetary policy reforms starting in 2013, and even in the response to the coronavirus pandemic, which contributed to Hungary's rapid economic recovery. The incentive state model assumes an active role, striking a balance between purely market-based coordination and bureaucratic state regulation through the active use of positive incentives and constructive market cooperation with stakeholders.

In Hungary, a particularly successful example of how the incentive state operates was the *conversion of foreign currency loans*, carried out as part of cooperation between the government, the central bank and the Banking Association in 2014–2015. Another successful example is the central bank's *Funding for Growth Scheme*, which provided loans to Hungarian SMEs under favourable terms. This Scheme proved effective in reviving the frozen credit market. The most prominent result of the government measures was produced by the tax reform starting in 2010, in particular the introduction of the *flat-rate personal income tax*, which effectively encouraged employment and contributed decisively to the employment of around 850,000 more people by the end of the decade than in 2010.

The instruments of the incentive state have also proved successful in response to the unprecedented health and economic challenge of the coronavirus crisis. During the pandemic, policy-makers had to find solutions in three areas simultaneously: *protecting the health of the population, mitigating the economic crisis and avoiding excessive financial imbalance*. The presenter illustrated the effectiveness of crisis management with the MNB's Pandemic Treatment Index (PATRIX). The central bank's index captures each area affected by the crisis (health, real economy, financial balance) in a complex approach incorporating nine indicators.<sup>2</sup> In most areas, Hungary's crisis management of 2020–2021 outperformed the average of the other Visegrád countries. The Hungarian vaccination programme was one of the fastest in the Union, and unemployment was kept to one of the lowest levels. Furthermore, thanks to the MNB's programmes and the credit moratorium, during the crisis Hungary recorded the fastest growth in the European Union in lending by the banking system to the private sector. Summarising the performance in terms of the indicators of the central bank's index, to date, Hungary ranks 7th in the effective management of the Covid crisis in the EU, *Bianka Parragh* pointed out.

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<sup>2</sup> The nine indicators of the MNB's Pandemic Treatment Index are (1) number of patients, (2) combined indicator of Covid deaths and excess deaths, (3) population vaccination rate, (4) change in GDP compared to the end of 2019, (5) change in the number of employees compared to the end of 2019, (6) unemployment rate, (7) general government deficit, (8) current account balance, and (9) change in credit institutions' loan portfolio.

Finally, the presenter also addressed the potential challenges facing the Hungarian economy. Already before the outbreak of the coronavirus, it had become clear that to increase productivity, investments were needed in competitiveness factors such as the promotion of research and development and the development of human capital. According to *Bianka Parragh*, the *transition to a knowledge and technology-intensive growth path* is one of the most important long-term breakthrough opportunities for the Hungarian economy. However, the crisis caused by the epidemic has also brought new challenges to the surface. She pointed out that to be a winner in the next decade, it is no longer enough to pursue economic growth or financial balance alone, but that the economic model must become *sustainable* in all its aspects. Simultaneous improvements in sustainability and competitiveness can be attained primarily through the *greening and digitalisation of the economy*. Both processes require significant state incentives, such as the issuance of green government bonds to achieve a circular economy, while digitalisation involves supporting the digital transformation of SMEs or the development of public e-government. In the future, the incentive state should continue to strengthen the economic incentives for sustainable convergence.

In the roundtable discussion following the opening presentation, Gergely Baksay's first question was whether competitiveness is related to the effectiveness of the control of the epidemic. According to Professor *Magdolna Csath*, this result should not be linked to competitiveness. She said that she would rather attribute the speed of recovery to the structure of the economy (the proportion of non-cyclical, i.e. crisis-proof sectors) and to economic policy responses. However, the role of healthcare competitiveness is not negligible, as the health status of the population greatly influenced the course of the pandemic in each country.

In his answer, *Levente Jánoskúti* highlighted that specific factors of competitiveness may have played a role in the effectiveness of crisis management. Indeed, according to a McKinsey survey, digitally better prepared countries were more successful in weathering this period. Ministerial Commissioner *László Lovász* stressed the importance of institutions' competitiveness and efficiency, which play a particularly significant role in tackling major challenges such as epidemics and climate change. Accordingly, he welcomed the 330-point publication of the Magyar Nemzeti Bank, which substantially helped cooperation between the state, the MNB, and professional and scientific organisations in the field of competitiveness.

The discussion continued by addressing whether the order of importance and weight of competitiveness factors has changed compared to the pre-pandemic period before the pandemic. According to Professor Csath, on the one hand, much will depend on whether companies follow up on changing customer needs in their business models (digitalisation, experience-driven customer relationship). On the other hand, soft factors such as how much a society values performance have

earned higher recognition. McKinsey's managing partner considered that this is not about changes in the components of competitiveness, but rather about accelerating the development processes. This acceleration is well illustrated, for example, by the fact that Hungary has caught up with Western European countries in the usage of digital services. In its analysis of American companies, McKinsey found that companies that were able to invest in innovation during the Covid-19 pandemic and had higher R&D spending did not see their sales drop during the pandemic. The ministerial commissioner stressed the trend of artificial intelligence, automation and technological innovation taking on a more prominent role, transforming many jobs. This prominent role is also reflected in the increase in Hungary's exports of high value-added products in recent years.

The discussion largely hinged on the idea that forward-looking technological innovations are useless without people to operate them. Panellists agreed that simpler and lower-skill jobs could best become automated or replaced by artificial intelligence. Accordingly, they considered it important that the highest possible value-added jobs dominate the industries. It was also pointed out that around 50 per cent of workers will be forced to change careers. In the discussion, all participants considered it essential to increase the level of qualifications, especially in the field of STEM.<sup>3</sup> In addition to developing education and digital skills, it was also considered necessary to increase the resources devoted to R&D to adapt to global trends.

Finally, *Gergely Baksay* asked about the relationship between competitiveness and sustainability. *Levente Jánoskúti* said that sustainability has now become part of competitiveness, which is also due to regulatory, social and capital market pressures. One possible example of the latter could be the intensity and speed with which capital markets respond to green announcements. *László Lovász* also agreed that these two concepts go hand in hand, adding a reminder that not all of the solutions assumed to be sustainable are necessarily so. According to the calculations of the International Energy Agency, new renewable energy technologies may have a significant mineral requirement of up to six times higher than today's before reaching the 2050 carbon neutrality target. For example, the mineral requirement for wind power generation (due to mineral intensive blades in turbines) can be 3 to 4 times higher than the same energy obtained from nuclear power. *Magdolna Csath* emphasized that competitiveness is as long-term of a concept as sustainability, and thus creating a circular economy is essential, which also requires an attitude change in society. The final thought concluded that it is essential to have a clear vision and a long-term strategy in the face of huge economic, social and technological changes.

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<sup>3</sup> Acronym for Science, Technology, Engineering and Mathematics in higher education.

# **Central Bank Digital Currency and the Role of the Renminbi after the Covid-19 Pandemic – Report on the Budapest Renminbi Initiative Conference\***

*Veronika Mikes – Györgyi Puhl*

On 16 September 2021, the Magyar Nemzeti Bank (the Central Bank of Hungary, MNB) held the Budapest Renminbi Initiative Conference for the sixth time, with the title “*Central banks’ vaccine against Covid-19 and the role of China and the RMB in the post-pandemic era*”. While the pandemic has brought unexpected challenges for humankind, it has also opened up new opportunities. The existing megatrends of digitalisation and environmental sustainability have gained momentum recently and also left their mark on the financial system. The development of central bank digital currency (CBDC) has great potential opportunities, which are being discussed intensively by experts and central bank representatives. China plays a significant role in this field, as the country is the world leader in terms of testing its own central bank digital currency and has also been remarkably effective in its management of the crisis. The MNB launched the Budapest Renminbi Initiative Conference in 2015 to strengthen ties with China. The conference this year gathered renowned international and domestic experts to discuss the management of the global Covid-19 crisis by central banks, the role of China and the renminbi (RMB) in the post-Covid world and the development of the central bank digital currency.

The coronavirus pandemic has brought unprecedented challenges for the nations of the world, testing the crisis management capabilities of individual countries. The public health crisis and widespread lockdowns caused huge problems in the economy and fundamentally changed the lives of billions of people. In addition to losses, however, the pandemic has also opened new opportunities for further cooperation and development. The trends of recent decades, such as digitalisation and environmental sustainability, gained new momentum during the crisis, and the champions of crisis management have turned to tap into the opportunities presented by their advantage. The pandemic has once again highlighted the potential for digitalisation in the financial system and the importance of reliable electronic payment options, along with the important role of central banks in their

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\* The papers in this issue contain the views of the authors which are not necessarily the same as the official views of the Magyar Nemzeti Bank.

*Veronika Mikes is an Expert at the Magyar Nemzeti Bank. Email: mikesv@mnbb.hu*  
*Györgyi Puhl is an Expert at the Magyar Nemzeti Bank. Email: puhlg@mnbb.hu*

creation. China has not only shown good crisis management but also significant results in its central bank digital currency research and testing, thus offering important solutions for other countries worldwide, and although international trade and financial markets are still dominated by the dollar, efforts to internationalise the RMB seem to be paying off now.

The MNB launched the Budapest Renminbi Initiative Conference in March 2015 in connection with the central bank's Renminbi Programme to strengthen its ties with the People's Bank of China (PBoC) and facilitate a dialogue on the importance and effects of the internationalisation of the Chinese renminbi. The explicit goal of the initiative is to take advantage of the growing international weight of the RMB, to strengthen Chinese-Hungarian foreign economic relations and to reinforce the role of Budapest in Chinese and Central European relations. An important goal of the MNB with the initiative is to broaden the range of investment and financing sources in Hungary and to promote the growth of cross-border economic activity. In line with these objectives and the international situation shaped by the pandemic, the sixth Budapest Renminbi Initiative Conference focused on China's crisis management, the internationalisation of the renminbi and especially the development of the central bank digital currency with important contributions from Chinese and international experts.

The conference was opened by *Mihály Patai*, the MNB's Deputy Governor responsible for international relations, cash logistics, financial infrastructures, digitalisation and lending incentives. He emphasised that, after the coronavirus pandemic, the world will undoubtedly be different. In his view, digitalisation and environmental sustainability, as two megatrends that have evolved over the past 40 years, will be decisive in the next two decades and will significantly shape the future of humanity. Accelerating digitalisation and the revolution of money may transform our entire perspective on money and central banks, while central banks will play an increasingly active role in greening the economy. An excellent example of this is MNB's new, unique green mandate obtained this year. Nevertheless, apart from the previously mentioned two megatrends, there have been several other significant events in the last 40 years, in which the rise of Asia, and particularly China, is outstanding. The economic and geopolitical weight of this region will continue to grow in the future. He stressed that although 70–75 per cent of international trade is dominated by the US dollar, foreign trade transactions settled in RMB have grown fivefold over the last decade, and the RMB's share in international foreign currency reserves has tripled over the last four years, according to IMF data. Patai emphasised that the Hungarian and Chinese financial systems are increasingly interconnected, which is underlined by the Bank of China's long term presence in Hungary, and that the China Construction Bank will also soon start operations in the country. Attention shall also be paid to the presence of Chinese government

bonds in the Hungarian foreign exchange reserve portfolio, and to MNB's three-year FX swap agreement with the PBoC concluded in 2013, which has been renewed several times since then.

In his video message, *Péter Szijjártó*, Minister of Foreign Affairs and Trade, highlighted the fact that in the new age of the global economy following the coronavirus pandemic, Hungary may gain much benefit in the race for investments from its exceptional relations with China formed under the Policy of Eastern Opening. Owing to this, Hungary was able to conduct the fastest vaccination campaign in the European Union, which provided the foundations for reopening the economy. He said that the Policy of Eastern Opening, launched in 2010, is based on mutual respect, from which both countries reap many benefits. The Minister spoke highly of the strengthening investment and trade relations with China and noted that the trade volume between the two countries had increased by 25 per cent last year in spite of all the difficulties, and that Hungarian exports to China had grown by more than 50 per cent this year. As evidence of these good relations, the Bank of China has opened its regional centre in Hungary, and the Chinese brought the most investments into the country in 2020. The Minister also said he was proud that Hungary was the first country in Central Europe to sign the Memorandum of Understanding on the Belt and Road Initiative (BRI).

The final opening address was delivered in a video message by *Dayu Qi*, Ambassador Extraordinary and Plenipotentiary of the People's Republic of China to Hungary. He pointed out that Hungary's Policy of Eastern Opening and the Belt and Road Initiative were particularly important in strengthening bilateral relations. He emphasised that Hungary is the primary target for Chinese investments in the CEE region and that China attaches great importance to the development of the RMB on the CEE markets and is planning to further expand the European RMB-bond market. Qi added that currently Hungary is the only sovereign country issuing dim sum and panda bonds as well. He highlighted that the internationalisation of the RMB plays a key role in China's economic upturn and also supports the Belt and Road Initiative and the Policy of Eastern Opening. Commenting on the Chinese economy, he stated that China's GDP grew at a rate of 12.7 per cent in the first half of this year, and the fast recovery of the Chinese economy provides an opportunity for the internationalisation of the RMB. The RMB settlement index rose from 13.4 per cent to 16.1 per cent between 2019 and 2020, indicating that the RMB is used for a growing number of transactions. He added that the establishment of the Regional Comprehensive Economic Partnership (RCEP) contributes to the development of economic cooperation and also supports the international use of the RMB.

## Crisis management by China and the internationalisation of the RMB

The first panel of the conference covered China's crisis management, the internationalisation of the RMB and its role in the post-pandemic global economy and international financial system, as well as issues related to green finance. *Ádám Banai*, MNB's Executive Director for monetary policy and foreign reserve management, acting as panel moderator said in his introduction that compared to the 2008 crisis, central banks had to face a new type of exogenous crisis caused by the pandemic, which spread uncertainty throughout the real economy and the financial markets. Central banks played a key role in the management of the emerging economic crisis for two reasons. Firstly, they ensured financial stability by providing sufficient liquidity for market players, and secondly, they had to play a major role in trends reshaping the economy, such as digitalisation and environmental sustainability.

In a keynote address, *Mei Jin*, Chief Representative of the People's Bank of China's (PBoC) Representative Office for Europe, explained that the efficient monetary policy of the central bank was a key factor in China's successful crisis management. Thanks to the monetary policy instruments introduced by the PBoC, it was possible to alleviate the financial burdens of economic agents and ensure favourable credit conditions for SMEs. The Chinese central bank conducted a solid, prudent monetary policy throughout, did not resort to any interest rate cuts close to zero or lower, and did not introduce any quantitative easing. Jin emphasised that the PBoC, in line with China's carbon neutrality goals, gives priority treatment to green finances and considers it important for central banks to elaborate strong regulatory systems for the development of green finances and the provision of fair market conditions, as well as to boost international cooperation. With reference to *Gang Yi*, governor of China's central bank, Jin said that the development of green finances requires the mobilisation of private and public funds, and the setting up of a mandatory information disclosure system to facilitate the sharing of information between financial institutions.

As far as financial relations with the CEE region are concerned, Jin stated that more and more central banks have RMB-denominated financial instruments and that their future role is expected to grow, not only in the region but also globally. Cross-border use of the RMB and the volume of RMB-denominated reserves expanded rapidly in 2020. According to the report of the Official Monetary and Financial Institutions Forum, 30 per cent of central banks are planning to establish RMB foreign exchange reserve portfolios in the next 1–2 years, and 70 per cent of the central banks investing in RMB-denominated instruments are planning to prolong and extend their investments of this type. According to a Morgan Stanley report, 5–10 per cent of the world's foreign exchange reserve will be invested in RMB by 2030.

The panel continued with a discussion between *Zoltán Kurali*, CEO of the Hungarian Government Debt Management Agency, *Domenico Nardelli*, Head of Treasury Department of the Asian Infrastructure Investment Bank (AIIB), and *Hong Zhong*, Deputy General Manager of the Research Institute, Bank of China under the moderation of *Ádám Banai*. *Kurali* explained that, although today the RMB shows the fastest growth in foreign exchange reserves, the US dollar is still the dominant currency of foreign exchange reserves (approximately 60 per cent) and of global trade (approximately 80 per cent). In the area of market capitalisation however, the renminbi had strengthened noticeably, and although 43 per cent of the total stock market capitalisation can be associated with the USA, this figure is over 10 per cent for China and around 9 per cent for the European Union.

In connection with the internationalisation of the RMB, *Nardelli* stated that his experiences with regard to AIIB's bond issuance support the observation that RMB-denominated financial instruments are becoming increasingly popular with foreign investors. Two-thirds of AIIB's RMB-denominated bonds issued in 2020 were purchased by foreign investors. *Zhong*, the representative of the Bank of China, added that the use of the RMB had seen significant development over the last few years. It ranked 17th on the list of the most frequently used currencies 10 years ago, while today it is already 5th. Regarding the diversification of financial reserves, the panellists confirmed that more and more market players are deciding to invest their reserves in RMB-denominated financial instruments. By the end of the first half of 2021, the total amount of RMB-denominated financial instruments in the hands of foreigners (including also domestic shares and bonds) amounted to RMB 10 trillion (USD 1.55 trillion), and 70 per cent of the world's central banks and monetary authorities had RMB-denominated foreign exchange reserves. The representative of the Bank of China added that the RMB-denominated reserves of central banks reached USD 287.5 billion, which is more than double that of the value five years ago. This significant growth can be attributed to the fact that China is no longer seen only as a huge market for goods, but also as an investment source, which makes it practicable for central banks to conclude bilateral swap agreements.

Commenting on the "going out" strategy, *Zhong* stated that the Bank of China had been highly successful. In 2020, the deposit and credit portfolios of the Bank of China's foreign units reached USD 285.1 billion and USD 407.8 billion respectively, corresponding to growth of 6.8 per cent and 4.6 per cent year-on-year, respectively. The revenues of the foreign units amounted to 18.8 per cent of the total revenue of the Bank of China Group. Referring to the green bonds, *Zhong* noted that the Chinese bond market is growing fast, and there are several reasons for its popularity, such as the beneficial costs (lower interest compared to traditional bonds), the issuance of bonds in several different categories, the support of fiscal and monetary policies, as well as compliance with the ESG guidelines becoming an increasingly important expectation both in the private and public spheres.

## The money of the future, the future of money – central bank digital currency and the e-CNY

The second panel of the Budapest Renminbi Initiative Conference examined the issue of central bank digital currency under the title *“What could be the money of the future? What could the future of money be like? – Central bank digital currency and e-CNY as the next step in the evolution of the monetary system?”* In the introduction to the discussion, *Anikó Szombati*, the MNB’s Executive Director responsible for Digitalisation and Chief Digital Officer, said that although money has always been a changing concept, the 21st century has brought revolutionary changes. Similar to the transformation in social interaction, where the Internet has basically changed our everyday life, technological innovation will reshape our ideas of finances and money as well. Szombati stressed that, after the Covid-19 trauma, actors in international financial markets and global economy will turn to the central banks, looking forward to the next step in the evolution of money. It is time now for central banks to take the lead in the innovation of money. She added that the central bank digital currency may present a comprehensive answer to the challenges of the new era.

Although several central banks are looking into the issue of introducing central bank digital currency, nobody has gone as far in this area as the central bank of China, which has conducted tests in several cities in connection with its central bank digital currency and the everyday use of e-CNY. In the keynote speech of the second panel, a renowned expert on the topic, *Changchun Mu*, Director General of the PBoC Institute of Digital Currency, briefed the audience on the latest developments and details of the e-CNY project. The PBoC published the very first e-CNY white paper titled *“Progress of Research and Development of E-CNY in China”* in July 2021. Among other topics, they offered a response to the population’s concerns relating to the central bank digital currency. Mu highlighted that the e-CNY is the digital version of the fiat money issued by the PBoC, and therefore a legal tender which is backed by the establishment of a two-tiered system, which offers equal footing for all who comply with the regulations. He emphasised that the e-CNY is positioned as M0 and hence it will not pay interest or give rise to any competition between bank deposits, and the PBoC will not charge its partners with any extra costs. He emphasised that the e-CNY system pays great attention to data protection through the so-called *“managed anonymity”* system.

Mu spoke about the reasons behind the introduction of the e-CNY and noted the e-CNY may act as backup for the retail payment system, thus facilitating the stability of the financial system, can improve financial integration for even those who are remote and have no access to basic financial services, and can boost the efficiency of the payment system of the central bank. He stated that there are pilot

programmes running in several cities, selected on the basis of the most important national and regional development strategies, as well as the industrial and economic characteristics of the cities. In response to a question raised about the way in which the e-CNY will be used during the Olympic Games in Beijing, Mu explained that foreign users are mostly interested in data protection questions, and they have no Chinese bank accounts therefore they cannot use the traditional Chinese mobile payment systems. In the framework of the e-CNY system, however, foreign visitors can create a digital wallet with just a mobile telephone number, and upload money into it with the help of their bank cards. IC cards will be provided for those who are worried about data protection on their applications.

After Mu's presentation, this topic was further discussed by *Yanyun Wang*, General Manager of the China Construction Bank (CCB), Hungary Branch, *Lian Cheng*, Professor at the Institute of Finance & Banking of the Chinese Academy of Social Sciences (CASS), and *Binur Zhalenov*, Head of the Payments and FinTech R&D Centre, National Bank of Kazakhstan. In connection with the role of commercial banks, *Wang* said that the CCB had been one of the first banks joining the e-CNY testing, which gives them several opportunities. For example, it reduces the costs of managing physical currency, optimises the business activity of commercial banks and facilitates the transformation and modernisation of commercial banks. *Wang* added that the CCB had further developed the application model so that it can communicate with e-commerce platforms and also created offline scenarios. In terms of how the central bank digital currency has been welcomed by the people of China, the panellists agreed that the Chinese users had received the introduction of the e-CNY positively as mobile payment options had already been very popular in China, and the related means of promotion had also been familiar. Nevertheless, *Cheng* pointed out that this is also the reason why users cannot see a difference between the e-CNY system and the traditional mobile payment platforms, thus they are not aware of dealing with a legal tender. He also highlighted the fact that the currently running tests are limited, and therefore the full capacity of the system is not yet known. This is especially true for extreme situations, for instance natural disasters, meaning that further tests will be necessary.

In connection with the CBDC project of the Central Bank of Kazakhstan, *Zhalenov* explained that the central bank digital currency is part of the modernisation of the national payment system in his country. One of the main motivations to introduce the digital tenge is to facilitate competition by providing new infrastructure for financial institutions to help them create new financial services and increase the supply of financial market services. Additionally, some aspects of the digital tenge, such as the online payment option, may give an impetus to financial integration and the increase of cash-free payments. Referring to the international use of CBDC, *Zhalenov* noted that cross-border transactions present a key problem in

international trade, especially in Central Asia, but cooperation is indispensable for the international use of CBDC. Most of the currently running projects focus on technology, but in his view, regulation may be the biggest challenge. He emphasised that several questions need to be clarified before technological integration could begin. CBDC can only be the next step after the large economies of the world and central banks decide to introduce interoperability standards.

The whole event can be retrieved on the conference website: <https://www.mnb.hu/en/the-central-bank/conferences/budapest-renminbi-initiative-conference-2021>

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The Editorial Office of the Financial and Economic Review

H-1013 Budapest, Krisztina körút 55.

Phone: +36-1-428-2600

E-mail: szemle@hitelintezetiszemle.hu



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