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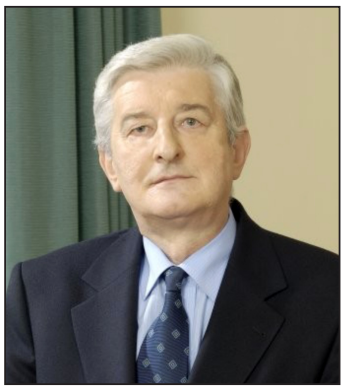
In Memoriam



Prof. Dr. h.c. multi Andrzej Józef Gospodarowicz
Born 6.02.1945 in Łosice. Polish economist specialising in banking, quantitative and computer methods, including financial institutions, bank management and risk management; academic affiliated with the Wrocław University of Economics, since 1970, rector of the in the 2012–2016 term.

We were saddened to learn of the death of Prof Andrzej Józef Gospodarowicz, a long-standing member of the Programme and Scientific Council of our journal.

Prof. A. Gospodarowicz developed his scientific career at the Higher School of Economics in Wrocław (later the Academy of Economics and the University of Economics). In 1976 he obtained his doctoral degree there on the basis of his dissertation entitled *Application of the priority method to solving problems from the theory of time undertakings*, and ten years later his postdoctoral qualification (habilitation) on the basis of his monograph entitled *Time and space undertakings schedules and approximate methods for their determination*. In 1992, President Lech Wałęsa awarded him the title of Professor of Economic Sciences.

Prof. A. Gospodarowicz was not only a respected economist and academic teacher, but also a wonderful and kind man to all who had the opportunity to get to know him in action. Particularly noteworthy is his positive attitude towards candidates for degrees and academic titles. His unquestionable merit was to motivate the scientific community of financiers in their efforts and endeavours to establish the Committee of Financial Sciences of the Polish Academy of Sciences, of which he was the chairman from 2007, for the first two terms. In recognition of the Professor's achievements and contributions, the Committee of Financial Sciences awarded him

the title of honorary chairman. Professor was the author of some 200 publications and promoted 20 PhDs, who creatively develop his work.

From 2011 to 2021, Andrzej Gospodarowicz actively participated in the work of the Programme and Scientific Council of the journal Safe Bank, and the Editorial Board could reliably count on the acceptance of texts for review and friendly advice on the profile of the journal.

The figure of Andrzej Gospodarowicz will remain in our memory as a person with an extraordinary passion for being active in the interest of the academic community and the development of the financial sector.

Honoring His Memory!!!

A word from the Editor

Three decades ago, on 7 April 1995, the inaugural meeting of the Council of the Bank Guarantee Fund, established under the Act of 14 December 1994, was held. Appointments were made to the Chairman, Prof. Władysław Baka, and to the members of the Council: Katarzyna Borowska, Krystyna Góral, Dr. Marek Grzybowski, Prof. Władysław L. Jaworski, Prof. Stanisław Kasiewicz, Barbara Kowalska, Prof. Marek Safjan, Prof. Jan Szambelańczyk and Tadeusz Żywczak were presented by Prof. Witold Koziński – 1st Deputy President of the NBP. The inaugural meeting of the Council was held as a guest in the conference room of the Polish Bank Association, in the back room of which several dozen sizable cardboard boxes containing documentation of suspended cooperative banks, whose depositors were awaiting their deposits. It may be mentioned that at the time there was no shortage of sceptics calling the newly appointed members kamikaze but without funds, procedures or infrastructure. The first meetings lasted almost non-stop for days at a time to recruit and appoint the Fund's Board of Directors and enact the necessary internal acts. The daunting challenge of running the Board was taken up by Ewa Kawecka-Włodarczak, in cooperation with Hanna Krajewska (deputy chairman), Bożena Chełmińska, Andrzej Jankowski and Maria Pawelska, who participated in the competition and were recognised by the Council.

Looking back, it is not without reason to say that it was not easy, but the Council and the Management Board acted with enthusiasm and dedication, enjoying the friendly support of the banking community. A special jubilee book is being prepared to discuss the XXX anniversary of the BFG in more detail.

From the point of view of the current stability of the Polish banking sector, the scope and quality of information collected or the reliability of diagnoses of individual entities, the intervention funds collected, the level of deposit guarantees and, above all, the procedures for preventing or resolving crises in banks, the situation today is symbolically ‹light years' more favourable, both for the links in the safety net and for the clients of monetary institutions. Nevertheless, we are not living in hothouse conditions, and there is no shortage of new challenges. One can point to the new conditions in which central banks, for example, find themselves in the face of emerging new settlement architecture concepts, the growing popularity of

crypto-assets, cyber attacks or the turbulence in international trade relations, not to mention the consequences of current or potential armed conflicts. In circumstances where a serious regional or global crisis may erupt not only as a consequence of military aggression, a maxim whose authorship is attributed to the Roman historian Flavius Vegetius takes on a new much broader meaning. It was he who, in his work '*Epitoma rei militaris*', used a phrase formulated in modern times as '*Si vis pacem, para bellum*', which literally translates: "If you want peace, prepare for war". But Poles are no geese and have their own verses, too. Such as this one, from Stanisław Wyspiański's Wesele (The Wedding), uttered by a journalist during a conversation with a chef: "*Let there be war all over the world, so long as the Polish village is quiet, so long as the Polish village is peaceful*". And just as in the case of F. Wegecjusz, S. Wyspiański's message should also be given a modernised and broadened meaning resulting, for example, from the fact that in the 21st century we have to live in an electronic and global village, in which there is no shortage of adherents of Jakub Szela's methods.[1]

You don't want crises, fight them before they erupt'. This is the motto of collection of studies contained in No. 1(98) 2025 of Safe Bank. This is because it contains both reflections on the development of financial security infrastructure (*Impact of deposit guarantee schemes on banks' stability – experience from periods of systemic instability*; *Transfer strategy as an effective resolution method – theoretical considerations and conclusions from experiences to date*) or critical infrastructure (*Ransomware as a threat to the security of critical infrastructure*), experiences and projections of the future of central banks (*Review of the book by Andrzej Sławiński, Central Banking. Evolution and the future; A comparison of the banking sector in Poland and Sweden during the crises of the 1990s, the global financial crisis and the COVID-19 pandemic*), a characterisation of the concept of currency localism (*The Vollgeld Initiative in Switzerland – an attempt to reform the monetary system*), and finally two studies at the interface of finance and social policy: *Consumer bankruptcy and the problem of financial exclusion* and *Bank Individual Pension Accounts – the safest form of saving for retirement.*

The next issue of our journal will be devoted to the issue of cryptoassets, which received a great deal of interest from participants in the seminar co-organised by the FSC and the EKF in February this year, as well as a very strong response from authors to the corresponding call for papers.

I wish you interesting reading

Jan Szambelańczyk
Editor-in-Chief

[1] The figure of Jakub Szela, a peasant leader who played a key role during the 1846 Galician rabble, is still the subject of controversy and diverse interpretations in Polish historiography.

Problems and Opinions

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The impact of deposit guarantee schemes on bank stability – the experience of periods of systemic instability

Abstract

Deposit insurance is a key component of the financial safety net that stabilizes the banking system. The March 2023 episode of systemic instability in the US triggered a crisis of confidence as to whether the existing deposit guarantee frameworks adequately protects banks' resilience to panics and shocks. The article analyses and tests some of the assumptions of the ongoing debate on reforming the EU Crisis Management and Deposit Insurance (CMDI) framework. The main conclusions from the literature review and the empirical study are that fundamental features such as adequate capitalization and profitability of banks are crucial to maintain stability, while some of the proposals for the new CMDI framework are legitimate and will enhance the stability of the EU banking system. The empirical part of the paper confirms the main conclusions of the CMDI debate that bank runs and panics depend not only

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on the extent and level of deposit guarantee under national guarantee schemes, and that the volume of unguaranteed deposits in EU countries does not pose a major threat to banking sector stability as an isolated factor.

Keywords: DGS, CMDI directive, financial stability, systemic crisis 2023, unguaranteed deposits

JEL Codes: G21, G28, G32, K23

Wpływ systemów gwarancji depozytów na stabilność banków – doświadczenia okresów niestabilności systemowej

Streszczenie

Gwarantowanie depozytów jest kluczowym elementem sieci bezpieczeństwa finansowego, która stabilizuje system bankowy. Epizod niestabilności systemowej w USA w marcu 2023 r. wywołał kryzys zaufania, czy istniejące ramy gwarantowania depozytów odpowiednio chronią odporność banków na panikę i wstrząsy. Artykuł analizuje i testuje niektóre założenia toczącej się obecnie debaty na temat reformy unijnego pakietu zarządzania kryzysowego i gwarantowania depozytów (CMDI). Podstawowe wnioski płynące z przeglądu literatury i z badania empirycznego stanowią, że cechy fundamentalne, takie jak właściwa kapitalizacja i rentowność banków mają kluczowe znaczenie dla utrzymania stabilności, natomiast niektóre propozycje nowej dyrektywy CMDI są zasadne i zwiększą stabilność unijnego systemu bankowego. Przeprowadzone badanie empiryczne potwierdza główne wnioski z debaty, że runy i paniki bankowe zależą nie tylko od zakresu i poziomu gwarantowania depozytów w ramach krajowych systemów gwarancyjnych, oraz że wolumen niegwarantowanych depozytów hurtowych w krajach UE nie stanowi głównego zagrożenia dla stabilności sektora bankowego, jako czynnik izolowany.

Słowa kluczowe: systemy gwarantowania depozytów, dyrektywa CMDI, stabilność finansowa, kryzys systemowy 2023 roku, niegwarantowane depozyty

Kody JEL: G21, G28, G32, K23

1. Introduction – research problems and objectives

Deposit insurance is a part of the banking safety net and a key component of the financial market infrastructure. Deposit Guarantee Schemes (DGS) contribute to maintain confidence in the banking system and to reduce systemic risk. However, deposit guarantee can create moral hazard on the part of both depositors and banks. Therefore, the design of DGS must consider both the benefits to financial stability and the negative consequences for risk-taking in the banking system. Hence, most DGS strive for a defined balance point between risk and stability (Beck et al. 2024). The systemic instability episode of the US West Coast banks in March 2023 showed that not only systemically important banks, but also mid-sized regional banks can be subject to a run that results in the need for public intervention. This experience called for a reflection on the need to reform deposit guarantee schemes and develop

a modified crisis management framework in both the US and the EU (Acharya et al. 2023). Bank failures in March-May 2023 in the US: Silicon Valley Bank (SVB), Signature Bank (SBNY) and First Republic Bank (FRB) have also highlighted the structural risks posed by wholesale deposit funding of banking assets (in excess of guaranteed level) and the role of social media in the spread of panic (Restoy 2023). Although the European banking system has proven resilient to the shocks of the pandemic and events in the US in 2023, the European Commission has embarked on a review of the existing crisis management and deposit insurance framework in the EU, preparing a proposal for a new CMDI (Crisis Management and Deposit Insurance) directive, focusing on enhancing stability for medium and small banks (Enria 2023).

The purpose of the article is to analyze some of the issues discussed in the ongoing debate on changes to deposit guarantee schemes in the new CMDI directive. The article characterizes the DGS in the EU, with a particular focus on the level of guaranteed deposits. In the empirical part it examines the role of selected DGS features for safeguarding stability of the banking sector. Specifically, two hypotheses were tested: (1) whether the events of 2023 affected the risk aversion of debt funding providers in the EU, and (2) whether the variation in the capital endowment of DGS institutions and the share of guaranteed deposits affected the stability of the banking sectors of EU countries, based on a panel data model. The article concludes with a presentation of key findings.

2. Characteristics of deposit guarantee schemes in the EU in the context of the level of guaranteed deposits

Deposit guarantee schemes typically perform three main functions: protect depositors, reduce the possibility of systemic bank failure and minimize the cost to taxpayers during a bank failure (CEPR 2019). DGS in the EU countries vary significantly in terms of their funding model, capital endowment relative to guaranteed deposits and the target level of this ratio, as well as the availability of additional forms of funding in the form of lines of credit from the central bank or the government (Tables 1 and 2). Significant variation is also observed in the share of guaranteed deposits in the total deposits in each banking sector.

Table 1. Selected characteristics of DGS in the EU countries at the end of 2023

Country	Short form	The target level for DGS funds (% of covered deposits)	Model	Credit line (or similar) from the central bank	Credit line (or similar) from the government
Austria	AT	0.80	Ex post	No	No
Belgium	BE	1.80	Ex ante	No	Yes
Bulgaria	BG	1.00	Ex ante	No	No
Cyprus	CY	0.80	Ex ante	No	No
Czechia	CZ	0.80	Ex ante	No	No
Germany	DE	0.80	Ex ante	No	No
Denmark	DK	0.80	Ex ante	No	No
Estonia	EE	1.66	Ex ante	No	No
Spain	ES	0.80	Ex ante	No	No
Finland	FI	0.80	Ex ante	No	No
France	FR	0.50	Ex ante	No	No
Greece	GR	0.80	Ex ante	No	No
Croatia	HR	2.50	Ex ante	No	No
Hungary	HU	0.80	Ex ante	Yes	No
Ireland	IE	0.80	Other	Yes	Yes
Italy	IT	0.80	Ex post	No	No
Lithuania	LT	0.80	Ex ante	No	No
Luxembourg	LU	1.60	Ex post	No	No
Latvia	LV	0.80	Ex ante	No	Yes
Malta	MT	1.30	Ex ante	No	No
Netherlands	NL	0.80	Ex post	No	No
Poland	PL	1.60	Other	Yes	Yes
Portugal	PT	0.80	Ex ante	No	No
Romania	RO	2.71	Ex ante	No	Yes
Sweden	SE	0.80	Ex ante	No	Yes
Slovenia	SI	0.80	Ex post	No	Yes
Slovakia	SK	0.80	Ex ante	No	No

Source: own study based on EBA DGS data, https://www.eba.europa.eu/sites/default/files/2024-05/a289903c-11c1-4732-a51f-a49e056585b9/Aggregated%20DGSD%20data%202023.xlsx (accessed 10.03.2025).

Table 2. DGS funds as % of covered deposits in 2015–2023 period (in %)

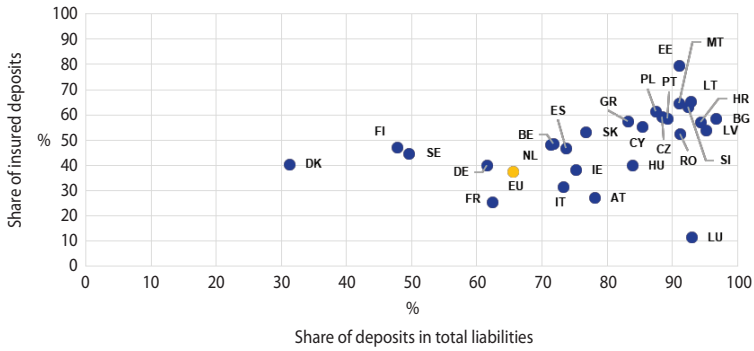
Country	2015	2016	2017	2018	2019	2020	2021	2022	2023	2015–2023
Austria	0.024	0.068	0.117	0.161	0.082	0.104	0.257	0.361	0.468	0.171
Belgium	1.005	1.076	1.168	1.249	1.307	1.356	1.388	1.455	1.597	1.301
Bulgaria	0.786	0.762	0.958	1.180	1.168	1.770	2.029	1.881	1.781	1.454
Cyprus	0.844	0.551	0.390	0.253	0.250	0.293	0.641	0.693	0.756	0.509
Czechia	1.434	1.301	1.336	1.290	1.305	1.206	1.171	0.422	0.397	1.024
Germany	0.240	0.307	0.383	0.456	0.516	0.561	0.557	0.631	0.676	0.500
Denmark	1.278	1.229	1.345	1.273	1.207	1.111	1.113	0.995	1.013	1.163
Estonia	3.196	3.020	2.638	2.365	1.696	1.571	1.451	1.437	1.524	1.847
Spain	0.144	0.218	0.266	0.281	0.407	0.509	0.615	0.747	0.915	0.480
Finland	1.383	1.341	2.100	0.886	0.903	0.875	0.894	0.934	0.991	1.036
France	0.299	0.317	0.328	0.347	0.370	0.387	0.412	0.455	0.506	0.388
Greece	1.367	1.392	1.447	1.429	1.400	1.329	3.134	1.255	1.248	1.574
Croatia	2.527	2.253	2.505	2.879	3.006	2.618	2.443	1.000	1.000	2.163
Hungary	0.226	0.319	0.351	0.201	0.540	0.605	0.587	0.778	1.065	0.547
Ireland	0.000	0.099	0.156	0.298	0.398	0.460	0.552	0.644	0.642	0.396
Italy	0.033	0.093	0.163	0.239	0.243	0.237	0.376	0.452	0.645	0.294
Lithuania	-0.753	0.196	0.422	0.431	0.810	0.806	0.811	1.064	1.047	0.673
Luxembourg	0.000	0.260	0.507	0.763	0.847	0.894	1.057	1.194	1.384	0.810
Latvia	1.347	1.721	1.826	2.143	0.302	1.300	1.615	1.663	2.124	1.579
Malta	1.168	1.186	1.007	0.974	0.931	0.948	0.996	0.825	1.148	1.012
Netherlands	0.000	0.071	0.165	0.227	0.355	0.393	0.559	0.616	0.767	0.372
Poland	1.586	1.650	1.711	1.797	1.792	1.805	1.829	1.766	1.636	1.735
Portugal	1.335	1.299	1.286	1.254	1.215	1.039	0.979	0.941	0.978	1.132
Romania	3.280	3.396	3.169	3.014	2.959	2.714	2.596	2.682	2.542	2.870
Sweden	2.264	2.264	1.758	2.567	2.555	2.422	2.250	1.981	2.082	2.211
Slovenia	0.000	0.094	0.184	0.277	0.365	0.430	0.500	0.585	0.743	0.390
Slovakia	0.673	0.659	0.634	0.606	0.578	0.679	0.718	0.806	0.825	0.693
Total EU	0.470	0.510	0.559	0.600	0.657	0.675	0.770	0.761	0.857	0.665

Source: own study based on EBA data (DGS data), https://www.eba.europa.eu/sites/default/files/2024-05/a289903c-11c1-4732-a51f-a49e056585b9/Aggregated%20DGSD%20data%202023.xlsx (accessed 10.03.2025).

From 2022 to 2023, an upward trend in the average coverage of guaranteed deposits by DGS funds was observed (after a one-time reversal of the trend in 2022). The coverage level increased by almost 0.1 pp. – from 0.761 to 0.857. The highest coverage ratio, exceeding 2% at the end of 2023, was observed in Romania, Latvia and Sweden (ex ante funding model). The lowest rate, below 0.5%, was observed in the Czech Republic (ex ante model) and Austria (ex post model). Both countries also lack direct financial support mechanisms in the form of a credit line from the central bank or government.

Deposits are the main source of funding for European banks, although their importance varies across member states. In 2022, the average share of deposits in total liabilities of banks in the EU was 65% – in some countries, such as Bulgaria, Croatia, Latvia and Slovenia, banks rely almost exclusively on deposit financing with a share of around 90%, while in the Nordic countries (Denmark, Finland, Sweden and Norway) the share of deposits ranged from 32% to 49% of total liabilities, while bond financing accounted for more than 30% of total liabilities (Beck et al. 2024) (Figure 1).

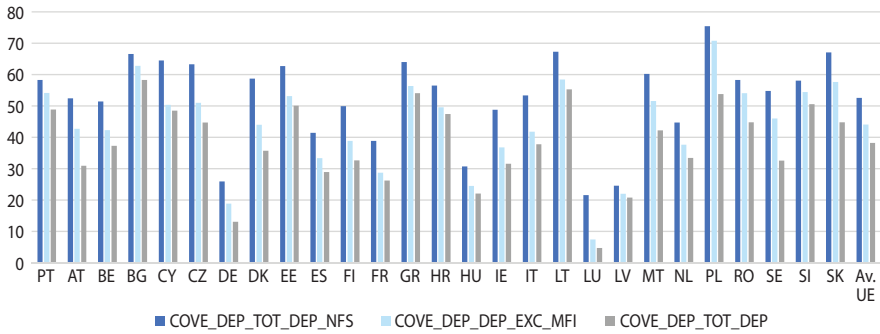
Figure 1. Share of insured deposits and the role of deposits in bank financing in the EU member states, end of 2022 (%)



Source: Beck et al. (2024), p. 11.

As shown in Figure 2, the variation in guaranteed deposits is significant across EU member states, with a spread of more than 50 pp. At the end of 2023, the lowest level of all analyzed indicators was observed in Luxembourg, where DGS-guaranteed deposits accounted for 4.7% of total deposits and 21.54% of non-financial sector deposits, respectively. In contrast, the highest share of guaranteed deposits in household and corporate deposits was observed in Poland, with a value exceeding 75% at the end of 2023 (with a weighted average for the EU of 42.9% and an arithmetic average of 52.9%).

Figure 2. The share of guaranteed deposits in total deposits with/without some subsections, at the end of 2023 (in %)



Note:
COVE_DEP_TOT_DEP – share of guaranteed deposits in total deposits of the financial and non-financial sector
COVE_DEP_DEP_EXC_MFI – share of guaranteed deposits in total dep. excluding monetary financial institutions
COVE_DEP_TOT_DEP_NFS – share of guaranteed deposits in deposits of the non-financial sector.

Source: own study based on EBA data (Deposit Guarantee Schemes data) and ECB Consolidated Banking Data https://www.eba.europa.eu/sites/default/files/2024-05/a289903c-11c1-4732-a51f-a49e056585b9/Aggregated%20DGSD%20data%202023.xlsx; https://data.ecb.europa.eu/data/data-categories/supervisory-and-prudential-statistics/consolidated-banking-data/ (accessed 12.03.2025).

In the eurozone, in 2023 there were 261 banks that could individually deprive domestic DGS funds with a single full payout of guaranteed deposits – hence, for them, the crisis management strategy involves resolution rather than deposit payouts. However, 132 less systemically important institutions also have guaranteed deposits in excess of the DGS target funds, although these systems may benefit from ex-post collection and a possibly of other protection mechanisms (ECB 2023). The same is true for Poland, as illustrated by data for the BFG (Table 3).

Table 3. Selected characteristics of the Bank Guarantee Fund in the context of the implementation of the guarantee function (banks)

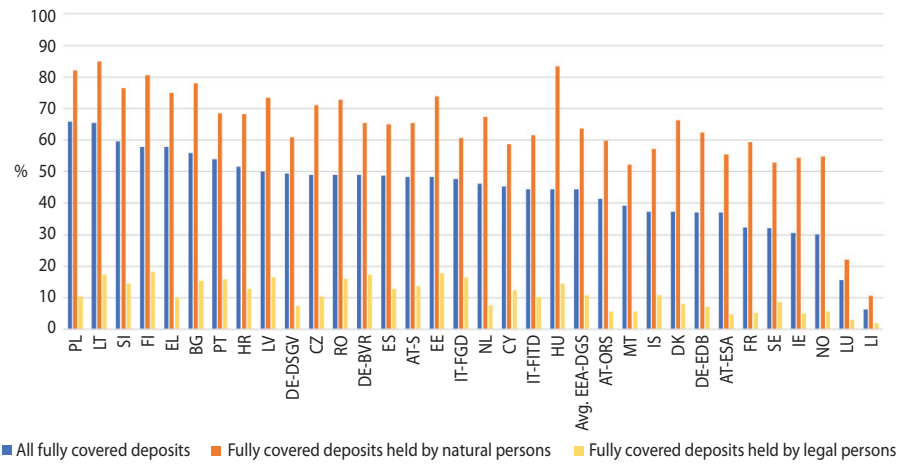
	31.12.23	31.12.22	31.12.21	31.12.20
Covered deposits (PLN '000's)	1 172 161 976	1 068 117 961	1 022 618 756	963 538 120
Covered deposits (€ '000s)	19 172 727	18 868 203	18 706 640	17 391 980
Available financial means (PLN '000's)	270 114 524	228 191 326	222 337 426	214 291 020
Available financial means (€ '000s)	4 418 188	4 030 978	4 067 191	3 867 980

DGS additional data
– current target level for DGS – 1,6%
– alternative financing arrangements in place: credit line from central bank and government.

Source: https://www.eba.europa.eu/activities/single-rulebook/regulatory-activities/depositor-protection/deposit-guarantee-schemes-data

In the global market, non-guaranteed deposits account for 41% of total deposit volume, including more than 50% for G7 and G20 countries (IADI 2023). However, some reports indicate that an increase in the level of guarantees will not contribute significantly to reducing systemic risk. Also, the Japanese experience of previous crises shows that any change in the structure of the guarantee system causes offsetting changes in the structure of the deposit base (Nakaso 2001). One of the most important assessments was formulated by the European Banking Authority (EBA 2023). The report, based on data collected from 28 EEA countries between January 2022 and August 2023, showed that increasing the current level of deposit guarantees would have a limited impact on financial stability and depositor protection, while it would be costly and have a negative impact on moral hazard (EBA 2023). As a result, the EBA sustained its previous opinion that no changes to the DGSD appear necessary (EBA 2019). The report highlighted that in EEA countries, 96% of depositors are fully covered, and a potential increase in the level of coverage would not affect the vast majority of depositors. The remaining 4% of depositors are mainly companies, but they hold more than half of the deposits in the EEA. The average deposit held by individuals ranges from €1,309 to €148,987, with an EU average of €18,693. Poland is among the countries with the lowest average deposit value. The average deposit held by legal entities ranges from €34,208 to €775,926, with the average for deposit guarantee schemes at €152,977 (Poland is below this level). As shown in Figure 3, the share of fully guaranteed deposits ranges from 6.3% in Liechtenstein to 65.8% in Poland. The percentage of fully guaranteed deposits held by individuals ranges from 10.6% to 85%, and for legal entities from 2% to 18.2%, so the risk of a bank run by legal entities is much higher than for individuals.

Figure 3. Fully covered deposits over total covered deposits by DGS and type of depositor (in %)



Source: EBA 2023, p. 14.

According to EBA, the incentive to withdraw funds in a crisis, and thus contribute to a bank run, does not depend only on the coverage level, but also on other factors, including behavioral ones. However, the EBA proposed to amend the DGSD by extending DGS coverage to the public authorities, whose deposits are currently out of the scope of protection. In the event of failure of a credit institution and public authorities losing their funds, there might be an impact on financial stability, particularly given the weak position that ineligible deposits have in the creditor hierarchy.

3. DGS resilience during periods of systemic instability

The experience of the 2007–2009 global financial crisis resulted in a series of regulations to strengthen banks' capital and the functioning of regulatory and supervisory authorities. The EU has also responded by enhancing the legal protection available to depositors, mostly thanks to the introduction of a powerful depositor preference rule throughout the EU (Lenihan 2014). Since the 2008 financial crisis, substantial work has been undertaken in the EU to strengthen the ability to respond to distress in the financial system. Member States are required to raise funds from the banking industry equaling to at least 0.8% of covered deposits. Member States must also ensure that DGSs have adequate alternative funding arrangements in place to enable them to meet any claims against them.

The March 2023 crisis, however, have illustrated a different face of instability affecting bank liquidity and deposit safety – wholesale deposits run. The US authorities decided to take advantage of the FDIC's Systemic Risk Exception (SRE) – a tool introduced in 1991 that allows the Federal Deposit Insurance Corporation (FDIC) to provide emergency assistance to banks when deemed necessary to maintain financial stability. As a result, all SVB and SBNY depositors received full protection. In addition, the Federal Reserve launched an emergency bank lending program, which provided US banks with emergency access to liquidity on favorable terms (FDIC 2023). In the US, the level of deposit protection is one of the highest in the world ($250,000 per depositor at a given bank), covering 99% of bank accounts. However, uninsured large deposits in 2022 accounted for about 45% of the value of the deposit base (FDIC 2023). At SVB, in 2 days 85% of total deposit were withdrawn, forcing the closure of the bank (BIS 2023). The FDIC estimated that the total cost of SVB and SBNY insolvencies by the end of 2023 was $23.6 billion, of which $20.4 billion was the cost of covering non-guaranteed deposits under the SRE (FDIC 2025). The FDIC recovered $20.4 billion by imposing a special fee on depository institutions. The remaining amount represented the second highest annual loss in FDIC history after 2009. However, the FDIC's response, including the use of SREs, helped calming the panic, with no immediate negative side effects. This event has also illustrated that technological changes occurring at an accelerated pace increase the risk of bank runs, through the speed at which information or misinformation is disseminated and the speed at which depositors can withdraw funds. The ease of use of digital banking applications enables depositors to withdraw significant funds in a matter of hours (Reuters 2023).

Bank failures in 2023 triggered a broader crisis of confidence in the resilience of banks, banking systems and financial markets and reopened the debate – both in the U.S. and the EU – on the effectiveness of crisis management frameworks, including the potentially destabilizing role of non-guaranteed deposits, given the risk of increased speed of payouts due to technological advances (Trapanese et al. 2024). Thus the first research question was the potential impact of events in 2023 on the behavior of depositors in EU countries. Analyzing the changes in the value of bank deposit portfolios in 2023, there is no ground for confirming the hypothesis of a significant impact of the 2023 events on the risk aversion exhibited by debt capital providers (Table 4). Reversely, an increase in the average value of banks' deposit liabilities to all groups of borrowers was observed, with the highest growth in deposits in relative terms in the interbank market (17.85%) and the government sector (11.09%), while a markedly lower growth in funds placed by non-monetary financial institutions (5.42%) and the non-financial sector (households 2.27 and non-financial corporations 1.81%).

Table 4. Change in the value of the deposit portfolio (by type of depositor) held in banks at the end of December 2023 compared to December 2022 in the EU countries (in %)

Country	Category of depositors					
	Excluded from DGS protection			Covered by partial/full DGS protection		
	Interbank market	Non-monetary financial institutions	Government	Non-financial sector in total	Non-financial enterprises	Households
AT	8.457	6.702	9.622	0.121	-2.197	1.180
BE	51.522	-6.926	13.365	-0.931	1.375	-1.817
BG	31.773	-14.008	-5.576	9.616	7.173	11.020
CY	-3.105	-8.611	51.678	-0.081	-1.414	0.430
CZ	34.499	30.820	93.335	5.207	5.685	5.014
DE	19.554	4.753	-5.620	3.953	3.722	4.058
DK	15.497	11.397	-19.126	-2.866	-8.385	1.439
EE	33.810	-4.874	9.532	6.827	1.257	11.123
ES	35.589	19.598	6.153	1.280	1.292	1.275
FI	46.143	-6.184	-18.582	-2.555	-6.623	0.308
FR	17.375	7.604	63.973	2.750	3.141	2.482
GR	19.513	-3.091	-9.377	2.239	0.176	3.006
HR	-23.704	-12.899	26.090	4.278	9.410	2.141
HU	4.621	0.131	39.481	13.019	14.448	11.799
IE	-23.644	35.330	18.842	2.148	-1.622	5.817

Table 4 (continued)

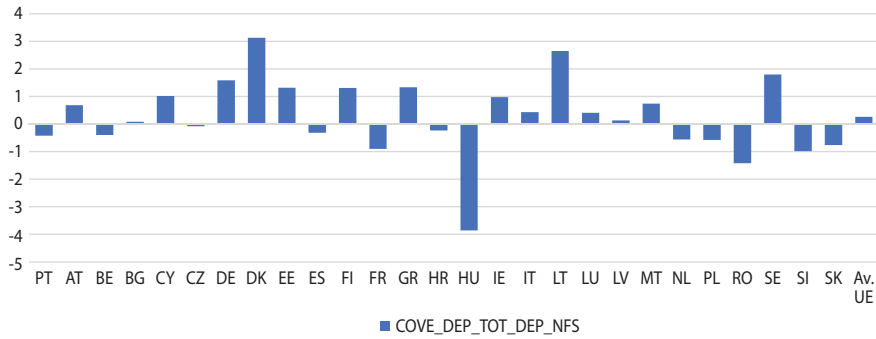
Country	Category of depositors					
	Excluded from DGS protection			Covered by partial/full DGS protection		
	Interbank market	Non-monetary financial institutions	Government	Non-financial sector in total	Non-financial enterprises	Households
IT	20.687	15.581	11.715	-2.841	0.254	-4.369
LT	48.090	14.798	9.564	9.367	3.374	12.041
LU	8.504	-7.794	-5.564	-4.120	-7.255	-1.950
LV	89.648	-4.456	-5.869	1.778	-0.009	2.768
MT	-1.765	-0.294	0.000	3.206	-6.029	5.764
NL	-2.261	-5.754	6.960	2.773	0.463	3.740
PL	21.186	58.635	2.684	19.282	19.769	19.078
PT	16.136	17.254	-16.228	-0.565	-4.906	1.144
RO	-11.199	-2.055	1.946	14.495	19.082	11.478
SE	32.523	-7.972	-2.460	0.554	-4.006	3.909
SI	-1.786	-14.037	-7.735	5.214	10.289	3.511
SK	-26.524	1.936	-13.645	3.874	7.805	2.187
Total UE	17.853	5.416	11.085	2.114	1.812	2.270

Source: own calculations based on ECB Consolidated Banking Data: https://data.ecb.europa.eu/data/data-categories/supervisory-and-prudential-statistics/consolidated-banking-data/ (accessed 12.03.2025).

At the same time, the assessment of changes in the ratio of covered deposits in deposits from households and non-financial corporations indicates that some entities have taken measures to optimize protection. In 2023, the share of the value of covered deposits in most EU countries (16) and in the EU banking sector as a whole increased on average (0.3 p.p.) relative to 2022. A reverse trend of quite strong magnitude was observed for Hungary (-3.9 p.p.) and Romania (-1.4 p.p.).

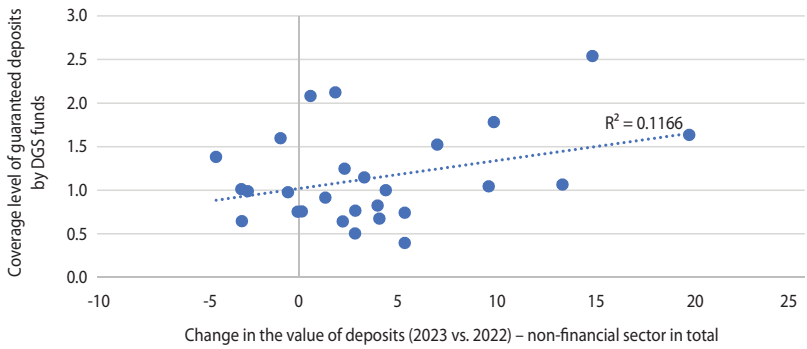
An analysis of the correlation between the annual change (2023 vs. 2022) in deposits made by non-financial sector customers and the level of deposit coverage by DGS funds (Figure 5) and the share of deposits guaranteed in the EU (Figure 6) does not allow, at a high level of confidence, to confirm the hypothesis of a strong effect of DGS capital equipment and the proportion of cover deposits on the propensity of non-financial sector customers to increase deposit exposure under conditions of financial market turmoil.

Figure 4. Change in the value of the ratio of guaranteed deposits to total deposits of non-financial corporations and households in 2023 relative to 2022 in the EU (in %)



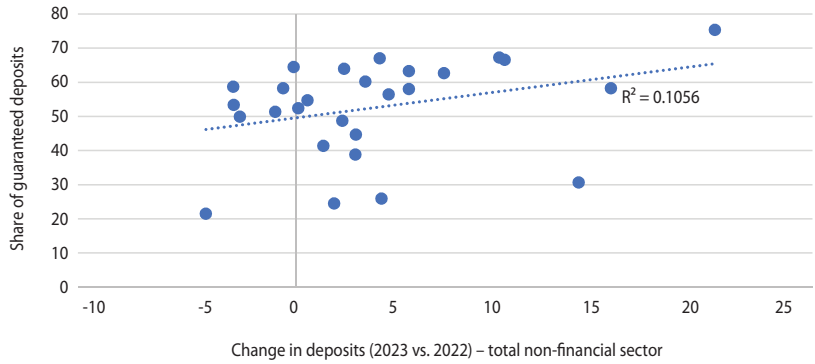
Source: own study based on EBA data (DGS data) and ECB Consolidated Banking Data, https://www.eba.europa.eu/sites/default/files/2024-05/a289903c-11c1-4732-a51f-a49e056585b9/Aggregated%20DGSD%20data%202023.xlsx; https://data.ecb.europa.eu/data/data-categories/supervisory-and-prudential-statistics/consolidated-banking-data/ (accessed 12.03.2025).

Figure 5. Change in the value of deposits (2023 vs. 2022) in the non-financial sector and coverage level of guaranteed deposits by DGS funds in the EU



Source: own study based on EBA data (Deposit Guarantee Schemes data) and ECB Consolidated Banking Data https://www.eba.europa.eu/sites/default/files/2024-05/a289903c-11c1-4732-a51f-a49e056585b9/Aggregated%20DGSD%20data%202023.xlsx; https://data.ecb.europa.eu/data/data-categories/supervisory-and-prudential-statistics/consolidated-banking-data/ (accessed 12.03.2025).

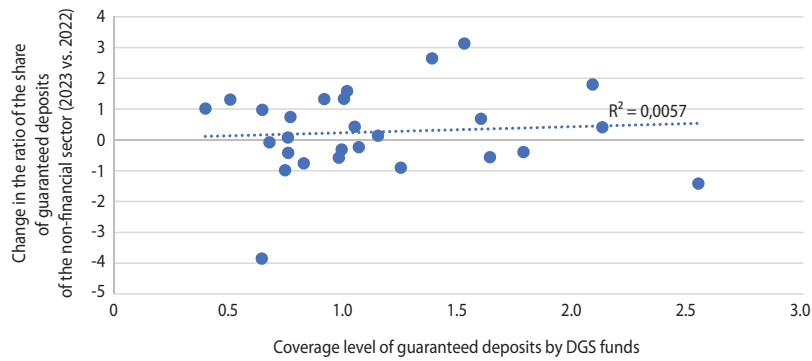
Figure 6. Change in deposits (2023 vs. 2022) in the non-financial sector and share of guaranteed deposits in the EU



Source: Own study based on EBA data (Deposit Guarantee Schemes data) and ECB Consolidated Banking Data https://www.eba.europa.eu/sites/default/files/2024-05/a289903c-11c1-4732-a51f-a49e056585b9/Aggregated%20DGSD%20data%202023.xlsx; https://data.ecb.europa.eu/data/data-categories/supervisory-and-prudential-statistics/consolidated-banking-data/ (accessed 12.03.2025).

There is also no clear sign of a relationship between the level of capital equipment of guarantee schemes and the change in the share of guaranteed deposits of the non-financial sector in 2022–2023 (Figure 7).

Figure 7. Change in the ratio of the share of guaranteed deposits of the non-financial sector (2023 vs. 2022) and coverage level of guaranteed deposits by DGS funds in the EU



Source: own study based on EBA data (Deposit Guarantee Schemes data) and ECB Consolidated Banking Data https://www.eba.europa.eu/sites/default/files/2024-05/a289903c-11c1-4732-a51f-a49e056585b9/Aggregated%20DGSD%20data%202023.xlsx; https://data.ecb.europa.eu/data/data-categories/supervisory-and-prudential-statistics/consolidated-banking-data/ (accessed 12.03.2025).

4. The role of selected DGS parameters in shaping banking sector stability – panel data model

In this section, the research question was whether the variation in the capital endowment of DGS institutions and the share of guaranteed deposits have an impact on the stability of the banking sectors of EU countries. Banking stability was approximated by the follow variables: TCR, T1R, CET1R, CAR and by the Z-Score index. Based on the literature review, a set of control variables was selected and experimental variables related to the deposit guarantee model resulting from the capitalization of DGS, the share of insured deposits and the funding model were used. The characteristics of the variables are presented in Table 5. The data related to banking sector characteristics were obtained from the ECB Consolidated Banking Data database, the variables related to macroeconomic characteristics were obtained from the Eurostat database, while the experimental variables are based on own calculations created using EBA data (DGS database) and the ECB Consolidated Banking Data database. The period of analysis was 2015–2023 and was determined by data availability.

Table 5. Characteristics of the set of variables used in the model

Variable	Definition	Area of analysis
Explained variables		
ZSC	Z-score = ROA+CAR/standard deviation of ROA	Banking sector stability
TCR	Total equity / RWA	
T1R	Tier 1 capital / RWA	
CET1R	Common Equity Tier 1 capital / RWA	
CAR	Total equity / Total assets	
Experimental variables – characteristics of deposit protection parameters		
DGSF_COV_DEP	Available financial means DGS Guarantee Fund / Covered deposits	The level of coverage of guaranteed deposits by the funds accumulated by the DGS as a measure of the DGS's ability to fulfill its guarantee function
COVE_DEP_TOT_DEP	Insured deposits / Total deposits of financial and non-financial institutions in a given country	The share of guaranteed deposits in the total deposit portfolio (various categories of entities)
COVE_DEP_TOT_DEP_NFS	Insured deposits / Total deposits of the non-financial sector (households and non-financial enterprises)	

Table 5 (continued)

Variable	Definition	Area of analysis
DEP_MFI_TA	Deposits from the interbank market / Total assets	The scale of uninsured financing from the wholesale interbank market
EX_ANTE	Binary variable: 1 – if the DGS operates under the Ex ante funding model, 0 otherwise	DGS funding model
EX_POST	Binary variable: 1 – if the DGS operates under the Ex post funding model, 0 otherwise	
Control variables – sectoral characteristics		
LN_ASS	Natural logarithm of total banking sector assets	Banking sector size
LOANS_ASS	Total loans granted / Total assets	Scale of banking credit activity
ROE	Net income / Average equity	Sector profitability
NPL	Share of impaired loans in total loans	Sector asset quality
NET_FEE_COM_INC_ASS	Net fee and commission income relative to total assets	Diversification of banking sector income sources
C_I	Costs / Revenues	Cost efficiency
CUR_DEP_TOT_DEP_NFS	Current deposits / Total deposits of the non-financial sector	Stability of funding sources
HHI	Herfindahl-Hirschman Index	Sector concentration
Control variables – macroeconomic characteristics		
GDP	Change in the country's GDP	Macroeconomic environment – economic growth
INF	HICP index – harmonized measure of inflation in the EU	Macroeconomic environment – inflation
PU_DT_GDP	Public finance sector debt / GDP	Macroeconomic environment – public debt

Source: own study.

Due to the occurrence of extreme events in the analyzed period: COVID-19 (2020) and the US West Coast banks failures (2023), binary variables characterizing these factors were also introduced into the model (COVID, WESTCOAST_BC, respectively). Based on the analysis of the correlation coefficients and their significance (correlation matrix in the appendix), it was decided to alternatively include some experimental variables in the model, creating model 1 (among the correlated

variables EX_ANTE; COVE_DEP_TOT_DEP_NFS were included) and model 2 (among the correlated variables EX_POST; COVE_DEP_TOT_DEP). Based on the nature of the data and their abundance, and considering the statistical tests (Hansen, AR 1, AR 2), it was decided to choose dynamic panel data models (Generalized Method of Moment version of GMM-SYS, Blundell and Bond, 1998) to determine the parameters of the linear regression equation. The use of such models (using instrumental variables) allows a departure from the standard assumption of strict exogeneity of the regressors. It allows the inclusion of lagged values of the dependent variable, which is not feasible for statistical panel models (with fixed effects and individual random effects) (Kozlowski 2016). GMM-based methods are therefore particularly useful for models that include endogenous or predetermined explanatory variables (Dańska-Borsiak 2009). A factor conditioning the use of the GMM-SYS model is the limited study sample (181–191 observations) – the GMM-SYS estimator may give more reliable and accurate results in similar cases (Baltagi 2005). Statistical inference on the significance of the model parameters was carried out based on a 1-step estimation. The final shape of the estimated dynamic regression models is determined by equation 1.

$$\begin{aligned} FIN.STAB.BSEC_{(it)} &= const + a_{(1)}FIN.STAB.BSEC_{i,t-1} + a_2 EXP.DGS_{i,t} + \\ &+ a_3 CONTR.VAR.SEC_{i,t} + a_4 CONTR.VAR.MAC_{i,t} + a_5 EXTR.PHEN_{i,t} + V_{it} \end{aligned} \quad (1)$$

where:

FIN.STAB.BSEC – selected variable characterizing the level of financial stability of the banking sector of individual EU countries;

EXP.DGS – vector of experimental variables, characteristics of deposit guarantee schemes and their implications in the context of banks' deposit portfolios in individual EU countries;

CONTR.VAR. SEC – vector of control variables characterizing selected banking market parameters of individual EU countries;

CONTR.VAR.MAC – vector of macroeconomic control variables for EU countries;

EXTR.PHEN – vector of binary variables on the occurrence of extreme events – COVID pandemic or West Coast banking crisis.

The results for model 1 are presented in Table 6 and for model 2 in Table 7.

Table 6. Results of parameter estimation in model 1 for bank stability indicators

Variable	ZSC	TCR	T1R	CET1R	CAR
DEP.VAR(-1)	1.006*** (0.023)	0.702*** (0.055)	0.676*** (0.064)	0.687*** (0.065)	0.893*** (0.043)
CONST	-15.792* (8.331)	9.463*** (3.67)	10.82** (4.342)	12.104*** (4.395)	0.923 (2.121)
DGSF_COV_DEP	0.457 (0.401)	0.223 (0.205)	0.198 (0.216)	0.245 (0.215)	0.124 (0.161)
DEP_MFI_TA	0.080 (0.061)	0.002 (0.025)	0.005 (0.025)	0.007 (0.025)	0.02 (0.026)
EX_ANTE	-0.248 (0.769)	-0.118 (0.304)	0.013 (0.32)	-0.028 (0.308)	-0.249 (0.174)
COVE_DEP_TOT_DEP_NFS	0.005 (0.023)	-0.002 (0.010)	-0.005 (0.010)	-0.007 (0.010)	0.001 (0.005)
LN_ASS	0.773** (0.329)	-0.075 (0.139)	-0.175 (0.164)	-0.250 (0.168)	0.028 (0.063)
LOANS_ASS	-0.027 (0.025)	-0.049** (0.022)	-0.035 (0.024)	-0.034 (0.025)	-0.009 (0.007)
ROE	0.123* (0.067)	0.091*** (0.026)	0.074** (0.033)	0.072** (0.031)	0.043*** (0.015)
NPL	0.053 (0.035)	-0.008 (0.013)	0.002 (0.017)	0.012 (0.018)	-0.018** (0.008)
C_I	-0.036 (0.042)	0.023 (0.021)	0.024 (0.023)	0.02 (0.024)	-0.009 (0.01)
NET_FEE_COM_INC_ASS	2.738 ** (1.388)	1.425** (0.703)	1.492* (0.843)	-1.229 (0.777)	0.657* (0.366)
CUR_DEP_TOT_DEP_NFS	-0.019 (0.016)	0.01 (0.008)	0.011 (0.009)	0.01 (0.01)	-0.006 (0.005)
HHI	11.331 *** (4.237)	3.545* (1.866)	2.021 (1.697)	0.465 (1.74)	0.81 (1.282)
GDP	0.118* (0.067)	0.065*** (0.025)	0.063*** (0.022)	0.069*** (0.022)	0.007 (0.012)
INF	-0.017 (0.051)	-0.084*** (0.023)	-0.076*** (0.025)	-0.073*** (0.025)	-0.014 (0.017)
PU_DT_GDP	-0.002 (0.010)	-0.007* (0.003)	-0.009* (0.005)	-0.01** (0.005)	-0.001 (0.002)

Table 6 (continued)

Variable	ZSC	TCR	T1R	CET1R	CAR
WESTCOAST_BC	3.240*** (0.701)	0.859*** (0.241)	0.83*** (0.24)	0.818*** (0.243)	0.451*** (0.123)
COVID	-1.07 (0.948)	1.817*** (0.269)	1.671*** (0.267)	1.745*** (0.271)	-0.169 (0.168)
No. of observations	188	188	188	188	188
No. of instr.	53	53	53	53	53
AR 1 Test	-3.31892 [0.0009]	-2.36703 [0.0179]	-2.09636 [0.0361]	-2.09672 [0.0360]	-2.69569 [0.0070]
AR 2 Test	-0.648828 [0.5164]	1.51078 [0.1308]	1.44658 [0.1480]	1.32813 [0.1841]	-0.867661 [0.3856]
Hansen Test	6.5302 [1.0000]	8.63321 [1.0000]	10.3567 [1.0000]	10.8012 [0.9999]	6.41815 [1.0000]

Notes: AR (1) – 1st order autocorrelation test. AR (2) – 2nd order autocorrelation test. Robust standard errors in parentheses and p-values in brackets. Time effects are included but not reported. System GMM (1 lag used as instrument).

Source: own study.

Table 7. Results of parameter estimation in model 2 for bank stability indicators

Variable	ZSC	TCR	T1R	CET1R	CAR
DEP.VAR(-1)	0.999*** (0.027)	0.688*** (0.053)	0.648*** (0.068)	0.642*** (0.067)	0.908*** (0.041)
CONST	-14.201* (7.478)	9.97*** (3.475)	11.629*** (4.021)	13.455*** (4.225)	0.167 (1.87)
DGSF_COV_DEP	0.392 (0.416)	0.255 (0.194)	0.247 (0.21)	0.305 (0.218)	0.089 (0.164)
DEP_MFI_TA	0.072 (0.045)	0.002 (0.026)	0.005 (0.026)	0.007 (0.027)	0.022 (0.026)
EX_POST	0.490 (0.630)	0.195 (0.292)	0.031 (0.297)	0.014 (0.291)	0.127 (0.142)
COVE_DEP_TOT_DEP	-0.002 (0.031)	-0.001 (0.012)	-0.007 (0.012)	-0.011 (0.011)	0.001 (0.006)
LN_ASS	0.789*** (0.301)	-0.098 (0.14)	-0.22 (0.155)	-0.323 (0.36)	0.066 (0.057)

Table 7 (continued)

Variable	ZSC	TCR	T1R	CET1R	CAR
LOANS_ASS	-0.041 (0.027)	-0.048** (0.019)	-0.029 (0.021)	-0.024 (0.022)	-0.014* (0.008)
ROE	0.136** (0.068)	0.087*** (0.027)	0.074** (0.033)	0.07** (0.031)	0.041*** (0.014)
NPL	0.059 (0.041)	-0.009 (0.014)	-0.001 (0.018)	0.01 (0.021)	-0.021** (0.009)
C_I	-0.041 (0.040)	0.026 (0.021)	0.028 (0.024)	0.023 (0.024)	-0.009 (0.01)
NET_FEE_COM_INC_ASS	2.299* (1.397)	1.526** (0.671)	1.621* (0.833)	1.342* (0.796)	0.704** (0.356)
CUR_DEP_TOT_DEP_NFS	-0.015 (0.021	0.009 (0.008)	0.009 (0.01)	0.01 (0.011)	-0.004 (0.005)
HHI	10.968** (4.345)	3.338 (2.117)	1.94 (1.885)	0.157 (2.001)	0.949 (1.225)
GDP	0.127* (0.066)	0.065*** (0.025)	0.062*** (0.022)	0.073*** (0.021)	0.010 (0.013)
INF	-0.022 (0.053)	-0.079*** (0.025)	-0.069** (0.028)	-0.064** (0.027)	-0.013 (0.017)
PU_DT_GDP	-0.005 (0.010)	-0.007* (0.004)	-0.009* (0.005)	-0.009** (0.004)	-0.003 (0.002)
WESTCOAST_BC	3.140*** (0.649)	0.916*** (0.237)	0.876*** (0.228)	0.885*** (0.233)	0.476*** (0.131)
COVID	-0.808 (0.902)	1.743*** (0.276)	1.629*** (0.273)	1.765*** (0.266)	-0.112 (0.167)
No. of observations	191	191	191	191	191
No. of instr.	53	53	53	53	53
AR 1 Test	-3.39377 [0.0007]	-2.45529 [0.0141]	-2.13776 [0.0325]	-2.12426 [0.0336]	-2.77311 [0.0056]
AR 2 Test	-0.303465 [0.7615]	1.60862 [0.1077]	1.50848 [0.1314]	1.37723 [0.1684]	-0.756817 [0.4492]
Hansen Test	4.48252 [1.0000]	7.93105 [1.0000]	11.8531 [0.9998]	11.6775 [0.9999]	4.76238 [1.0000]

Notes: AR (1) – 1st order autocorrelation test. AR (2) – 2nd order autocorrelation test. Robust standard errors in parentheses and p-values in brackets. Time effects are included but not reported. System GMM (1 lag used as instrument).

Source: own study.

The estimated models allow to formulate the following conclusions:

- No grounds were found to confirm the hypothesis of a direct impact of the capitalization level and the funding model of DGS on the level of financial stability of the banking sectors in the EU. The values of the directional coefficients of the regression equations for the variables DGSF_COV_DEP, EX_ANTE and EX_POST do not show statistical significance even at the significance level of 10%.
- There is also no evidence to directly support the hypothesis that the share of guaranteed deposits in total deposits raised by banks and in deposits of the non-financial sector affects the level of financial stability of the banking sectors. For both the COVE_DEP_TOT_DEP_NFS and COVE_DEP_TOT_DEP variables, the directional coefficients are statistically insignificant for all the measures of financial stability of banking sectors used in the study.
- The scale of dependence of bank funding on the interbank market (variable DEP_MFI_TA) did not have a statistically significant impact on the level of financial stability, regardless of the type of measure used.

The results obtained from the estimated models illustrate that the significant determinants of banking sector stability in the EU countries over the period 2015–2023 were:

- the level of stability in the previous year (lagged explanatory variable);
- bank-based or macroeconomic variables such as ROE, NET_FEE_COM_INC_ASS, GDP, INF, PU_DT_GDP in all or most models;
- NPL, HHI, LN_ASS, LOANS_ASS for some measures of financial stability.

Another important finding is the positive correlation of experimental variables denoting the occurrence systemic event (the West Coast banking crisis – WEST-COAST_BC) – significant for all measures of stability and the COVID-19 variable, significant for all measures of capital adequacy, with the level of financial stability. In this context, it should be pointed out that for the EU banking sectors, the extreme events occurring in recent years have provided room for growth in the capital base and reduction in risk exposures. Given the above, the conclusions of the analyses are not surprising, indicating high confidence level of both the financial and non-financial sectors in their readiness to increase the value of funds entrusted to the banking sectors in 2023, despite the systemic problem in the US.

5. Conclusions and summary of key findings

The reports and research papers analyzed in the article highlighted that the EU crisis management and deposit insurance framework put in place after the 2008 crisis has proven effective and has brought benefits in the form of improved crisis management, increased market discipline, more resilient banks and improved depositor protection. However, there are still significant gaps that need to be modified in the planned CMDI directive. The European Commission's 2023 proposal

did not change the target level of available funds to be held by deposit guarantee schemes (0.8% of guaranteed deposits) or resolution funding mechanisms (1% of guaranteed deposits). However, more flexible conditions were proposed for the precautionary use of funds from DGS (Clifford Chance 2023).

The empirical analysis, including the conducted panel studies for EU countries, did not confirm the hypothesis that the level of capitalization and the funding model of deposit guarantee schemes have a direct impact on the level of stability of the banking sectors of EU countries. The hypothesis that the share of guaranteed deposits in total deposits directly affects the level of stability of banking sectors was also not confirmed. Similarly, the scale of the dependence of the financing of the activities of the banking sectors on the interbank market did not turn out to have a statistically significant effect on the level of stability. These findings support some of the conclusions and recommendations for CMDI reforms made by stakeholders, particularly in the EBA report (2023).

Another important finding of the empirical analysis is the positive association of variables describing the occurrence of extreme financial and social events – i.e., the West Coast banking crisis and the aftermath of the COVID-19 pandemic – with the level of financial stability. For the European Union's banking sectors, the extreme events occurring in recent years have been a stimulus to increase the capital base and reduce risk exposures. The analysis of deposit portfolio changes also indicated a high conviction in both the financial and non-financial sectors that they are ready to increase the value of funds entrusted to the banking sector in 2023. Thus, both the theoretical analysis and the empirical model used confirm the main conclusions of the debate on the new CMDI directive, also contained in the EBA's 2023 report, that bank runs and panics depend on many factors, not only on the scope and scale of deposit guarantees in DGS schemes, and that unguaranteed corporate deposits do not pose a serious threat to the stability of the banking sector as an isolated factor.

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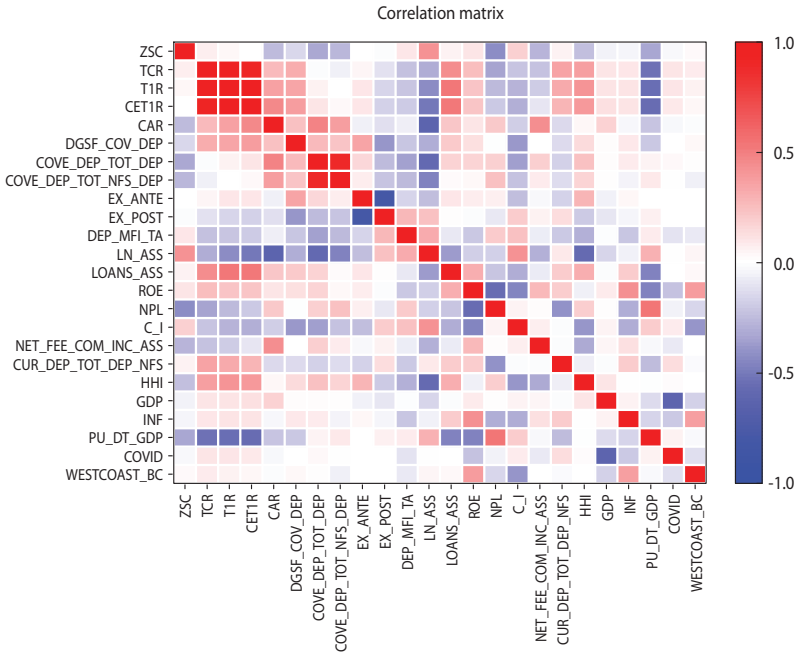
Appendix 1. Correlation matrix



Appendix 2. Main descriptive statistics of the variables used in the construction of the model

Variable	Mean	Median	St. Dev.	Min	Max
ZSC	38.3	36.5	22.5	3.73	96.9
TCR	20.4	19.8	3.27	12.3	35.4
T1R	18.6	18.2	3.42	11.5	34.9
CET1R	17.9	17.4	3.49	10.9	34.8
CAR	8.74	8.23	2.38	5.25	15.1
DGSF_COV_DEP	1.06	0.931	0.784	-0.753	3.40
COVE_DEP_TOT_DEP	37.7	36.5	13.1	4.55	62.7
COVE_DEP_TOT_NFS_DEP	55.2	58.2	13.8	21.1	88.6
EX_ANTE	0.741	1.00	0.439	0.000	1.00
EX_POST	0.185	0.000	0.389	0.000	1.00
DEP_MFI_TA	4.55	3.29	3.92	0.000	24.0
LN_ASS	19.7	19.8	1.70	16.9	23.0
LOANS_ASS	75.6	75.3	8.06	54.1	96.5
ROE	7.55	8.14	5.62	-24.2	21.8
NPL	5.42	2.99	7.59	0.565	46.8
C_I	55.6	55.4	8.90	32.8	83.9
NET_FEE_COM_INC_ASS	0.702	0.680	0.267	0.283	1.70
CUR_DEP_TOT_DEP_NFS	70.6	72.4	14.2	25.8	95.6
HHI	0.137	0.113	0.0752	0.00950	0.356
GDP	2.66	2.60	3.97	-11.2	24.5
INF	2.95	1.70	3.85	-1.50	19.4
PU_DT_GDP	68.7	61.9	38.8	8.20	207.
COVID	0.111	0.000	0.315	0.000	1.00
WESTCOAST_BC	0.111	0.000	0.315	0.000	1.00

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Transfer strategy as an effective resolution method – theoretical considerations and lessons learnt so far

Abstract

The experience gathered in recent years has shown that the dominant method used in bank resolution is the transfer strategy which involves transfer of all or selected assets and liabilities from the problem bank to the new, market acquirer. The analysis outlined in this article indicates a number of advantages of the transfer strategy compared to the alternative bail-in strategy or a standard insolvency proceedings. In particular, the transfer strategy allows for setting lower requirements in terms of the bank's internal loss absorbing capacity, which makes it particularly suitable for smaller deposit-funded banks. However, the success of a transfer strategy depends on several factors and its implementation requires adequate preparation. The article attempts to outline the most important determinants of a successful transfer strategy.

Keywords: transfer strategy, bridge bank, bail-in strategy, resolution, crisis management

JEL Codes: G01, G21, G28, H12

Strategia transferu jako skuteczna metoda *resolution* – rozważania teoretyczne i wnioski z dotychczasowych doświadczeń

Streszczenie

Doświadczenia ostatnich lat pokazują, że dominującą metodą stosowaną w ramach restrukturyzacji i uporządkowanej likwidacji banków jest strategia transferu polegająca na sprzedaży wszystkich bądź wybranych aktywów i zobowiązań banku problemowego do nowego, rynkowego nabywcy. Przedstawiona w niniejszym artykule analiza wskazuje na szereg zalet

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strategii transferu w porównaniu do alternatywnej strategii *bail-in*, jak i klasycznej procedury postępowania upadłościowego. W szczególności, strategia transferu pozwala na określenie mniejszych wymagań w zakresie wewnętrznej zdolności do absorpcji strat banku, przez co może być szczególnie przydatna wobec banków mniejszych, finansujących się w znacznym stopniu depozytami. Jednakże powodzenie strategii transferu jest uzależnione od szeregu czynników, a jej wdrożenie wymaga odpowiedniego przygotowania. W artykule podjęto próbę przedstawienia najważniejszych determinant powodzenia strategii transferu.

Słowa kluczowe: strategia transferu, bank pomostowy, strategia bail-in, restrukturyzacja i uporządkowana likwidacja, zarządzanie kryzysowe

Kody JEL: G01, G21, G28, H12

Introduction

The global financial crisis of 2007–2009 contributed to a significant shift in the crisis management approach for the banking sector. Promoted by the *Financial Stability Board* (FSB), the concept of resolution, the essence of which is to wind down a problem bank while maintaining its critical functions and without involving public funds, gained popularity. One way of conducting resolution is to transfer selected or all balance sheet components of a problem bank to a sound market buyer. Depending on the jurisdiction, terminology adopted to describe this *resolution* method varies. The two best-known examples are: (i) *the sale of business tool* introduced by the BRRD[1] in the European Union (EU), and (ii) the *Purchase & Assumption* (P&A) used successfully for several decades by the Federal Deposit Insurance Corporation (FDIC) in the United States (US). The term 'transfer strategy' is used in the article to describe this way of resolving banks.

There are two types of transfer strategies: (1) in which selected or all assets and liabilities are transferred (*asset deals*) and (2) in which shares are transferred (*share deals*) (Baudino et al. 2023). A share deal means that a new buyer becomes the owner and takes over all assets and liabilities of the bank in question, so that it can recapitalise and restructure it. It can be said that in transfer strategies, assets of the bank under resolution constitute compensation for the new acquirer for the assumed liabilities (mainly deposits). When the assets for the transfer are of a higher value than the liabilities, there is a surplus (*positive bid*) and the buyer has to pay a premium as it takes over a business that offers prospects for further growth and value enhancement. On the other hand, when the value of assumed liabilities is greater than the value of transferred assets, then there is a funding gap (*negative bid*) and the buyer expects financial support to complete such a transaction. Most

[1] Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms and amending Council Directive 82/891/EEC and Directives 2001/24/EC, 2002/47/EC, 2004/25/EC, 2005/56/EC, 2007/36/EC, 2011/35/EU, 2012/30/EU and 2013/36/EU of the European Parliament and of the Council and Regulations (EU) No 1093/2010 and (EU) No 648/2012 of the European Parliament and of the Council, OJ. EU L 173/190 of 12.6.2014.

often, such external financial support in transfer strategies is provided by the deposit guarantee scheme (DGS), for which this form of intervention is an alternative option to the deposit payout.

It is worth noting that there is a certain difference between transfer strategies conducted in the EU and the US. Under the BRRD, the sale of business tool allows for the transfer of shares and other ownership instruments as well as the transfer of all or selected assets, rights and liabilities of the bank under resolution to a sound market acquirer. Thus, in the EU transfer strategies can take the form of both *share deals* and *asset deals*, and it is up to the resolution authority to choose which one to apply. In contrast, in the US only *asset deals* are conducted, whereby there is a *purchase* of assets and *assumption* of liabilities (mainly deposits) of a problem bank by another healthy bank – hence the name *Purchase and Assumption* (P&A).

The BRRD includes also two other resolution instruments under which assets, rights or liabilities are transferred. These are: the bridge institution tool and the asset separation tool. The bridge institution tool (in other words, a bridge bank) is used as an alternative solution when the application of the sale of business tool is not possible due to the lack of a willing buyer. The BRRD clearly states that a bridge bank is a temporary solution[2], and that assets and liabilities transferred to it from the bank under resolution should ultimately be taken over by a market buyer, otherwise the bridge bank is wound up. Whereas, in the case of the asset separation tool, assets (usually of poor quality which burden the balance sheet of the bank and adversely affect its financial performance) are transferred to an asset management vehicle. The purpose of such an operation is to clean up the balance sheet of the bank under resolution, thus facilitating the resolution process. According to the BRRD, the asset separation tool cannot be used on its own, but only in combination with another resolution tool, which indicates its ancillary (supportive) nature. In addition, the asset management vehicle is also a temporary structure. It follows from the above that both the bridge institution tool and the asset separation tool are not stand-alone resolution tools, but rather these instruments should be seen as "additional" or "supportive" tools in the conduct of the resolution procedure. For this reason, the term "transfer strategy" as used in the article – in the context of the BRRD – refers only to the sale of business tool.

Apart from the transfer strategy, so-called bail-in strategy could also be distinguished within the resolution framework. This approach is based on the bank's internal loss-absorbing capacity through the write down or conversion of its liabilities. The execution of bail-in allows to absorb losses and recapitalise the bank which continues market operation but with a restructured balance sheet (so-called *open-bank bail-in*). The experience gathered so far shows that due to the uncertainty of its actual effects the bail-in tool is not applied very willingly. Also during the banking turmoil

[2] According to the BRRD, the operation of the bridge bank should be terminated after 2 years from the date on which the transfer to the bridge institution was effected. In special cases, this period may be extended by one year.

in the spring of 2023 in the US and Switzerland[3], financial safety net authorities were more willing to resort to share deals or transfers of assets and liability than to use the bail-in tool. In addition, in the European Union the legislative works on the revision of the BRRD, underway since April 2023, also aim to increase the potential for the use of transfer strategies in crisis management, particularly towards small and medium-sized banks (Dobrzańska 2024).

The purpose of this article is to analyse the advantages and disadvantages of a transfer strategy as a way of resolving banks and to identify the key determinants for its successful implementation. It should be noted that in order to provide a comprehensive analysis the pros and cons of a transfer strategy are contrasted not only with the alternative bail-in strategy, but also with standard bank liquidation accompanied by deposit payout. This approach is motivated by the fact that in the European Union, despite the existence of the formal resolution framework, most cases of problem banks have so far been handled outside the resolution (European Commission 2023). It is therefore reasonable to indicate the benefits attached to transfer strategies as compared to liquidating a bank under standard insolvency proceedings. The following structure of the article serves this objective. The first part of the article discusses the advantages of a transfer strategy versus both (i) a bank liquidation together with deposit payout and (ii) a bail-in strategy. The second part of the article identifies the key determinants of a successful transfer strategy as well as the preparatory steps to be taken by both the resolution authority and the bank concerned. The final part of the article provides conclusions. In addition, the article is accompanied by an annex presenting the most recent resolution cases where transfer strategies were applied, including the use of a bridge bank.

1. Advantages of a transfer strategy

The literature points to a number of advantages of a transfer strategy as a way to resolve a problem bank, not only within resolution, but also in the event of its bankruptcy as an alternative to deposit payout. The main benefits a transfer strategy include:

- maintaining critical functions of the problem bank,
- preventing potential banking panic,
- maintaining business relationship between the problem bank and its clients/counterparties,
- preserving the asset value of the problem bank,

[3] In March 2023, the state-arranged takeover of Credit Suisse by UBS took place. Although bail-in strategy was planned for Credit Suisse, Swiss authorities did not decide for resolution and bail-in, fearing that this could trigger greater market turmoil or even a financial crisis not only in Switzerland but also globally. Additionally, there were also legal obstacles related to bail-in of debt instruments issued under US law, which constituted a significant part of Credit Suisse's TLAC. More in: FSB (2023) and Swiss National Bank (2023).

- limiting the role of public authorities in managing the assets of the failed bank,
- lower requirements in terms of bank's internal loss-absorbing capacity (which translates into lower funding costs),
- protecting deposit insurance funds,
- flexibility.

Firstly, the application of a transfer strategy preserves critical functions of the bank subject to resolution. A critical function should be understood as an activity performed by a bank to third parties (its customers, counterparties) that is important for the functioning of the real economy and financial system stability. The failure or disruption in the availability of a critical function leads to significant negative consequences of a systemic dimension, which is most often due to the size of the bank, its market share, its interconnectedness, as well as the complexity and cross-border scale of its operations (FSB 2013). Critical functions, although often associated with the largest banks, are not peculiar to systemically important banks at the global or national level but can also be performed by smaller banks locally/regionally[4], which further increases the potential for the application of transfer strategies. It is the task of the resolution authority to assess whether a bank performs critical functions or not[5]. Deposit taking or lending are examples of critical functions. The bank failure disrupts these functions, i.e. deposits become unavailable and lending comes to the sudden halt which, as a consequence, leads to financial problems of bank customers, e.g. businesses that are suddenly cut off from the their deposit accounts or credit lines. While it is not always advisable to rescue a bank that has run into financial difficulties, it is reasonable to preserve its critical functions by transferring them to another healthy market buyer. In such a situation, the acquirer takes over deposit portfolio as well as assets of good quality, including loans. In turn, the problem bank itself (the so-called residual entity) is liquidated and exits the market.

Second, a transfer strategy, whereby not only covered deposits but also those not covered by DGS are transferred, contributes also to preserving financial stability by preventing possible banking panic. This issue can be particularly important when a bank with a large share of uninsured deposits in its liability structure runs into financial difficulties. For example, in March 2023, information about the financial problems of Silicon Valley Bank (SVB), which had an exceptionally high share of uninsured deposits in total deposits, as high as 94%, triggered a massive and immediate run on this bank which led (in a short period of time) to its insolvency. Initially, the bank was not considered systemically important, so due to the small amount of insured deposits, the least costly option for the US Deposit Insurance Fund (DIF) was to pay out deposits and liquidate the bank. However, it soon became

[4] For example, in 2020 the resolution of Podkarpacki Bank Spółdzielczy in Sanok, a small cooperative bank, was motivated by the fact that the bank performed critical functions at the local level, by serving local government entities that had significant funds deposited with this bank.

[5] It is also worth mentioning that EU regulations use the concept of a *public interest assessment* (PIA), which is closely related to critical functions. Indeed, in the EU, the decision to initiate *resolution* is conditional on the existence of a public interest.

apparent that depositor anxiety was growing and other regional banks with a similar profile began to experience increased deposit outflows, among them was Signature Bank, with 90% of its total deposits being uninsured. In order to contain a further spillover of the banking panic, the US financial safety net authorities were forced to implement non-standard measures, such as the activation of the so-called *systemic risk exception*[6]. This allowed the FDIC to take action which was not in line with the least cost test but helped to prevent banking panic and stabilised the situation in the banking sector quickly. Ultimately, SVB and Signature Bank were placed under resolution (P&A), whereby deposits[7] and their selected assets and liabilities were acquired by the willing market buyers (FDIC 2023a; Fed 2023).

Thirdly, the use of a transfer strategy allows to maintain relationship between the bank and its customers, which is often a very important aspect. This applies to both depositors and borrowers. The transfer of a deposit portfolio ensures that depositors have uninterrupted access to their deposit accounts. In the event of insolvency the DGS is obliged to disburse covered deposits in accordance with the regulations[8]. In the event of bank failure and deposit payout customers covered by the DGS do not suffer any losses but nevertheless have to make an effort to find a new bank to place their savings. The use of a transfer strategy, whereby the entire deposit portfolio is assumed by another sound bank, relieves depositors in this respect as they do not have to look for a new bank (although they can of course change a bank, if they wish). An extremely important advantage of transfer strategy is that it provides uninterrupted access to deposits. In contrast, in case of bail-in strategy, there is a risk that bail-in may theoretically involve uninsured deposits which, as the US example has shown, affects financial stability negatively. In transfer transactions, the new market buyer also takes over good assets such as performing loans, thus preserving the relationship between the bank and its borrowers, which can be particularly important for smaller companies for which the relationship with their bank is of significant importance.

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6 The *Federal Deposit Insurance Corporation Improvement Act of 1991* introduced the so-called "least cost test", under which the FDIC is required to take resolution actions against failed banks that generate the least cost to the deposit insurance fund (DIF). However, the Act allowed for an exception, the so-called '*systemic risk exception*' (SRE) exempting the FDIC from the application of the least cost principle when the financial stability is at risk. The decision to trigger the SRE is made by the Secretary of the Treasury after consultation with the US President and on a written recommendation from the central bank (Fed) and the FDIC. (FDIC, 2017)

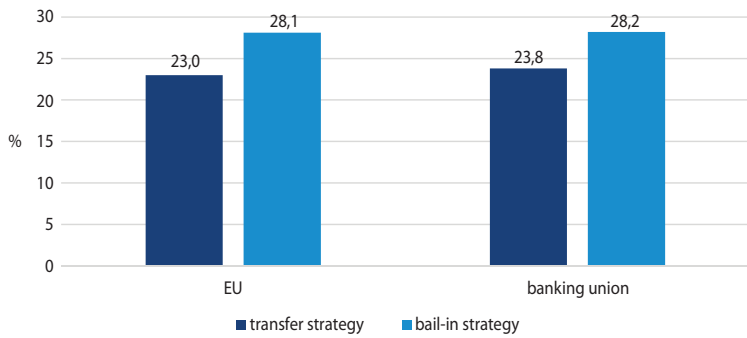
7 In the case of Signature Bank, approximately USD 4 billion of deposits linked to cryptocurrencies were excluded from the transaction.

8 Different jurisdictions have adopted different regulations in this respect, although there is a general trend towards a progressive shortening of the payout period and increasing the coverage level. For example, in the EU the DGS covers deposits up to EUR 100 000, while in the US it is USD 250 000 (approximately EUR 228 000). DGS in EU have to pay out covered deposits within a maximum of 7 working days from the determination of the unavailability of deposits. The US regulations only specify that payout must be done "as soon as possible", but practice shows that the FDIC generally needs an average of 2 business days to pay out covered deposits.

Another advantage of the transfer strategy is the preservation of the value of bank assets that are not liquidated but remain in the banking sector. Bank liquidation causes greater loss of asset value than a transfer to another entity (Stopczynski 2020). Thus, resolution via transfer strategy is a more favourable solution than piecemeal liquidation. This combines with another positive feature of a transfer strategy, namely the limited role of public authorities in managing assets of a failed bank (Baudino et al. 2023). A market buyer that acquires good assets has both more experience in asset management and greater incentive to manage them more efficiently.

Compared to other crisis management methods transfer strategies are also significantly more financially beneficial, both from the perspective of the problem bank and the system as a whole. In case of a transfer strategy, having a high internal loss-absorbing capacity is not as important as in case of a bail-in strategy. Successful implementation of a transfer strategy requires that the bank has eligible liabilities in an amount sufficient to absorb losses. In case of both *asset deals* and *share deals* once losses of the bank under resolution are covered, its (all or selected) assets and liabilities are taken over by a market acquirer which can restructure the acquired business. In transfer strategies it is therefore not necessary (as in case of *open-bank bail-in*) that there are also additional eligible liabilities to recapitalise the bank, so that it is able to continue to operate its business. Consequently, the requirements in terms of internal loss-absorbing capacity are clearly lower for banks with transfer strategies. This is particularly evident in the EU where minimum requirement for own funds and eligible liabilities (MREL) has been introduced. Restoy (2023) points out that the calibration of MREL should target expected funding gap in transfer strategies, so as a minimum, MREL should close the gap between transferred liabilities (mainly deposits) and transferred assets, after considering external support (e.g. from the deposit insurer).

Chart 1. Average MREL for banks with transfer strategies and bail-in strategies



Explanation: MREL is expressed as a percentage of total risk exposure amount (TREA). Data at the end of 2Q2024.

Source: own work based on EBA (2024), SRB (2024c).

The MREL methodology used by the EU resolution authorities assumes an MREL adjustment for banks with transfer strategies. For example, the Single Resolution Board[9] (SRB), whose approach serves as a benchmark for other resolution authorities in the banking union, tailors the recapitalisation amount[10] by applying a scaling factor in the range of 15%–25% which is determined on a bank-by-bank basis and depends on a number of criteria, i.e. bank size, assets quality, covered deposits, as well as the level of uncertainty related to assets valuation (SRB 2024a). Also the Polish resolution authority, the Bank Guarantee Fund (BFG), adjusts the recapitalisation amount (and thus MREL) to the resolution strategy adopted. For banks with transfer strategies, the BFG applies a 25% or 50% scaling factor, depending on the bank's size measured by total assets (BFG 2024). Such an approach to MREL calibration by the resolution authorities results in a significantly lower requirement for banks with transfer strategies than for banks with a bail-in strategies (see Chart 1). As a result, banks with transfer strategies hold correspondingly less MREL-eligible debt (so-called eligible liabilities), the issuance of which is more costly and may also be more difficult for smaller banks operating locally or in countries with less developed capital markets. EBA data (2024) shows that transfer strategies are envisaged for the majority of EU banks (63%), however, these banks represent only 7% of risk-weighted assets which indicates that these are smaller institutions (see Chart 2). This trend is also clearly visible in the banking union where resolution competences are shared between the SRB and national resolution authorities. The SRB is responsible for resolution of the largest EU banks which are in scope of the ECB supervision, while the national resolution authorities are in charge of the remaining banks, referred to in the EU as *less significant institutions* (LSIs). While bail-in strategies are envisaged for the vast majority (82%) of banks under the SRB's remit, only half (53%) of LSIs are planned to be restructured using bail-in tool (SRB 2024b). The potential of transfer strategies is, therefore, much greater for smaller banks (LSIs) than for the largest ones.

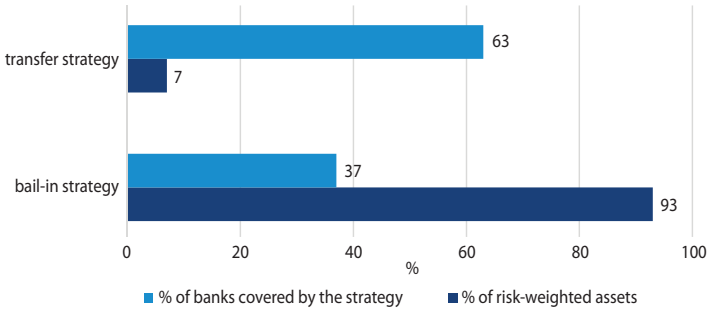
Transfer strategies may also prove to be less costly from the financial system perspective, especially if the alternative solution would be bank failure with deposit payout, which generally constitutes a considerable expense for the DGS and may lead to a significant depletion or even exhaustion of the deposit guarantee fund. The subsequent need to replenish this fund via the collection of additional *ex-post* contributions burdens the banking sector and may reinforce pro-cyclicality. Admittedly, the application of transfer strategies may also require DGS funding (especially when the value of deposits assumed exceeds the assets value for transfer), but on a smaller scale. It is worth noting that DGS financial support is generally conditioned by the least cost test (LCT), according to which DGS engages

[9] The Single Resolution Board is the centralised resolution authority for the banking union area.

[10] MREL consists of two components, i.e. the loss-absorption amount and the recapitalisation amount. According to Article 45c of the BRRD, the loss absorption amount should be sufficient to fully cover the expected losses of the bank, while the recapitalisation amount should allow to recapitalize the bank, so that it is able to continue its functioning and complies with all the regulatory requirements.

in interventions which are least costly from its point of view. The outcome of LCT depends on, inter alia, the DGS ranking in the creditor hierarchy and whether the LCT methodology takes into account only direct or also indirect costs.[11]

Chart 2. EU banks subject to transfer and bail-in strategies (data as of end 2Q2024)



Source: own work based on EBA (2024).

Finally, transfer strategies are characterised by considerable flexibility as they can be tailored to a given situation and the financial capabilities and preferences of the buyer (Baudino et al. 2023). A good example is the US experience where the FDIC developed various options of transfer transactions (P&A) that differ in assets transferred. It should be emphasized that in each variant deposit portfolio is assumed as safeguarding depositors' access to their deposits is one of the main resolution objectives. The simplest option is so-called *basic* P&A, whereby the most liquid assets, i.e. cash, cash equivalents and marketable securities, are transferred to an acquirer, in addition to deposits. Alternatively, the purchaser may choose to acquire all (or almost all) of the assets at a discount (*Whole Bank* P&A). A more flexible but also more complicated solution is to group and transfer the homogeneous loan pools (*P&A with Loan Pools*) where bids are submitted separately for each pool. *Loss-Share P&A*, in which the FDIC shares losses on the acquired assets with the acquiring bank, are also very popular (FDIC 2017; Szczepańska et al. 2015).

Summarising the above discussion, it can be concluded that transfer strategies embody the most important objectives of the resolution procedure. The comparison provided in Table 1 shows that transfer strategies have a clear advantage over a bank liquidation combined with deposit payout. In contrast, when juxtaposed with the bail-in strategy the only major difference emerges with regard to the internal loss-absorbing capacity which must be significantly higher for a strategy based on the bail-in tool than in case of transfer strategies. Hence, bail-in strategies are more suitable for large banks that do not have any major problems with issuing eligible debt and are too big to quickly find a market buyer for them.

[11] More on this in Part 2 of the article.

Table 1. Comparison of transfer strategies with alternative methods

Advantages	Transfer strategies	*Bail-in* strategy	Bank liquidation with deposit payout
Maintaining critical functions of the problem bank	✓	✓	×
Preventing a bank run	✓	✓/× (*depending on the circumstances, including the need to bail-in uninsured deposits*)	✓/× (*depending on the circumstances, including the share of uninsured deposits in the bank's total deposits*)
Maintaining relationship with customers/counterparties	✓	✓	×
Preserving asset value of the problem bank	✓	✓	×
Reducing the role of public authorities	✓	✓	×
Lower requirements in terms of internal loss-absorbing capacity	✓	×	✓
Protecting DGS funds	✓	✓	×
Flexibility	✓	✓	×

Source: own work.

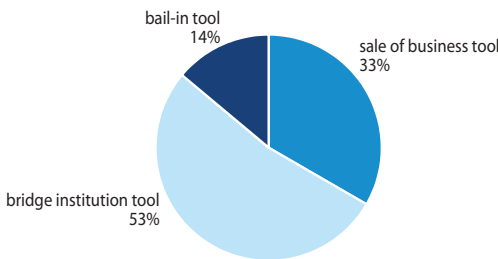
In addition, it is worth noting that some disadvantages or challenges related to a bail-in strategy do not arise with transfer strategies. Firstly, in case of bail-in strategy sufficient liquidity in resolution needs to be ensured, as the bank under resolution is expected to continue market operation and therefore needs to maintain the ability to settle its liabilities on an ongoing basis (Ringe 2017). Hence, banks with a bail-in strategy are expected to be able to estimate their liquidity needs in resolution, and to identify and quickly mobilise adequate collateral that can be used to obtain liquidity both during and after the resolution (SRB 2020). In case of transfer strategies, the 'liquidity in resolution' aspect is less relevant as the problem bank is taken over by a sound market acquirer that provides it with liquidity. Secondly, the use of the bail-in tool involves a number of challenges and uncertainties, which are of operational, legal and psychological nature, ranging from the prompt determination of the scope of liabilities subject to bail-in, including any possible exemptions, through the need to ensure business continuity of the bank and its access to the necessary market infrastructure during resolution, and the recognition of the bail-in effect in case

debt instruments are governed by the laws of a third country, and ending with the issues related to market reaction and the impact of bail-in on financial stability, including the possibility of negative developments such as contagion risk (Zhou et al. 2012; Ringe 2017; Tröger 2018).

Finally it is worth noting that the application of a transfer strategy, understood as the transfer of all or selected assets, rights and liabilities of the bank under resolution to a sound market buyer, may be supported by additional resolution tools of a supportive and temporary nature. The first such instrument, which is also provided for in the BRRD, is the asset separation tool[12], under which assets, rights and/or liabilities burdening the bank's balance sheet are transferred to an asset management vehicle whose objective is to maximise the value of the assets received. This operation allows for the cleaning up of the balance sheet which should increase the attractiveness of the bank under resolution and facilitate its sale to a market buyer (Szczepańska et al. 2015).

A second instrument that can support the transfer strategy is the use of a bridge bank (bridge institution tool). A bridge bank is usually used when there is a problem with finding a suitable and willing market purchaser. In this case the resolution takes place in two stages. In the first step, on the basis of the bank under resolution, a bridge bank is created which is owned by the resolution authority. In the second stage, the bridge bank is sold to a market buyer. Therefore, the bridge bank can be used as a variant resolution strategy when the preferred resolution strategy is based on a sale of business tool is. SRB reports (2023, 2024b) on resolution planning for banks under its remit as well as for LSIs confirm that resolution authorities use such an approach (see Chart 3).

Chart 3. Alternative resolution strategy for LSIs



Comments: When bail-in is the preferred resolution strategy then a transfer strategy, i.e. a sale of business tool, is most often planned as the alternative strategy (11 cases). In contrast, when a transfer strategy is the preferred resolution strategy, then the alternative strategy is most often a bridge bank (19 cases) and rarely the application of bail-in tool (5 cases).

Source: own work based on (SRB 2024b).

[12] Under the BRRD, the asset separation tool is not a stand-alone resolution tool and can only be used in combination with another resolution tool.

All or only selected assets and liabilities of the bank under resolution may be transferred to a bridge bank. It is also acceptable to transfer 'good' assets to a bridge bank, while 'bad' assets to an asset management vehicle. This helps to establish a bridge bank that is easier to manage and more attractive for potential market buyers. Supporting the transfer strategy with other instruments is not just a theoretical concept. For example, in Poland, a bridge bank tool was applied in resolution of Bank Spółdzielczy in Sanok and Getin Noble Bank S.A. (GNB). In case of the GNB resolution in order to facilitate the sale of the bridge bank, the asset separation tool (which concerned a portfolio of leasing receivables) was also applied in a supportive manner. Bridge banks were also used in the US in the resolution of Silicon Valley Bank and Signature Bank, nevertheless it is worth noting that in the US the time needed for marketing bridge banks was much shorter than in the aforementioned Polish experience. It took the FDIC only one week to find a willing buyer for Signature Bridge Bank N.A.[13] and two weeks in case of Silicon Valley Bridge Bank N.A.[14] In contrast, bridge banks in Poland, i.e. Bank Nowy BFG S.A.[15] and Velobank S.A.[16], were sold almost two years after their creation.

2. Conditions for a successful transfer strategy

The advantages of the transfer strategy discussed above can emerge fully only if the entire transaction is carried out efficiently and effectively. One of the key conditions for a transfer strategy is the presence of a suitable market purchaser. However, in a crisis situation or in case of financial market tensions finding such a buyer can be challenging. Therefore, resolution planning is extremely important, including developing of an alternative solution (for example, a bridge bank), in case there is no willing buyer.

The actions necessary for the efficient and smooth implementation of the transfer strategy must be taken *ex ante*, i.e. at the preparatory stage, both by the resolution authority and by the bank for which the transfer strategy is planned as the main (preferred) resolution strategy. On the side of the resolution authority, key actions include: (i) monitoring the market for potential acquirers, (ii) preparing possible external financing options for transfer transactions, (iii) cyclical resolvability assessment and monitoring the bank's progress in removing obstacles to the implementation of the planned resolution strategy. Whereas the most important measures that the bank should take to support the effective implementation of the transfer strategy include: (i) ensuring the separability of its balance sheet and/or

[13] Signature Bridge Bank N.A. was acquired by Flagstar Bank.

[14] Silicon Valley Bridge Bank N.A. was acquired by First Citizens Bank.

[15] Bank Nowy BFG S.A. was a bridge bank created by the BFG within the resolution of Podkarpacki Bank Spółdzielczy in Sanok, and was sold to Wielkopolski Bank Spółdzielczy, operating under the neoBank brand.

[16] In the resolution of Getin Noble Bank S.A., the BFG established a bridge bank – Bank BFG S.A. – operating under the name Velobank S.A., which was eventually sold to Cerberus Capital Management.

business lines, (ii) building adequate internal loss-absorbing capacity, (iii) adapting the management information system (MIS) and building internal capacity to quickly produce data and documents needed for the purpose of the virtual data room.

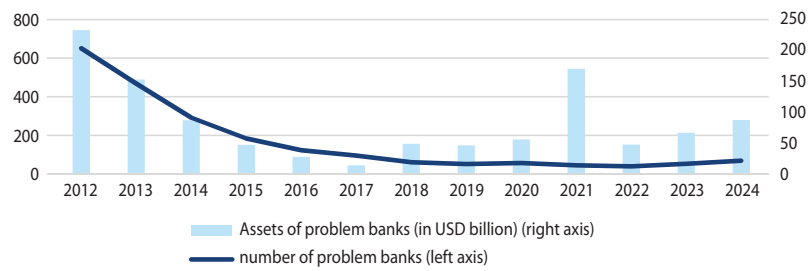
As the presence of a suitable buyer constitutes a key condition for a successful transfer strategy, the resolution authority should prepare a preliminarily list of potential acquirers who not only may be willing to take over a bank under resolution, but also meet the relevant conditions, in particular in terms of their capital and liquidity position (Baudino et al. 2023). Depending on the size of the banking sector finding such an acquirer may be relatively easy or challenging, especially when resolution takes place during the broader financial stress or higher uncertainty in the financial system. Hence, it is good practice to identify potential acquirers before a transfer strategy is actually conducted. In the European Union, the EBA (2022) and SRB (2021) guidelines recommend that, during the preparatory stage, the bank should actively cooperate with the resolution authority in drawing up such a list of potential buyers, as well as in analysing how the transfer perimeter attracts the market interest, or how to make such a transaction more attractive and less risky. Also in the US, the FDIC develops *ex ante* a list of potential buyer and undertakes a number of steps to prepare for the marketing process within resolution (see Box 1).

Box 1. The preparations for the P&A transaction by the FDIC

As the FDIC website provides the marketing process generally takes around 50–70 days for banks failing due to capital shortages. If bank failure is caused by the liquidity problems, then the marketing process must be accelerated. For this reason, it is necessary to start preparations for a P&A as soon as the first signs of a bank's deteriorating financial situation appear.

The FDIC maintains a *Problem Bank List*, which includes banks with CAMELS rating of 4 and 5. This list is not publicly available and the FDIC provides only general data on the number of problem banks and their total assets. At the end of Q3 2024, there were 68 banks on the aforementioned list with total assets of USD 87.3 billion.

Chart. 4. Number of problem banks and their assets in the US from 2012 to 2024



Note: For 2024, data at the end of the third quarter.

Source: Own work based on FDIC data.

Box 1 (continued)

The confidential nature of the list not only aims to prevent possible runs on weaker banks but also allows the FDIC to start preparing for resolution discreetly. Generally, the decision to close a bank rests with the chartering authority. However, before such a drastic decision is made a bank has usually 90 days to take *Prompt Corrective Action* (PCA). At this stage, the bank is still given a chance by the supervisor to remedy its situation. While the preferred option for US regulators is that the bank's own effort is successful, this is not always the case and therefore it is necessary to prepare for the probable bank failure. Hence, during the same 90-day period, the FDIC is conducting intensive preparatory works for the initiation of a (likely) resolution procedure. In this respect, the FDIC carries out in-depth analyses of the financial situation of the bank in question, the structure of its balance sheet (so-called *asset liability mix*), taking into account its geographical area of operation (branch network) and the prevailing economic conditions. This information is used to draw up a marketing plan, identify potential buyers and determine which assets to transfer. If the PCA fails, the bank is closed and subject to the FDIC receivership, which, depending on the results of the least-cost test, either pays out insured deposits and liquidates the bank or conducts a P&A transaction. For the latter option, the FDIC contacts potential pre-selected buyers to determine whether they would be interested in acquiring the bank in question. Interested bidders, after signing confidentiality agreements, are given access to the bank up for sale and the details of the transaction that the FDIC is offering. After due diligence, potential buyers submit their bids indicating how much they are willing to pay for the acquired assets and whether they want to assume all or only insured deposits. Bidders must also have supervisory approval to take over a failed bank. The FDIC then evaluates the bids submitted to select the one that best meets all the requirements of the transaction and also generates the lowest cost to the deposit insurance fund (DIF).

Financing is another important aspect which should be taken into account in the preparatory process for the implementation of a transfer strategy, both in the context of the bank's internal loss-absorbing capacity[17] as well as necessary external funding. It should be clarified that the internal loss-absorbing capacity is not only important for a successful bail-in strategy but matters for transfer strategies as well (FSB 2024) which was proved by the events in the US banking sector in the first half of 2023. An analysis by Feldberg and Mott (2023) indicates that the US deposit insurance fund (DIF) could have saved USD 13.6 billion if SVB, Signature Bank and First Republic Bank had been subject to internal loss-absorbing capacity

[17] In order to ensure that a bank has adequate internal loss absorption capacity, a *total loss absorbing capacity* (TLAC) requirement has been introduced at a global level, which applies only to the largest global systemically important banks (so-called *global systemically important banks*, G-SIBs). As of January 2022, this requirement is fully phased-in, i.e. TLAC-eligible instruments must represent at least 18% of *risk weighted assets* (RWA) and 6.75% of leverage ratio denominator (LEM). However, these are minimum requirements, hence individual jurisdictions may tighten them. For example, in the US, the TLAC for G-SIBs is 18% RWA and 7.5% LEM. US G-SIBs are also required to hold at least 1/3 of the TLAC in long-term debt instruments. In the EU, on the other hand, the TLAC concept has been extended to all banks by introducing MREL, which is set by the *resolution* authority individually for each bank depending on the size of the bank. Minimum Pillar I MREL for G-SIBs corresponds with TLAC (i.e.18% RWA and 6.75% LEM) while for so called to-tier banks a minimum MREL is set at 13.5% RWA and 5% LEM.

requirements at the same level as the EU MREL for top-tier banks. Indeed, this could have allowed to impose more losses on bank creditors (other than depositors) limiting the funding from DIF in these resolution procedures. The authors present data showing that, at the time resolution was triggered, all three banks held a small amount of long-term debt with lower ranking in the creditors hierarchy than uninsured deposits. As noted by Gruenberg (2019), in case of a bank which heavily relies on uninsured deposits for funding and, at the same time, holds little unsecured debt to cover losses, carrying out resolution in accordance with least cost test may require imposing losses on uninsured depositors. This, in turn, may trigger banking panic and require the intervention of public authorities to maintain financial stability. That is what happened in the US in March 2023.[18]

Hence, it seems there is an international consensus that smaller banks (i.e. those to which transfer strategies are most often applied) should also maintain a certain pool of eligible debt instruments to absorb losses before uninsured depositors (FSB 2023). In the statement issued in November 2024 the FSB (2024) encourages national authorities to impose an internal loss-absorbing capacity requirement also on banks that are not systemically important in a global context but may prove to be systemically significant if they fail (*banks systemic in failure*). In the US, TLAC applies only to G-SIBs but on a wave of lessons learnt from the banking turmoil of 2023 it is planned to introduce a similar requirement for large regional banks with assets of at least $100bn (FDIC 2023b). Such banks would be required to hold a certain minimum level of long-term debt (LTD). This requirement is intended to improve safety and resolvability of these banks as well as to reduce the costs of likely crisis management measures taken by the deposit insurance fund. It is worth noting that the EU's approach to this issue is more conservative as under the BRRD MREL is imposed on all banks and its amount is set by the resolution authority for each bank on a case-by-case basis.

Building up a bank's internal loss-absorbing capacity is necessary but may prove insufficient, particularly if a funding gap occurs during the transfer (i.e. when the value of the assets transferred is lower than the value of the liabilities assumed). In such a situation external financial support needs to be provided, most often from a deposit guarantee fund. However, the availability as well as the scale of DGS financial engagement depends on two key elements: the least cost test (LCT) methodology and the DGS ranking in the creditor hierarchy. According to the least cost test, a DGS, faced with the choice of whether to pay out deposits or to take an alternative intervention (e.g. support of a transfer strategy), should decide for the least costly option. This means that the costs of supporting transfer strategy are compared with the costs of the deposit payout and insolvency proceedings which serves as the baseline scenario. Costa et al. (2022) point out that the outcome of the least cost test depends on a number of factors, such as: DGS ranking in the creditor hierarchy and the resulting recovery rate for the deposit insurer, the categories

[18] For more of the events in the US banking sector in the first half of 2023, see, among others: Adrian et. al. (2024), Michalewicz (2023) and FSB (2023).

of costs that are included in the methodology, in particular whether indirect costs related to the wider impact of the deposit payout are taken into account, i.e. collection of *ex-post* contributions to replenish the deposit guarantee fund or the possible contagion effect. Since indirect costs can be significant (because they concern systemic effects) including them in the LCT makes the deposit payout more costly than supporting a transfer strategy. In contrast, Doubler et al. (2020) analysed the advantages and disadvantages of different types of deposit preference in the creditor hierarchy and concluded that, in the context of transfer strategies general depositor preference under which all depositors rank *pari passu* and at the same time they rank higher than ordinary unsecured creditors, is the most beneficial. Such a ranking of deposits in the creditor hierarchy means that in a hypothetical situation of insolvency proceedings and deposit payout the DGS subrogating into the rights of covered depositors has to share recoveries *pari passu* with other categories of depositors, which results in a lower recovery rate than in case of super-preference of covered deposits. Consequently, in case of general preference of depositors deposit payout becomes more costly than alternative interventions, so a DGS has strong incentives to provide financial support for transfer strategies. This is confirmed by De Aldisio et al. (2019) who showed that the super-preference of covered deposits (and therefore of DGS) – assuming the application of the least cost test – makes deposit payout a solution more preferred by a DGS, as it becomes simply less costly for it. Nevertheless, at the same time, the system-wide costs of bank liquidation are much higher[19] than the costs of alternative DGS-supported interventions.[20]

Financial support for the resolution procedure and therefore for the implementation of transfer strategies can also be provided by a resolution fund. The establishment of separate resolution funds financed by banking sector contributions was one of the recommendations included in the FSB *Key Attributes* which was introduced in the EU[21]. The resolution fund can be used in order to support the implementation of resolution tools, i.e. also for subsidies to a market acquirer in case the value of the liabilities (mainly deposits) assumed exceeds the value of the assets acquired. Resolution funds may also be used, for example, to make capital contributions to a bridge bank or an asset management vehicle, to provide loans or guarantees or to finance other actions aimed at maintaining critical functions of the bank under resolution and protecting financial system stability (Croitoru et al. 2018).

[19] The super-preference of covered deposits (and therefore of DGS) causes that unsecured bank creditors suffer significantly greater losses during insolvency proceedings than they would have suffered in case DGS did not have a super-preference status.

[20] This effect of super-preference of covered deposits, which impacts the DGS engagement in resolution, is one of the reasons for the review of the crisis management framework. More in: Dobrzańska (2021, 2024).

[21] In the EU, resolution funds are financed based on a hybrid model, i.e. via both *ex-ante* and *ex-post* contributions paid in by banks. Any use of the fund necessitates the resumption of *ex-ante* contributions to replenish the fund to the minimum target level. *Ex-post* contributions, on the other hand, are collected in an extraordinary situation, when resources available in the fund are not sufficient to finance the ongoing resolution.

It is worth noting that the use of resolution fund resources should be constrained to prevent moral hazard risk. For example, the following restrictions on the use of resolution funds have been introduced in the EU. The first condition to tap the resolution fund is that losses of the bank under resolution must be covered by its owners and creditors in line with the general resolution principle that shareholders and unsecured creditors of the bank bear the losses first. Importantly, the BRRD requires that losses amounting to not less than 8 per cent of the total liabilities and own funds (TLOF) of the bank under resolution are absorbed in this way. The aforementioned MREL introduced by the BRRD is intended to ensure that this condition is met once resolution is initiated (Restoy et al. 2020). However, smaller banks, funded mainly with equity and deposits and which do not possess sufficient amount of long-term debt to absorb losses, may find it difficult to meet this condition[22]. The second constraint imposed by that the BRRD is that the maximum contribution of the resolution fund cannot exceed 5% of the total liabilities and own funds of the bank under resolution. Given these conditions as well as the limited resources of the resolution fund[23], it seems optimal that the resolution authorities have sufficient flexibility to use both resolution fund and DGS fund depending on the circumstances of a given resolution procedure. However, the pecking order needs to be defined.

Finally attention should also be paid to the operational preparation of the transfer transaction itself and the activities supporting it, including in terms of separability[24] and transferability as well as the capacity to provide on the *ad-hoc* basis data necessary for the valuation and due diligence. At the preparatory stage a transfer perimeter should be identified, indicating portfolios of assets and liabilities to be transferred, while taking into consideration both objectives of the resolution procedure and critical functions performed by the bank as well as the interconnections within the bank (EBA 2022). It is worth noting that a bank should be actively involved in the preparatory works and should support the resolution authority in analyses. For example, the SRB (2021) requires banks with transfer strategies to prepare two documents: (i) a separability analysis report (SAR) and (ii) a transfer playbook. The former one is intended to describe and analyse thoroughly all relevant aspects (legal, financial, operational and business) of the transfer transaction. The latter one aims at operationalization of the transfer strategy. This operational document should describe processes, concrete actions and organisational units required: i) to define the transfer perimeter, ii) to draft documents and to produce data for the purpose of the virtual data room, as well as iii) to effectively implement the resolution strategy, both in the bank's IT systems and in legal terms. The bank should also review all contracts in order to ensure

[22] In order to facilitate resolution of such banks European Commission proposed in April 2023 amendments to the EU crisis management and deposit insurance framework.

[23] The target level for resolution funds is set at 1% of covered deposits of all banks authorized in the given jurisdiction.

[24] The SRB (2021) defines separability as the ability of a bank to transfer: (i) legal entities, (ii) business lines or (iii) portfolios of assets and liabilities at the short notice to a third party.

that the transfer strategy is feasible, i.e. access to key service providers or financial market infrastructure is ensured and possible tax implications taken into account (EBA 2022; SRB 2021). On the basis of the analyses carried out, obstacles to the smooth implementation of the transfer strategy should be identified and then measures should be taken to eliminate or reduce them. The resolution authority should prepare for the sale process, i.e. a timeline of the sale process, key deadlines, processes and sub-processes with a clear division of tasks and persons responsible for them as well as draft documentation supporting the sale process (EBA 2022). Due to the nature of the resolution procedure it is also important to ensure confidential communication channels with potential buyers and to adopt an overall communication strategy with various stakeholders.

3. Conclusions

The recent experience shows that the predominant method used in bank resolution (see Annex 1) is a transfer strategy involving the transfer of all or selected assets and liabilities from the problem bank to a new market buyer. During the resolution planning stage the resolution authorities takes an initial decision to use a transfer strategy (in case resolution is triggered), which allows both the resolution authority and the bank concerned to take appropriate preparatory steps. The analysis presented in this article has identified a number of advantages of a transfer strategy compared to the alternative bail-in strategy as well as the standard insolvency proceedings. The lower requirements in terms of internal loss-absorbing capacity make transfer strategies particularly suitable for smaller deposit-funded banks. As a rule, all deposits are transferred which ensures that all depositors have uninterrupted access to their deposits, which enhances financial stability. However, a successful transfer strategy depends on a number of factors, among which the most essential is finding a suitable buyer to acquire all or selected balance sheet components of a problem bank. The engagement and financial support of the deposit insurer and/or the resolution fund is equally important. A successful transaction requires also both the bank and the resolution authority to take necessary preparations in order to operationalise the transfer strategy. Outlining an alternative strategy, such as a bridge bank, which could be implemented in the absence of a willing buyer is considered a good practice.

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Annex 1. Examples of the application of transfer strategies after 2016

Table 1. Bank resolution based on a transfer strategy

L.p.	Country	Year	Name of bank subject to *resolution*	Name of the acquiring entity	Type of transfer transaction
1	Spain	2017	Banco Popular Español S.A.	Banco Santander S.A	*share deal*
2	Poland	2020	Idea Bank S.A.	Bank Pekao S.A.	*asset deal*
3	Croatia	2022	Sberbank d.d Zagreb	Hrvatska Poštanska Banka	*share deal*
4	Slovenia	2022	Sberbank banka d.d	The bank is Nova Ljubljanska Banka d.d..	*share deal*
5	Poland	2022	Bank Spółdzieczy in Przemków	SGB-Bank S.A.	*asset deal*
6	USA	2023	First Republic Bank	JPMorgan Chase Bank	*asset deal*

Source: own work.

Table 2. Bank resolution based on a bridge bank

L.p.	Country	Year	Name of bank subject to *resolution*	Name of bridge bank	Name of ultimate market purchaser	Type of transfer transaction
1	Poland	2020	Podkarpacki Bank Spółdzielczy in Sanok (PBS)	Bank New BFG S.A.	Wielkopolski Bank Spółdzielczy, operating under the brand name neoBank	*share deal***
2	Poland	2022	Getin Noble Bank S.A.	Bank BFG S.A., operating under the name VeloBank,	Cerberus Capital Management, L.P.	*share deal***
3	USA	2023	Silicon Valley Bank	Silicon Valley Bridge Bank N.A.	First Citizens Bank	*asset deal*
4	USA	2023	Signature Bank	Signature Bridge Bank N.A.	Flagstar Bank	*asset deal*

** Selected assets and liabilities of the bank under resolution were transferred to the bridge bank. In contrast, the sale of the bridge bank constituted a *share deal* where the market acquirers purchased the shares of the bridge bank.

Source: own work.

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Comparative analysis of the banking sector in Poland and Sweden during the crises of the 1990s, global financial crisis and COVID-19 pandemic

Abstract

The article concerns a comparison of the situation of the banking sector in Poland and Sweden. Three periods of downturn were adopted: the crises of the 1990s, the global financial crisis and the economic slowdown associated with the occurrence of the COVID-19 pandemic. The choice was determined by a review of literature on the mechanisms of financial crises in European Union countries. The aim of the article is to assess to what extent the three crises affected the Polish and Swedish banking sectors. The analysis carried out for the Polish and Swedish banking sectors for the years 1990–2022 under study confirmed a continued sound financial condition. In Poland, the changes in the banking sector took place more during the COVID-19 pandemic than during the global crisis. In Sweden, on the other hand, these changes occurred to a greater extent during the global crisis than during the pandemic. Sweden has learnt lessons from the Nordic crises that have been experienced, resulting in a better response of the surveyed sector to subsequent crises. These lessons would set a good example for overcoming the crisis for Poland in the years to come.

Keywords: banking sector, Poland, Sweden, crisis

JEL Codes: G21, E63, N24

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Komparatywna analiza sektora bankowego w Polsce i w Szwecji w czasie kryzysów lat 90. XX w., globalnego kryzysu finansowego oraz pandemii COVID-19

Streszczenie

Artykuł dotyczy sytuacji sektora bankowego w Polsce oraz w Szwecji w trzech okresach dekoniunktury tj. kryzysów lat 90 XX w., globalnego kryzysu finansowego zapoczątkowanego w Stanach Zjednoczonych w 2008 r. oraz pandemii COVID-19. Celem artykułu jest ocena wpływu kryzysu nordyckiego oraz kryzysu państw transformacji z lat 90. XX w., a także globalnego kryzysu finansowego i spowolnienia gospodarczego związanego z wystąpieniem pandemii COVID-19 na sytuację polskiego i szwedzkiego sektora bankowego.

Analiza potwierdziła dobrą sytuację sektorów bankowych w Polsce i w Szwecji w latach 1990–2022. Wybrane mierniki ekonomiczne nie odbiegały znacząco od wartości przeciętnych, porównując do sytuacji ogólnoświatowej. W Polsce zmiany miały miejsce w większym stopniu w okresie pandemii COVID-19, niż w okresie globalnego kryzysu finansowego. Natomiast w Szwecji odwrotnie.

Słowa kluczowe: sektor bankowy, Polska, Szwecja, kryzys

Kody JEL: G21, E63, N24

Introduction

The banking system plays an important role in the economies of individual countries. By acting effectively, it improves the socio-economic situation (Mishkin 2001; Sepp 2011). The literature is dominated by articles focusing on the mechanisms of financial crises. On the one hand, they only refer to studies of the banking sector relating to one country, e.g. Poland or Sweden, against the background of a group of countries at a similar level of socio-economic development. On the other hand, they refer only to a comparison of one or two crises, e.g. the Nordic crises versus the global crisis. The changes associated with the onset of crises in the 1990s in Poland and Sweden were local – or more accurately, regional – phenomena. In contrast, the crisis initiated in the United States in 2008 was global[1] (Anderton and Tewolde 2011; Bernanke 2018; Miklaszewska 2023). In contrast, the outbreak of the COVID-19 pandemic was non-economic in origin[2] (Aldasoro et al. 2020). All of these downturns affected to a greater or lesser extent the situation and the taking of actions related to the functioning of the banking sectors. The Nordic crises are

[1] For the purposes of this article, this crisis has been defined as a global crisis. By virtue of its origins, this crisis has created a series of challenges and threats facing financial markets. The global nature of the crisis meant that its scope – comparable to the Great Depression – covered the entire world economy and most of its areas.

[2] In line with the literature and for the sake of simplicity, the article assumes that the period following the outbreak of the COVID-19 pandemic is referred to as the economic downturn. The banking sectors in each country were negatively affected – despite the non-financial nature of the pandemic – compared to other sectors, and also compared to previous crises.

considered to be the first systemic crises that affected Denmark, Finland, Norway and Sweden in the 1980s and 1990s. In contrast, the 1980s and 1990s saw crises of an economic nature in the countries of Central and Eastern Europe, which are referred to in the literature as crises in transition states. In addition, the sequence of events that contributed to the global crisis started in the second half of the 1990s – after or during the Nordic crises and the crises in the transition countries. From yet another angle, it is argued that Europe has been in a 'permanent crisis' since 2007, which goes beyond the COVID-19 pandemic[3]. Therefore, the selection of two distinct national banking sectors – Poland and Sweden – and three distinct downturn periods was determined by the diversity of the responses of the countries studied to the individual crises, as well as the recurrence of patterns of crisis occurrence in European countries in the twentieth and twenty-first centuries.[4]

Filling such a research gap, this article attempts to answer the research question: Did the crises of the 1990s, post-2008 and post-2019 affect the Polish and Swedish banking sectors, and to what extent?

The main objective of the paper is to assess to what extent the crises of the 1990s, the global financial crisis and the economic downturn associated with the COVID-19 pandemic affected the Polish and Swedish banking sectors. The main objective of the paper has been formulated in this way in order to achieve the adopted specific objectives, i.e.: to examine the economic conditions in Poland and Sweden after 1990; to compare similarities and differences characterising the Polish and Swedish banking sectors; to assess the situation in the banking sector in Poland and Sweden in the years 1990–2022.

Based on the literature, the thesis of the article is that the Swedish banking sector's response to the global crisis and the COVID-19 pandemic downturn was better than that of Poland. This response was due to the Swedish banking sector's experience gained after the Nordic crisis of the 1990s.

The research methods used to realise the objective formulated in this way and to verify the thesis formulated in this way are: analysis of the literature on the subject, statistical comparative analysis and case study analysis – using indicator analysis.

The first part presents the conditions of the economic situation in Poland and Sweden in the years 1990–2022. The second part is devoted to the characteristics of the Polish and Swedish banking sectors. The third part presents the results from a survey of the banking sector carried out with the modified Du Pont method, using selected financial measures.

[3] It is appropriate to both compare the three post-1990 downturn periods separately and to adopt the full 1990–2022 research period. Both approaches are presented in this article.

[4] Cf. with Laeven and Valencia (2020), Barik (2022), Ozili (2023), Shamshadali, Abdul Gafoor and Daimari (2024), among others.

1. Economic conditions in Poland and Sweden after 1990

The period from 1990 to 2022 was a period of a worldwide, strongly growing trend in terms of GDP generated, halted only in periods of crises. Therefore, from the point of view of the countries analysed, it is important to present the economic conditions surrounding the banking sector in Poland and Sweden. These countries differ in terms of socio-economic development. Based on selected rankings, this is confirmed by international indices. *The Global Competitiveness Index* in 2019 for Poland was 68.9, while for Sweden it was 81.2. Macroeconomic stability was rated highest in both countries, while the lowest: Poland's ability to innovate and Sweden's market size. *The International Institute for Management Development* indicated a competitiveness index value for Poland in 2022 of 60.48 (employment level was rated highest, business regulations lowest), while for Sweden it was 91.86 (health and environment was rated highest, tax policy lowest). According to *the United Nations Development Programme, the Human Development Index* value in Poland increased from 0.716 (in 1990) to 0.876 (in 2021) and in Sweden from 0.810 (in 1990) to 0.947 (in 2021). In Poland, *the Index of Economic Freedom* in 2022 reached a value of 67.7, while in Sweden it reached 77.5. In turn, according to the *Better Life Index* in 2021. Poland was ranked 25th and Sweden 4th. And *the Global Findex* in 2021 for Poland and Sweden reached a value of 1.45 and 1.44 respectively.

Macroeconomic conditions at the threshold of market transformation were characterised by: lack of foreign debt servicing capacity, galloping inflation, low GDP *per capita* (Feldstein 2011). The scale of difficulties in Poland was related to determining the appropriate 'mix' of fiscal, monetary and exchange rate policy implementation. The implementation of stabilisation programmes was accompanied by unfavourable external conditions, including the collapse of the Soviet Union (Belka 2013; Kowalski 2013). The recession in Poland was relatively mild compared to other CEE countries[5]. After 2000, the trade creation effect, investment in human capital and a focus on the development of the service sector became strongly visible in the Polish economy. Nevertheless, the lack of a target model of capitalism is evident in the case of Poland (Schweiger and Magone 2017). Currently, the basis of the economic system, is a social market economy based on freedom of economic activity, private property and solidarity, dialogue and cooperation between social partners. Unlike in other EU countries, the need for a strong state rather than market and family is articulated (Reichardt 2011).

A review of the literature shows that Sweden qualifies as a welfare state – social democratic. The beginning of the construction of the Swedish welfare state model was in the 1930s. The Nordic welfare state model refers to the socio-economic solutions adopted in the Nordic countries (Lesniewski 2020). The model is based on a strong state taking responsibility for the distribution of goods and services and a civil society (Brandal, Bratberg and Thorsen 2013). The Nordic model recognises that society and

[5] According to the International Monetary Fund, Poland experienced an economic crisis between 1981 and 1994.

public authorities are the essential guarantor of a decent standard of living and social security for citizens (Nowiak 2011). Market mechanisms and the role of the family, on the other hand, are less important. The Nordic crises[6] in the 1990s, were a turning point for the Swedish economy and the Nordic model of capitalism. They were not triggered by solutions operating under the previous economic order, but by attempts to modify it. Also in the case of Sweden, the economic collapse followed a general economic recession in Western and Eastern Europe, triggered by the collapse of the Soviet Union (Lesniewski 2019). Recovery plans focused on savings in government spending and the development of a favourable relationship between labour and capital. The changes in the implementation of economic policy had the desired effect. After 1999. Sweden began to recover from the economic and financial crisis (Honkapohja 2012; Buckley, Avgouleas and Arner 2018).

The countries studied have chosen a relatively similar strategy of deepening economic integration within the European Union[7]. Independent – in Poland and Sweden from the European Central Bank – monetary policy, having their own currency, and stabilising prices at the national level, can consolidate an increasingly long derogation. The absolutely required fulfilment of the nominal convergence criteria in the current conditions distances the macroeconomic possibilities of a fast and relatively safe entry into the Economic and Monetary Union. According to *the European Central Bank's Convergence Report* 2024:

- HICP inflation rate (reference value 3.3%):
  - in Poland was 6.1% (criterion not met),
  - in Sweden was 3.6% (criterion not met),
- long-term interest rates (reference value 4.8%):
  - in Poland averaged 5.6% (criterion not met),
  - in Sweden averaged 2.5% (criterion fulfilled),
- general government balance:
  - in Poland, a deficit of 5.1% of GDP (criterion not met),
  - in Sweden, a deficit of 0.6% of GDP (criterion fulfilled),
- general government debt to GDP:
  - in Poland was 49.6% (criterion fulfilled),
  - in Sweden was 31.2% (criterion fulfilled).

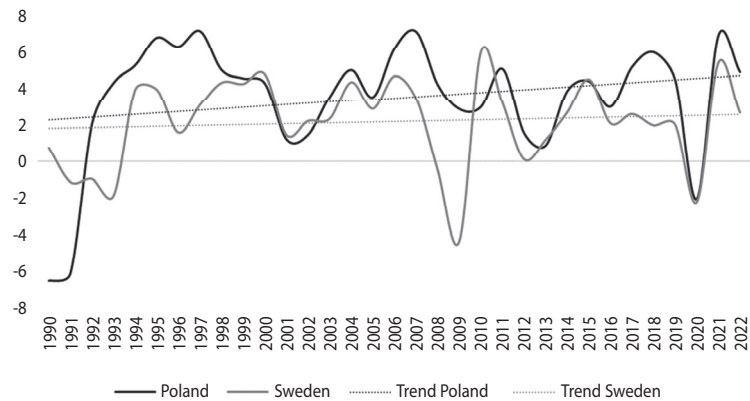
The crisis that began in 2008 in the United States highlighted the weaknesses of the global financial market and its low resilience to shocks (Jonung 2009). An analysis of the literature shows that the impact of the financial crisis on the European economy, proved to be very significant (Claessens and Kose 2013; Berglund and Makinen 2019). Most countries recorded a negative change in GDP growth. Changes

[6] According to the *National Bureau of Economic Research*, Sweden experienced a banking crisis in 1991 and a currency crisis in 1992. In turn, according to the World Bank, Sweden experienced a systemic crisis between 1991 and 1994.

[7] Sweden joined the European Union on 1 January 1995, while Poland joined on 1 May 2004. In 2003, Sweden held a referendum on joining EMU – more than half of the population voted against the introduction of the euro. In Poland, there has not yet been a referendum on joining EMU.

in Sweden were more pronounced than in Poland. In 2009, GDP growth rate values (in %) for Poland were recorded at 2.83, while for Sweden it was -4.34. 2010 saw a recovery from the crisis. The socio-economic situation in the countries under study began to stabilise. Another clear collapse occurred with the outbreak of the COVID-19 pandemic (Miklaszewska and Kil 2023). The economic downturn of late 2019 and early 2020 was felt globally and regionally – also in Poland and Sweden. The macroeconomic situation was not improved by the escalation of the Ukrainian-Russian armed conflict. The data shows that there was an upward trend for GDP growth rates in both countries between 1990 and 2022. The lowest values occurred in the 1990s, as well as during the global financial crisis and during the COVID-19 pandemic. The largest changes (a decrease followed by an increase) covered the years 1991–1992 and 2020–2021 in Poland, while in Sweden the years 2009–2010 and 2020–2021 (cf. Figure 1).

Figure 1. Average GDP growth rates (in %) in Poland and Sweden from 1990 to 2022



Source: own compilation based on International Monetary Fund data (accessed 10.01.2025).

Summarising the macroeconomic determinants, it can be concluded that, on the one hand, there was an 'economic revolution' in the countries studied in the 1990s. In the case of Poland this was due to the systemic transformation, while in the case of Sweden it was due to the aftermath of the Nordic crises. On the other hand, these countries learned lessons (Sweden to a greater extent, Poland to a lesser extent) by introducing solutions to improve or maintain their level of economic development. Poland and Sweden joined the European Union in due course, but for institutional reasons remain outside the Economic and Monetary Union. It is worth noting that the countries analysed have been affected differently by the global crisis, but to a similar extent by the slowdown associated with the outbreak of the COVID-19 pandemic.

2. Characteristics of the Polish and Swedish banking sectors

For more than decades, the building of banking systems to meet the needs of the Polish and Swedish economies has been underway. These systems have gone through a change from a monopoly model to a competition model. This was associated with the streamlining and unification of the institutional environment of the banking sector (Świderska 2013; Kopiński 2016). The two-tier banking system adopted required the central bank (in Poland – the National Bank of Poland, in Sweden – the Riksbank) to focus its activities on monetary policy, geared towards price stability and maintaining the value of money[8]. The transformation has led to the fact that these systems are no longer constituted only by national banks, and are now largely constituted by international institutions in addition to country-specific financial institutions (Edvinsson, Jacobson and Waldenstrom 2020).

The contemporary banking systems of Poland and Sweden have been shaped by a variety of factors influencing their structure and functioning (Mannasoo and Mayes 2009; European Banking Federation 2022). On the one hand, these systems are based on the universal nature of banks, the functioning of banks within groups and a high concentration of banking activities. On the other hand, in the Swedish case, commercial banks are the only financial institutions authorised to accept deposits from customers[9], while in Poland banks are the only institutions authorised to grant loans[10]. This makes the Polish and Swedish banking sectors to some extent limited in their ability to compete freely in the financial market.

A characteristic element of the Swedish banking system is the high level of activity of home banks outside the home country (Chojecki and Matysek-Jędrych 2003). At the same time, Swedish banking largely limits the inflow of foreign capital. In the case of Poland, the capital structure in the banking sector is of a different nature – with foreign capital predominating. Taking into account the indices listed on national stock exchanges (in Sweden – OMX STOCKHOLM BANKS PI; in Poland – WIGBANKI), Swedish, Icelandic, Finnish and Norwegian capital dominates in Sweden[11], while in Polish, Spanish, German, Dutch and French in Poland capital predominates[12]. Therefore, in the countries studied, the position of financial institutions contributes differently to the income crowding out of service areas by foreign banks. The allocation of funds through foreign banks does not necessarily coincide with the methods used by domestic banks, and consequently leads to changes in economic development that are different than planned (Havrylchyk 2004; Guibourg and Segendorff 2007; Pawlowska 2016).

[8] In Poland, an inflation target of 2.5 per cent was set in 2004, with a permissible fluctuation range of +/- 1 percentage point. In Sweden in the 1990s, the inflation target was set at 2 per cent (+/- 1 per cent). In comparison, the European Central Bank has set a medium-term inflation target of 2 per cent in 2021.

[9] Cf. from Lag (2004: 297) om bank- och finansieringsrörelse.

[10] Cf. with the Act of 29 August 1997. – Banking Law.

[11] Cf. from Company Fact Sheet Nasdaq Stockholm AB 2024.

[12] Cf. from the Financial Supervision Commission's Banking Sector Data 2023.

As a result of the crises and economic downturns at the turn of the 20th and 21st centuries, the banking sector was forced to improve its credibility and image (Ferreira 2023). To this end, institutional solutions were introduced in Poland and Sweden in terms of regulations relating to the financial sector and defining the target banking model. Deposit guarantee schemes were established in Poland in 1994. – Bank Guarantee Fund, while in Sweden in 1996. – Swedish National Debt Management Office (sw. *Riksgälden*). In the case of supervision and monitoring of institutions operating in the financial market, the bodies set up to do so were in Sweden the Financial Supervisory Authority established in 1991 (sw. *Finansinspektionen*), while in Poland the Financial Supervisory Commission established in 2006. (Tropeano 2018). Maintaining a stable financial system characterised by high trust, a properly functioning market and a high level of consumer protection, as well as sustainability, have become a priority for the above institutions in both Poland and Sweden (Baszyński 2014; Leśniewski 2015; Tran, Nguyen and Nguyen2022). This confirms that the Polish and Swedish banking systems are characterised by high stability and security[13].

In the banking sectors of Poland[14] and Sweden[15], the progressive stabilisation of the economic situation was particularly evident in the growth of so-called lending, the improvement of banks' financial results and the reduction in the amount of provisions created to cover credit risk (Harasim 2009; Kluza and Walczyk 2020). In Poland until 2021, and in Sweden until 2020, commercial banks operated in a very low interest rate environment (Black et al. 2016; Hedstrom et al. 2024). However, due to rising inflation, central banks began the process of raising interest rates (Kristiansen and Cotten 2020). This led to a change in the dynamics in bank lending (Katz and Chmiel 2019). This was influenced by changes in the size of the interbank rates STIBOR (*Stockholm Interbank Offered Rate*) and WIBOR (*Warsaw Interbank Offered Rate*).

During the years under study, the values of lending as a percentage of GDP in the countries studied followed a similar trend – an upward trend. In addition, there was variation in the sizes of the banking sectors in these countries. Sweden had

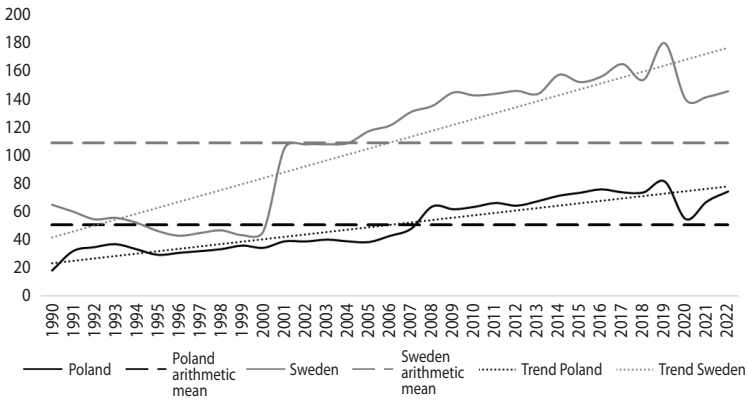
[13] Cf. from Fitchratings for Bank 2023.

[14] Banks in Poland mainly focus on the following areas: cooperative retail banking, retail banking, corporate banking. The structure of the banking sector included in 2023. 574 banks, consolidated assets amounted to over EUR 697 trillion. The deposit guarantee scheme amounted to EUR 100,000. The market share of the three largest banks was in 2023: Powszechna Kasa Oszczędności Bank Polski S.A. 15.70%; Bank Polska Kasa Opieki S.A. 10.25%; Santander Bank Polska S.A. 8,68%. In Poland in 2023, there were approximately 21 bank branches and 68 ATMs per 100,000 inhabitants. For more on this subject, see the Association of Polish Banks 2024.

[15] Banks in Sweden mainly focus on the following areas: regional retail banking, retail banking, corporate banking and investment banking. The structure of the banking sector included in 2023. 162 banks, consolidated assets amounted to more than EUR 1.425.15 trillion. The deposit guarantee scheme amounted to SEK 950000. The market share of the three largest banks was in 2023: Skandinaviska Enskilda Banken AB 18.46%; Svenska Handelsbanken AB 14.93%; Swedbank AB 11.42%. In Sweden in 2023, there were approximately 10 bank branches and 29 ATMs per 100,000 inhabitants. For more on this, cf. from Svenska Bankföreningen 2024.

a relatively higher percentage of the value of loans granted as a percentage of GDP, compared to Poland. This indicator in Sweden, exceeded the value recorded for the Polish banking sector by more than 40%. Over the period under review, a significant increase in this ratio occurred in Sweden after 2000, while in Poland after 2007. The data shows that after 2008, there was no collapse in the Polish and Swedish banking sectors. Only the downturn related to the COVID-19 pandemic contributed to the decline in lending to GDP. There was a change for Poland from 81% of GDP in 2019 to 54% of GDP in 2020, for Sweden from 179% of GDP to 139% of GDP respectively (cf. Figure 2).

Figure 2. Value of loans granted (% of GDP) in Poland and Sweden 1990–2022



Source: own compilation based on International Monetary Fund data (accessed 10.01.2025).

Within the functioning of the banking sectors, excessive monetary and fiscal burdens have recently become key challenges that banks have had to face (Pawlowska 2015; Rakhmatilla 2021). Opportunities and challenges related to the introduction of innovative e-banking and mobile banking solutions and the growing potential of *Fintech* companies have proven to be important for competitiveness in the sector (Murinde, Rizopoulos and Zachariadis 2022; Iwanicz-Drozdowska and Nowak 2024). Above and beyond this, it seems important to continuously strengthen the IT security of financial entities, such as banks, in order to remain resilient in the event of a major operational disruption, ostensibly linked to the introduction of the *Digital Operational Resilience Act (DORA)*.

Table 1. Analysis of the banking sector in Poland and Sweden using Porter's 5 forces

Determinant	Evaluation	
	Poland	Sweden
bargaining power of buyers	4	4
bargaining power of suppliers	4	3
rivalry within the sector	4	3
threat of new competitors	3	2
threat of new substitutes	4	3

Source: own compilation based on: Copenhagen Economics 2024; European Banking Federation 2023.

Based on the above arguments, the Polish and Swedish banking sectors were analysed using Porter's 5 forces (cf. Table 1). In the first stage, conditioning factors were identified. Each factor was assigned a score on a scale from 1 to 5, where 1 means very low, 2 – low, 3 – moderate, 4 – high, 5 – very high. The analysis shows that the bargaining power of buyers is at the same level in Poland and Sweden. The attractiveness of the sector is least affected by the threat of new competitors. The bargaining power of suppliers, rivalry within the sector and the threat of the emergence of new substitutes in Poland was rated at level 4 – higher than in Sweden, i.e. at level 3. This confirms that the banking sectors in Poland and Sweden, despite some similarities in their functioning, are influenced by different internal and external factors.

3. Analysis of the banking sector using selected metrics[16]

With reference to the above justifications, this part of the article examines the situation of the banking sectors in Poland and Sweden during three periods of downturn – the 1990s, 2008–2010 and 2019–2021. For this purpose, a comparative analysis of selected financial metrics for the banking sectors was used (Kowalski and Staniszewska 1998; Bolt and Humphrey 2010; Abreu, Kimura and Sobreiro 2019). The Du Pont method (modified in this article) involves an integrated examination of the relationship between categories, i.e. net profit, equity, total assets, sales revenue, expenses and total income (Vittas 1991; Sobolewski and Stępień 2015; Bhatia et al. 2018; Corbae and Levine 2019). The following indicators were used in the study:

[16] The analyses carried out can provide a starting point for in-depth research and do not prejudge the situation of the banking sectors in the two countries. The comparative analysis may face limitations affecting the quality of the quantitative study carried out.

– return on equity (ROE), written with the formula:

$$ROE = \frac{\text{net profit}}{\text{equity}} * 100 \quad (1)$$

– return on assets (ROA), as recorded by the formula:

$$ROA = \frac{\text{net profit}}{\text{total assets}} * 100 \quad (2)$$

– return on sales (ROS), written with the formula:

$$ROS = \frac{\text{net profit}}{\text{revenue from sales}} * 100 \quad (3)$$

– the operational efficiency ratio (CI), written with the formula:

$$CI = \frac{\text{total costs}}{\text{total revenue}} \quad (4)$$

– equity multiplier (EM) written with the formula:

$$EM = \frac{\text{total assets}}{\text{equity}} \quad (5)$$

– the asset turnover ratio (AMR), written with the formula:

$$WRM = \frac{\text{sales revenue}}{\text{total assets}} \quad (6)$$

In order to verify the situation of the banking sectors during the three economic downturns in Poland and Sweden between 1990 and 2022, the arithmetic mean, standard deviation and coefficient of variation were compared for the ROE, ROA, ROS, CI, EM and WRM indicators. Of the six countries studied, Sweden achieved the highest values in terms of arithmetic mean for the entire study period 1990–2022 for the ROE, ROA and WRM indicators, with the largest difference between the indicators recorded in Poland and Sweden occurring for ROE and the smallest for ROE. At the same time, it should be noted that for these indicators the same regularity was recorded for the standard deviation. On the other hand, in the case of the size of the coefficient of variation, very similar values were recorded for all indicators in Poland and Sweden. In the countries studied, for the period 1990–2022, the banking sector data did not reach negative values. The desirable relationship ROE>ROA (meaning the presence of leverage in a situation of efficient use of equity) for the period 1990–2022 in the surveyed countries was recorded in all surveyed years. In a properly functioning banking sector, the simultaneous ROE>ROA>ROS relationship for the studied period 1990–2022 was not recorded in any year. In Poland, only one indicator, i.e. profitability of sales, showed an upward trend for the entire period under study. In Sweden, on the other hand, an upward trend was recorded for four ratios, i.e. ROE, ROA, ROS and EM. The increase in the ratios was a phenomenon indicative of an improving banking sector (cf. Table 2).

Table 2. Arithmetic mean, standard deviation and coefficient of variation of ROE, ROA, ROS, CI, EM and WRM ratios of the banking sector of Sweden and Poland for the periods 1990–1994, 2008–2010, 2019–2021 and 1990–2022

Indicator, country	1990–1994			2008–2010			2019–2021			1990–2022		
	kryzys nordycki (SE) transition crisis (PL)			global crisis			pandemic COVID-19			the entire research period		
	m	*σ*	*V*	*m*	*σ*	*V*	*m*	*σ*	*V*	*m*	*σ*	*V*
ROE Sweden	5,17	5,45	1,06	5,56	3,67	0,66	12,70	1,69	0,13	8,72	5,25	0,60
ROE Poland	3,44	10,25	2,98	11,12	4,95	0,45	4,31	1,61	0,37	8,98	5,74	0,64
ROA Sweden	0,28	0,30	1,07	0,33	0,21	0,66	0,67	0,10	0,14	0,53	0,33	0,63
ROA Poland	0,24	0,04	0,19	0,94	0,30	0,32	0,42	0,20	0,47	0,78	0,42	0,53
ROS Sweden	3,26	3,96	1,22	13,34	9,15	0,69	33,12	4,68	0,14	18,56	15,35	0,83
ROS Poland	1,49	1,56	1,05	15,09	4,42	0,29	11,55	3,49	0,30	12,06	6,26	0,52
CI Sweden	11,81	9,17	0,78	1,81	0,56	0,31	0,65	0,06	0,10	3,32	5,21	1,57
CI Poland	7,94	3,19	0,40	1,86	1,17	0,63	0,35	0,02	0,06	2,49	2,64	1,06
EM Sweden	17,83	2,03	0,11	16,98	0,16	0,01	18,90	0,81	0,04	16,78	1,82	0,11
EM Poland	14,07	1,11	0,08	11,65	1,97	0,17	10,87	1,41	0,13	11,44	1,98	0,17
WRM Sweden	0,10	0,2	0,19	0,03	0,01	0,34	0,02	0,001	0,07	0,05	0,03	0,65
WRM Poland	0,15	0,0001	0,0009	0,06	0,008	0,13	0,03	0,006	0,17	0,08	0,04	0,51

m – arithmetic mean
σ – standard deviation
V – coefficient of variation

Source: own compilation based on data from Svenska Bankföreningen, Sveriges Riksbank, Financial Supervision Commission, National Bank of Poland (accessed 14.01.2025).

Compared to the Nordic crisis, the Swedish banking sector performed better for the indicators examined during the global crisis and the downturn associated with the COVID-19 pandemic. The Polish banking sector, on the other hand, performed best during the global crisis, followed by the COVID-19 pandemic and worst in the 1990s.

When analysing in more detail the levels of return on equity, return on assets and return on sales, taking into account the situation of individual banking sectors, it should be noted that the highest levels of standard deviation were recorded in Poland – ROE in 1990–1994, in Sweden – ROS in 2008–2010; while the lowest for return on assets – both, in Poland and in Sweden in all examined periods. The average CI levels generated by the banking sectors examined ranged from about 0.5 (during the COVID-19 pandemic) to more than 7.0 in 1990–1994. For this indicator, the highest standard deviation level was recorded in Sweden during the Nordic crisis, while the lowest level was recorded in Poland during the pandemic. In the three periods compared, the average values of the equity multiplier were at similar levels, i.e. in Sweden around 17, while in Poland around 12. At the same time, the lowest standard deviation for the EM multiplier was recorded in Sweden during the global crisis, while in Poland during the transition crisis. In the case of the EM multiplier, the values assumed similar ranges – both for the standard deviation, the arithmetic mean and the coefficient of variation. In verifying the level of the coefficients of variation for the banking sectors, visibly divergent from the others were ROE and WRM in Poland in 1990–1994, and ROS in Sweden during the Nordic crisis and EM during the global crisis. (cf. Table 2)

Between 1990 and 2022, ROE reached a value of around 8% in both countries studied. This means that a net profit of 0.08 PLN or SEK was generated from 1 PLN or SEK of equity capital employed in the banking sector. During the crises of the 1990s and the global crisis, the Polish and Swedish banking sectors were characterised by a lower value of this ratio. From 1 PLN or SEK of equity capital employed in the banking sector, less net profit was generated than during the pandemic. During the pandemic, the volatility of the return on equity was lower than in the other two periods studied. The ownership structure of banks in Sweden reacted to the global crisis and the pandemic "correctly", whereas in Poland such a reaction was felt with a lag. Return on assets in the period under review in Poland declined slightly at the outbreak of the COVID-19 pandemic. In contrast, it was higher during the global crisis than in Sweden, which should be assessed correctly from the point of view of involving assets in net profit generation. The ROS ratios in Sweden and Poland were on an upward trend, implying an increase in generated net profit. Such a situation was a phenomenon indicating a further improvement in the financial health of the banking sectors, despite the crises-related disturbances. In the case of the CI ratio, the higher value in Sweden than in Poland confirmed that the Polish banking sector was able to benefit from economies of scale to a lesser extent in the years under review. The ratio multiplier of total assets to equity in the years studied in Sweden exceeded the value of the ratio recorded for the Polish banking sector. This confirmed the stronger so-called leverage of this sector. The relatively similar value of the asset turnover ratio, confirmed the stable turnover of total assets, including the intensity of their utilisation, despite changes related to the occurrence of individual crises. (cf. Table 2)

The study shows that the effects of the crises on the stability of the banking sectors of Poland and Sweden varied over the three periods studied. The recorded levels of the Du Pont analysis indicators between 1990 and 2022 confirm that the

crises of the 1990s, the global crisis and the economic slowdown after 2019 have significantly affected the financial health of banks in the countries studied. The banking sector in Sweden, after experiencing the banking crisis, has steadily and significantly improved its financial situation. In contrast, the Polish banking sector improved its financial situation to a moderate extent. During the Nordic crisis and the transition crisis, the banking situation was driven by the downturn in the domestic markets. In contrast, after 2008 it was the global nature of the crisis that affected the condition of the Polish and Swedish banking sectors. In contrast, the situation of the sectors surveyed during the COVID-19 pandemic was influenced by non-economic factors. Under the conditions of the respective crises, the situation in Sweden and Poland differed – both among the two countries studied and globally. The lessons from the 1990s in Sweden, comprised overcoming the global financial crisis and the situation after 2019. In contrast, in the case of the Polish banking sector, while the response to the global crisis was better, after 2019 it was similar to the situation in the 1990–1994 period.

Summary

The socio-economic situation requires constant review, due to the downturns associated with the occurrence of crises both locally and globally. In the case of Poland and Sweden, the post-1990 economic conditions used to further analyse their banking sectors were different. Poland after the crisis of the transition countries, and Sweden after the Nordic crisis, reacted differently to the successive crises of the 21st century, adapting the implementation of economic policy to the changing economic conditions. This had a direct impact on the situation in the financial markets, including the banking sector.

The Polish and Swedish banking systems have both similarities and differences. On the one hand, similar: the implementation of national monetary policy, the maintenance of central financial market supervision, the entity structure of the banking sector with so-called key players. On the other hand, different: the consequences related to the resolution of the crises of the 1990s, the so-called admission of foreign capital. In addition, the banking sector in Poland and Sweden has over the years struggled with challenges such as the so-called fight against inflation by central banks, the growing popularity of new technologies among customers. This has had a significant impact on maintaining a good financial situation during the period under review.

The case study of the banking sectors of the countries studied over the period 1990–2022 confirmed the correct level of the selected financial metrics. Individual indicators fluctuated differently after 1990, but did not deviate significantly from average values. In Poland, changes occurred to a greater extent during the COVID-19 pandemic than during the global financial crisis. In Sweden, on the other hand, changes took place to a greater extent during the global financial crisis than during the COVID-19 pandemic. Sweden has learned lessons from the experience of

the Nordic crises, resulting in a better response of the sector to subsequent crises. These lessons would set a good example for Poland in overcoming the crisis in the years to come. Nevertheless, the Polish and Swedish banking sectors can be considered relatively stable when compared to the global situation described in separate literature.

It is important to be aware of the limitations of the assumptions made in the article. The considerations made can serve as a starting point for broader research that could serve market regulators, supervisory institutions as well as banks themselves.

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The Vollgeld initiative in Switzerland – an attempt to reform the monetary system

Abstract

The Vollgeld initiative in Switzerland was one of the important attempts to change the national monetary system in this century. Its main demand was to give the central bank a monopoly over the issuance of cashless money. The assumptions of the Vollgeld initiative were based on the concept of sovereign money, which emerged in the first half of the 20th century and was a response to the instability of the financial system. The objectives of the article were (1) to present the Vollgeld Initiative and the related concept of sovereign money and (2) to analyse the arguments for and against the adoption of the Vollgeld Initiative. The article puts forward the following thesis: although, in theory, the concept of sovereign money makes it possible to increase control over the lending action of operational banks, in the case of a small open economy, its implementation carries numerous risks for the stability of the economic system. A critical analysis of the literature on the subject was used to verify the thesis. Sources of data and literature sources were Polish and foreign academic articles and compact publications, Initiative Monnaie Pleine publications, Swiss National Bank documents and internet sources.

Keywords: central bank, sovereign money, banking sector, financial system, monetary system

JEL Codes: B29, E42, E51, E52, E58, G21, G28

Inicjatywa Vollgeld w Szwajcarii – próba reformy systemu monetarnego

Streszczenie

Inicjatywa Vollgeld w Szwajcarii była jedną z ważnych prób zmiany krajowego systemu monetarnego w bieżącym stuleciu. Jej główny postulat zakładał przyznanie bankowi centralnemu monopolu na emisję pieniądza bezgotówkowego. Założenia inicjatywy Vollgeld były oparte na koncepcji pieniądza suwerennego, która pojawiła się w pierwszej połowie

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XX wieku i stanowiła odpowiedź na niestabilność systemu finansowego. Celami artykułu były (1) przedstawienie inicjatywy Vollgeld i związanej z nią koncepcji pieniądza suwerennego oraz (2) analiza argumentów za i przeciw przyjęciu inicjatywy Vollgeld. W artykule postawiono następującą tezę: pomimo że w teorii koncepcja pieniądza suwerennego pozwala zwiększyć kontrolę nad akcją kredytową banków operacyjnych, w przypadku małej gospodarki otwartej, jej wdrożenie niesie ze sobą liczne zagrożenia dla stabilności systemu ekonomicznego. Do weryfikacji tezy wykorzystano krytyczną analizę literatury przedmiotu. Źródła danych i źródła literaturowe stanowiły polskie i zagraniczne artykuły naukowe i publikacje zwarte, publikacje Initiative Monnaie Pleine, dokumenty Szwajcarskiego Banku Narodowego oraz źródła internetowe.

Słowa kluczowe: bank centralny, pieniądz suwerenny, sektor bankowy, system finansowy, system monetarny

Kody JEL: B29, E42, E51, E52, E58, G21, G28

Introduction

As noted by Joób (2015, p. 8), van Egmond and de Vries (2016, p. 32) and Biondi (2018, pp. 13, 20), contemporary financial systems are characterised by instability and vulnerability to crises. A major problem is the increasing indebtedness of individuals and businesses, largely a consequence of the lending of operational banks, during which credit money is created. Plans to reform the monetary system have been around for decades, but only a few of them have received widespread socio-political attention. Among the most original and little-known proposals to change the financial architecture is the Swiss Vollgeld initiative. It is an example of an attempt to radically overhaul the monetary system, accompanied by a public education campaign.

The purpose of this article is to present the Vollgeld initiative and the related concept of sovereign money, which dates back to the 1920s. According to this concept, the central bank should have the exclusive right to create cashless money, with the consequent guarantee of a flow of safe and stable money into the economy.

The Vollgeld initiative was not implemented, but it contributed to the growing interest in the concept of sovereign money in Switzerland. To the knowledge of the author of this article, there is a research gap in the Polish literature on the analysis of the Vollgeld initiative and the arguments for and against it that have appeared in foreign-language publications. The following thesis is formulated in this article: although, in theory, the concept of sovereign money allows to increase the control over the credit action of operational banks, in the case of a small open economy, its implementation carries numerous threats to the stability of the economic system. A critical analysis of the literature on the subject was used to verify the thesis.

The article consists of four parts. The first discusses the concept of sovereign money, the second presents the premises of the Vollgeld initiative and describes the voting process for the initiative in Switzerland, and the third and fourth analyse

the arguments for and against the adoption of the Vollgeld initiative respectively. A critical analysis of the literature on the subject and expert positions was used to verify the thesis set out. Data sources and literature sources were Polish and foreign academic articles and compact publications, Initiative Monnaie Pleine publications, Swiss National Bank documents and Internet sources.

1. The essence of sovereign money

The origins of the sovereign money project can be traced back to the 1920s, to the writings of F. Soddy, an eminent British chemist and Nobel Prize winner, who was also interested in finance. After the Great Depression, in 1933, two American economists, representatives of the Chicago School – H. Simons and F. Knight – presented a similar idea to US President F.D. Roosevellt. In 1935, another well-known economist I. Fisher (1935) published a monograph entitled *100% Money* concerning a full bank reserve system (100 per cent reserve), close to the sovereign money system. Variants of the 100 per cent reserve system and the sovereign money system were proposed by Nobel laureates M. Friedman, J. Tobin and M. Allais (Dyson, Hodgson, van Lerven 2016, p. 6).

Advocates of sovereign money and full reserve are opposed to the fractional reserve used in modern market economies, which first began to be used on a wider scale in fourteenth-century Bruges. In a fractional reserve system, the operational bank is not obliged to hold a reserve equal to all deposits with it. The level of reserves may be a certain percentage of deposits and in practice is usually in the single digits. In many countries, there is a legal obligation to maintain a certain, usually symbolic, level of mandatory reserves, e.g. in Poland, from 31 March 2022, the level is 3.5% of PLN and foreign currency funds held in bank accounts and funds received from securities issues, and from 1 March 2018, 0% on funds obtained from *repo* and *sell-buy-back* operations and funds raised for at least 2 years (NBP). In such conditions, banks can carry out intensive lending, which poses a threat of price increases and a decrease in the purchasing power of money. The indebtedness of individuals, companies and governments is increasing. The latter are keen to benefit from the sale of bonds to banks, taking on debt from them. Critics of the fractional reserve system point out that it is characterised by permanent inflation, which leads to crises and economic recessions.

The main argument in favour of a full reserve requirement is the fear of bank runs – situations in which bank customers, fearing the loss of funds, withdraw deposits en masse and liquidate securities. Today's private banking system does not have enough reserves to pay out all deposits and, in the event of a run on banks, some entities may be forced to declare bankruptcy. Such a situation would not occur with a 100 per cent reserve: even if all depositors demanded their funds immediately, banks would have enough reserves to cover withdrawals (Birchler, Rochet 2017, p. 2). The introduction of a 100 per cent reserve is also advocated by proponents of the concept of sovereign money.

In a sovereign money reality, money would be created by an organ of the state, notably the central bank, and the authority responsible for formulating monetary policy would decide on the creation of money, with two options for putting it into circulation. The first would be to transfer the new money to the government, which would then put it into circulation through the public finance system. Depending on fiscal policy, the money created by the central bank could feed spending, infrastructure investment or finance tax cuts. By funding public spending and investment and reducing taxes, the state would increase revenue and/or reduce tax expenditure for businesses and households. This would increase disposable income and increase the value of the assets of the aforementioned entities. If the new money were to be used to cover sovereign debt, it would replace the long-term assets of investors, increasing liquidity in financial markets. At the same time, the state's liabilities would decrease by the amount so used (Sigurjónsson, Thoroddsen 2016, pp. 10–11).

In the second option, the central bank would lend new funds to private banks, which would put them into circulation through lending. This option would support the role of the state bank as a lender of last resort, providing a tool to stabilise interest rates in financial markets or facilitate access to finance for firms and households (Sigurjónsson, Thoroddsen 2016, p. 12).

In lending, banks would transfer existing money from savers to borrowers, following the model of most financial institutions in modern free market systems. However, when a bank would lend funds in a sovereign money regime, it would do so without expanding its balance sheet (Sigurjónsson, Thoroddsen 2016, pp. 10–12).

The introduction of sovereign money could have three key consequences in terms of:

- complete protection of the security of the monetary system against systemic risk;
- the total control of the central bank over the money supply in circulation and, consequently, the ability of the monetary authorities to have a multifaceted impact on economic prosperity;
- improving the overall efficiency of the economy through better allocation of savings (Gomez, Lafay 2018, p. 31).

When considering the specifics of the concept of sovereign money from the perspective of financial market dynamics, it can be concluded that probably its most important characteristic is full and effective control over the money stock, including flexible adjustments to its supply when necessary. If implemented by controlling the quantity of money in circulation, the central bank's monetary policy toolkit would also be effective in regulating inflation. Controlling inflation would limit the emergence of hyperinflationary bubbles and major crises – whether they involve real estate, the stock market, government debt, commodities, derivatives, alternative investments or anything else. As deposit creation by private banks would come to a definitive end, they would not be able to invest large sums of additional money in the non-GDP-creating investment banking system and stimulate profitable

interests in the financial market. Business and financial cycles would still exist, but their dynamics would be moderate. Under such conditions, individual profligate spenders and speculators creating financial pyramids would probably think twice before making expenditures or engaging in fraudulent activities (Huber 2017, pp. 175–176).

Since the beginning of the second decade of the 21st century, the idea of sovereign money has been present in the wider public debate and media space, mainly through the Vollgeld people's initiative referendum held in Switzerland in 2018. Arguments in favour of the introduction of sovereign money have also been formulated by various economic circles in the UK, the Netherlands, Denmark and Iceland. Speakers on the subject of sovereign money included the former head of the Bank of England M. King, former chairman of the Financial Services Authority A. Turner, former deputy governor of the European Central Bank V. Constâncio and Financial Times chief economic commentator M. Wolf (Dyson et al. 2016, p. 6).

Table 1 compares the features of modern monetary systems and the features of the sovereign money system.

Table 1. Comparison of features of modern monetary systems and features of the sovereign money system

	Modern monetary systems	**Sovereign money system**
Types of money		
Banknotes and coins are created by and constitute liabilities of:	*central bank*	*central bank*
Cashless money is a liability of:	*operational banks*	*central bank*
Creation of cashless money		
Cashless money is created as a result of:	*lending decisions of operational banks*	*decisions of the monetary authority*
Cashless money is introduced into the economy by:	*granting of credit by the operational bank*	*state budget or loans to operational banks*
Fund lending and financial intermediation		
Sources of loan finance are:	*deposits*	*funds at the disposal of the operational banks*
Loans from other financial institutions are:	*financed from the resources at their disposal*	*financed from the resources at their disposal*

Table 1 (continued)

	Modern monetary systems	Sovereign money system
The effect of a bank granting a loan is on that bank's balance sheet:	*extension of the balance sheet by the amount of the loan*	*conversion of central bank deposits into loans on the asset side*
The debt consolidation service is provided by:	*operational banks and other financial institutions*	*operational banks and other financial institutions*
Payment system		
Payment services are provided by:	*operational banks*	operational banks and other suppliers

Source: own compilation based on (Sigurjónsson, Thoroddsen 2016, p. 15).

2. Vollgeld initiative in Switzerland

In 2011, the non-governmental organisation Monetäre Modernisierung (MoMo) was established in Switzerland with the aim of introducing sovereign money in the country called the Vollgeld initiative (*French: Monnaie Pleine*). The main objective of the Vollgeld initiative was to grant the central bank the exclusive right to issue cashless money. As in 1891, when Swiss banks were forbidden to print paper money, following the implementation of the concept in question, the same banks were to lose the right to create cashless money (Dawnay 2017, p. 12).

By virtue of its legal mandate, the Swiss National Bank would put newly issued money into circulation, either through the federal government or the cantons or by allocating it directly to citizens. The central bank would also be able to provide banks with interest-bearing term loans. According to the authors of the Vollgeld initiative, all newly created money should ultimately enter circulation in the same way that cash money enters circulation, i.e. without the debt that is created when banks create money (Dawnay 2017, pp. 13–14).

In the proposed system of sovereign money, banks would only be able to lend this cashless money that was made available to them by savers, other banks, insurance companies or the Swiss National Bank. Sovereign money would have properties similar to cash in that it would belong to its holder and would not be a claim on the bank. Accounts with sovereign money would be kept off banks' balance sheets and even if a bank went bankrupt, the sovereign money would be paid out to its customers. The situation would be different for savings and investment accounts, which – identical to modern financial systems – would be exposed to risk. Taking this risk into account, the Vollgeld initiative envisaged maintaining statutory deposit protection up to 100 000 Swiss francs (Dawnay 2017, pp. 13–14).

The existing current accounts (which are part of the M1 monetary aggregate) would become fiduciary accounts held outside the balance sheets of the operational banks. At the same time, the total amount of current accounts at each operational bank would become a deposit account of the Swiss National Bank. According to the initiative's creators, the privacy of bank customers would remain intact and the Swiss National Bank would not receive information about how much money individual customers have in their accounts. Existing current accounts would become sovereign money accounts, owned by the owners, and would not become part of the bankruptcy estate in the event of the bankruptcy of the operational bank. The Swiss central bank would ensure both the operation of the settlement transaction system and the supply of credit to the economy, through a network of financial service providers. According to the creators of the Vollgeld initiative, private entities (rather than the central bank) should be in charge of operating payment systems and supplying credit to the economy (Dawnay 2017, p. 13).

Taking away the ability of banks to lend from current account funds would likely significantly reduce their existing income. This would result in banks having to increase fees for the financial services they offer. Banks would largely become cash warehouses and make money by charging fees for storage and cash transfers. In addition, due to lower income, credit conditions regarding repayment security could be tightened (Assenmacher, Brand 2018, pp. 639–640).

The Vollgeld initiative would also prohibit banks from conducting financial operations on short-term savings accounts. According to the initiative, the Swiss National Bank would be able to set minimum holding periods for their holders. If funds from savings accounts were available to banks within seconds, there would be a risk of banks continually increasing the money supply when lending. Setting minimum holding periods for funds held in short-term savings accounts would create a clear separation between money (means of payment) and savings (debt) (Initiative Monnaie Pleine 2016, p. 3).

In the sovereign money system the creation and introduction into circulation of other means of payment would be possible with the approval of the Swiss central bank. These would include, for example, the Swiss WIR[1], trade bills, discount vouchers, LETS (*Local Exchange Trading System*), barter systems, bonus miles (used in the aviation industry), and cryptocurrencies. What these means of payment have in common is that they have been agreed under private law and are used by a limited number of users (Dawnay 2017, p. 12).

In order to show the legal changes that the Vollgeld initiative would introduce, Table 2 compares the provisions of the initiative with those of the Swiss Constitution of 18 April 1999.

[1] A parallel currency to the Swiss franc issued by the WIR bank. Used by Swiss companies as a currency and unit of account (Vallet 2015).

Table 2. Comparison of the content of the Vollgeld initiative with the content of the Swiss Constitution of 18 April 1999

Content of the Vollgeld initiative	Content of the Swiss Constitution of 18 April 1999
Article 99 Monetary policy and the regulation of financial services 1. The Confederation guarantees that the economy is supplied with money and financial services. It may deviate from the principle of economic freedom. 2. Only the Confederation may create legal tender in the form of coins, banknotes and book money. 3. The creation and use of other means of payment are permitted provided this is compatible with the statutory mandate of the Swiss National Bank. 4. The law shall regulate the financial market in the overall interests of the country. In particular it shall regulate: a) the fiduciary duties of financial service providers; b) the oversight of the terms and conditions of the financial service; c) the authorisation and supervision of financial products; d) capital requirements; e) the limiting of proprietary trading. 5. Financial service providers shall hold transaction accounts for customers off their balance sheets. If the financial service provider goes bankrupt, these accounts do not fall into the bankruptcy estate.	*Article 99 Monetary policy* 1. The Confederation is responsible for money and currency; the Confederation has the exclusive right to issue coins and banknotes. 2. The Swiss National Bank, as an independent central bank, shall pursue a monetary policy that serves the overall interests of the country; it shall be administered with the cooperation and under the supervision of the Confederation. 3. The Swiss National Bank shall create sufficient currency reserves from its revenues; part of these reserves shall be held in gold. 4. A minimum of two thirds of the net profits made by the Swiss National Bank shall be allocated to the Cantons.
Article 99a Swiss National Bank 1. The Swiss National Bank, as an independent central bank, shall pursue a monetary policy that serves the overall interests of the country; it manages the money supply and ensures both the functioning of the payment transaction system and the supply of credit to the economy by financial services providers. 2. It may set a minimum holding period for investments. 3. Under its legal mandate, it shall bring newly created money into circulation free from corresponding debt, via the federal government or the cantons, or by allocating it directly to citizens. It may grant banks term loans.	

Table 2 (continued)

Content of the Vollgeld initiative	Content of the Swiss Constitution of 18 April 1999
4. The Swiss National Bank shall create sufficient currency reserves from its revenues; part of these reserves shall be held in gold. 5. A minimum of two thirds of the net profits made by the Swiss National Bank shall be allocated to the Cantons. 6. In the discharge of its duties, the Swiss National Bank is only bound by the law.	
*Art. 197 para. 12** Transitional provisions to Art. 99 (monetary policy and the regulation of financial services) and 99a (Swiss National Bank) 1. The implementing regulations shall stipulate that on the date when the new rules come into force, all book money in transaction accounts shall become legal tender. The corresponding liabilities of financial service providers shall become liabilities to the Swiss National Bank. This ensures that the liabilities will be settled from this book money conversion within a reasonable transition period. Existing credit agreements remain unaffected. 2. In particular, in the transition phase, the Swiss National Bank shall ensure that there is neither a shortage nor a flood of money. During this time they may grant easier access to loans to financial institutions. 3. If the appropriate federal legislation is not adopted within two years of Articles 99 and 99a coming into force, the Federal Council shall issue the necessary implementing regulations by ordinance within a year.	

* The actual number of this transitional provision shall be determined by the Federal Chancellery following the popular vote.

Source: Dawnay 2017, pp. 7–8.

The scientific advisory board of the Vollgeld Initiative included Australian economist S. Keen and German sociologist and economist J. Huber (Initiative Monnaie Pleine 2021). The idea of transforming the monetary system was supported by academic lecturers, celebrities and journalists. Supporters of the idea included H. Zuberbühler, former director of UBS bank, M. Rauh, former CEO of Swisscom SA,

M. Wolf, chief economic commentator of the Financial Times (Wolf 2018), C. Gomez, economist and former director at Société Générale bank, and S. Rossi, professor of macroeconomics at the University of Freiburg (Initiative Monnaie Pleine 2018). After an initial publicity campaign, the process of collecting signatures for the project began in front of the Swiss National Bank (SNB) headquarters in Bern on 3 June 2014. Thanks to the commitment of many activists, it was possible to collect more than 100,000 signatures within the required timeframe. On the first of December 2015, the list of signatures was officially handed over to the authorities (Dawnay 2017, p. 4).

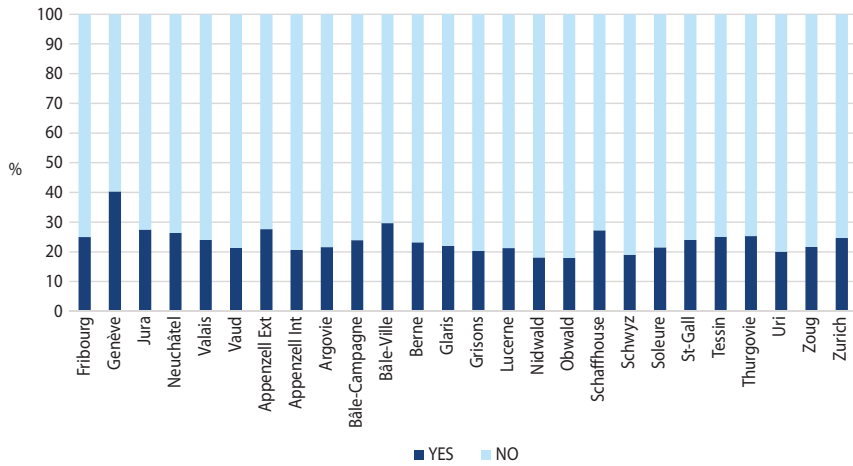
The Federal Council, the body that functions as the Swiss government, recommended that the initiative be dismissed. In its published analysis of the proposed reform, the Federal Council took the view that the adoption of the Vollgeld initiative would make Switzerland a testing ground for experiments to create a system of sovereign money and full reserves. Switzerland would be the only country to pursue a plan that would imply a profound and risky transformation of its internal monetary system and financial sector. The transformation would have caused great uncertainty and potentially high costs for the economy. In the Federal Council's view, there were more appropriate measures to strengthen the security of the financial industry, some of which had already been implemented and more were expected to be applied in the near future (Fedlex 2016, p. 23).

Both houses of parliament (the National Council and the Council of States) also voted against the initiative. The National Council recommended its rejection by 169 votes to nine. Twelve members abstained from voting. In the Council of States, 42 votes were cast against the initiative, no one was in favour and one person abstained. The Federal Council and the parliament did not put forward an alternative proposal (Jordan 2018a, p. 8). Despite the favourable votes of politicians from various groups, the Vollgeld initiative was not supported by any Swiss political party (Sterdyniak 2018). It did not meet with much public or political approval. The Swiss central bank and the large Swiss banks strongly criticised the postulated changes.

The referendum on the Vollgeld initiative took place on 10 June 2018. 75.7% of Swiss citizens voted against the initiative, 24.3% voted in favour. 442 387 votes were 'yes' against 1 379 540 'no' votes (Fedlex 2018). The turnout was 33.8% (Le conseil fédéral 2018). In no canton did the project receive the support of a majority of voters. Apart from Geneva, where the Vollgeld initiative was rejected by only 59.7% of referendum participants, the proportion of negative votes in the referendum exceeded 70% (Fedlex 2018).

Figure 1 shows the results of the referendum on the implementation of the Vollgeld initiative in Switzerland by canton.

Figure 1. Results of the Vollgeld initiative referendum in Switzerland by canton



Source: own elaboration based on (Fedlex 2018).

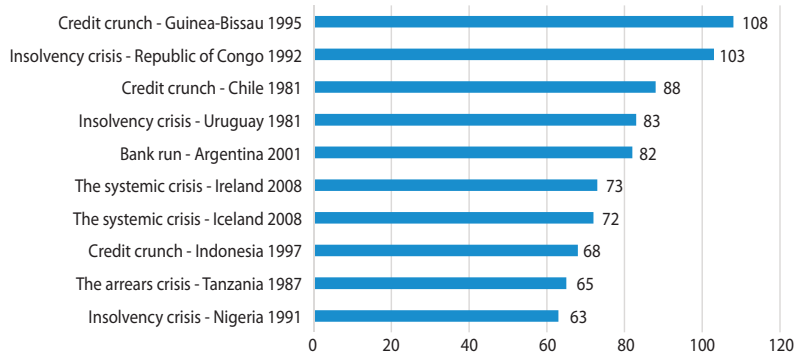
3. Arguments in favour of the Vollgeld initiative

After the global crisis of 2008, it seemed necessary to rethink the way the global financial system works. Fundamental reforms were not carried out, however, and the global financial system was only superficially modified. Between 1970 and 2011, the International Monetary Fund database records the occurrence of 147 individual national banking crises. These affected both poor and wealthy countries. The consequence of these crises was a very large increase in public debt (Wolf 2018). Figure 2 lists the costliest (in terms of public debt growth as a percentage of GDP) banking crises that occurred between 1970 and 2012.

In theory, the Vollgeld initiative could have been an effective response to the instability in the financial system caused by insufficiently controlled lending by the operational banks. A reform of sovereign money would have abolished the fractional reserve system, which was significantly contributing to the growth of private and public debt and the emergence of major financial crises. Moreover, in a system of explicitly safe money, it would be much easier to transfer the consequences of wrong decisions to the risk takers. The Swiss initiative could thus have contributed to improving the safety of the riskiest industry in the world, the banking industry (Wolf 2018).

A sovereign money reform would give the Swiss monetary authorities total control over the amount of money in circulation and thus a decisive ability to influence the financial system. By better allocating savings and managing the money supply, Switzerland could theoretically accelerate its economic development (Gomez, Lafay 2018, p. 31). According to Choloniewski and Siekierski (2021), a move to a sovereign money system would enable the state to increase public spending, reduce public and private debt, cut taxes and reduce unemployment.

Figure 2. The costliest banking crises between 1970 and 2012 (increase in public debt as a percentage of GDP)



Source: own elaboration based on: Baudino, Murphy, Svoronos 2020, pp. 4–8; Bryant, Sigurjonsson 2022, p. 362; Caprio, Klingebiel 2003, pp. 2, 7, 8, 10, 12, 13; Laeven, Valencia 2012, p. 19.

Essentially, the concept of sovereign money behind the Vollgeld initiative would mean a return to a historically well-known and proven monetary system. Operational banks would be deprived of their ability to create money, which would reduce the risk of financial crises (Gatnar 2018). Matyja (2018) emphasises that, taking the moral aspect into account, the Vollgeld initiative should be considered legitimate. Sovereign money would be a direct liability of the central bank and would not be subject to the risk of insolvency of the issuer.

A key advantage of the Vollgeld initiative was the issuance of debt-free money (Joób 2014, p. 7). Banks would revert to their role as financial agents, would not be able to create 'empty money' and would need their customers' savings to lend. This would strengthen the stability of the banking sector, significantly reducing the scope for risky bank activities.

As Temple (2018) notes, the Vollgeld initiative was a useful project for the economy, democracy and the Swiss constitutional system. Its added value on an economic level came from providing the public with secure state cashless money and preventing market bubbles. Democracy was the submission of the Vollgeld initiative to a referendum by way of a people's initiative, and constitutionality concerned the inclusion of the postulated changes in the Swiss constitution.

4. Criticism of the Vollgeld initiative

The Swiss National Bank presented numerous arguments in favour of rejecting the Vollgeld initiative. It expressed strong opposition and shared the negative opinions on the initiative issued by the Federal Council and the parliament (Jordan 2018a, p. 8). According to the SNB, the existing monetary order was functioning well. Switzerland had survived the 2008 global crisis and the relevant new regulations

(capital requirements and other prudential measures) had made its monetary regime safer compared to the state before the 2008 crisis. Furthermore, the Swiss financial system was already both customer-oriented and efficient before 2008. The Swiss National Bank had the necessary instruments to manage the level of interest rates and the quantity of circulating money. In doing so, it pursued the overarching objective of monetary policy – ensuring price stability in the economy (Swiss National Bank 2018a, pp. 1–2). In the SNB's view, the functioning financial system allowed it to control the money supply very well. The monetary policy instruments used in the few years following the 2008 global crisis created the right market conditions and saved Switzerland from a credit crunch. The implementation of the Vollgeld initiative would change the focus of monetary policy from interest rates, the central bank's main tool since 2000, to a monetary targeting strategy. The SNB considered such a direction regressive and unnecessary (Swiss National Bank 2018b, pp. 2–3).

The Swiss National Bank pointed out that money creation in lending is not without limits. A single bank cannot use lending to maintain a sustained increase in its deposits, as settlement transactions imply an outflow of deposits. With its interest rate policy, the Swiss National Bank significantly affects the aggregate supply of credit and the creation of deposits. Money creation by operational banks is constrained by the legal regulatory framework, especially capital and liquidity requirements (Swiss National Bank 2018b, p. 3).

According to the Swiss National Bank's position, a sovereign money regime could not eliminate all forms of bank runs. The system would only be able to effectively prevent runs on current accounts, which would consist entirely of sovereign money (Swiss National Bank 2018b, pp. 4–5). The global financial crisis of 2008 and various market collapses show that bank troubles are not usually triggered by traditional runs. After the Vollgeld initiative materialises, banks could still be 'too big to fail' and their failures would threaten the entire financial system and have a significant impact on employment (Bacchetta 2017, p. 11). Under the postulated conditions, runs on time and savings deposits could even become more frequent. Nowadays, in a run, bank customers must convert bank cashless money into cash. Under the Vollgeld system, on the other hand, they could electronically convert bank cashless money into sovereign money without cash withdrawals. Depending on the level of risk aversion, investors would reallocate their savings and time deposits into sight deposits and vice versa. This would increase the volatility of demand for sovereign money and credit (Swiss National Bank 2018b, pp. 4–5).

SNB governor T. Jordan criticised the Vollgeld project and pointed out the negative consequences of its implementation. He estimated that the uncertainty of the financial system in the transitional phase would be enormous and that the adoption of the Vollgeld initiative would entail a fundamental transformation of the monetary and economic system of Switzerland, which had been constituted for many years (Jordan 2018b, p. 8). According to Jordan (2018b, p. 6), sovereign money would have acted like 'throwing gravel between the cogs of the Swiss credit system'.

Banks would not be able to sufficiently meet the demand for credit. Because of this, consumption, investment and ultimately the prosperity of the country would have declined.

The Vollgeld reform would mean that the central bank would revert to a strategy of influencing the money supply – monetary targeting. The SNB pursued this strategy in the period from the break-up of the Bretton Woods system until December 1999, when it adopted a stance focused on inflation forecasts and the control of short-term interest rates. By the end of the last century, there were good reasons to abandon the previous strategy and re-implementing it could lead to a decline in the effectiveness of monetary policy (Bacchetta 2017, p. 26). Table 3 compares the monetary policy strategies implemented by the SNB until 1999 and since 1999, respectively.

Table 3. Assumptions of monetary policy strategies implemented by the SNB until and since 1999, respectively

Monetary targeting strategy (implemented from the 1970s to 1999)	Interest rate strategy (implemented since December 1999)
– Imprecisely defined price stability as an overarching objective	– The main objective in the medium to long term remained price stability, but a clear quantitative definition of it is used. Price stability is when the CPI growth rate is less than 2% per year
– Strict control of the growth of the money stock as a prerequisite for achieving the overarching objective	– Forecasting inflation for the next 3 years
– Central bank's commitment to established monetary policy rules	– Volatility range for the interbank market rate as an operational target

Source: own elaboration based on (Jordan, Peytrignet, Rossi 2010, pp. 10, 13–15).

Adopting the Vollgeld initiative would be a very complex, costly and risky enterprise. Its outcome could not be accurately charted (Baumberger, Walser 2014, pp. 7–8). There was no evidence that sovereign money was more effective in promoting financial stability than traditional money (Birchler, Rochet 2018, p. 4). At the time the initiative was under consideration, other, less controversial reforms of the financial system were possible to strengthen stability in a controlled manner, such as successively raising the equity ratio (Baumberger, Walser 2014, pp. 7–8). A plan including social control of credit criteria, separation of market banks from deposit banks and a ban on purely speculative activities was more desirable and more likely to succeed (Sterdyniak 2018).

Following the implementation of the Vollgeld initiative, there would presumably be a credit deficit in the market and the cost of credit would increase. This would

create allocative inefficiencies and adversely affect economic development. It is highly likely that operational banks would charge customers for acting as account custodians of sovereign money. The banks' incentive to provide innovative services could weaken as there would be no competition among them for these accounts. Given money creation detached from debt creation, monetary policy would be quite politicised. The Swiss National Bank would be exposed to pressure from the government and the cantons. This would threaten to increase expected and actual inflation. The SNB would also be exposed to credit risk, as the transition to the new regime would require the central bank to provide banks with temporary loans equal to the sum of deposits (Goretzki, Vernazza 2018, p. 4).

Potential consequences of adopting the Vollgeld initiative would also include lenders avoiding the new rules and increased demand for non-bank loans (Brosens, de Montpellier 2018, pp. 2–3). The implementation of the Vollgeld initiative could result in considerable uncertainty among banks and investors. A change in the monetary regime would likely have a negative impact on the ratings of Swiss banks if increasing funding risks for their activities were observed. In the longer term, the adoption of sovereign money in Switzerland could result in a decline in banks' profitability and undermine the rationality of their fee-based business model (Heinrich, Lozmann, Verhaag 2018, p. 1).

The acceptance of the Vollgeld initiative may have weakened the Swiss economy. The effects of the introduction of sovereign money in Switzerland could have been a disruption of the monetary and fiscal order, reduced financial stability and losses for deposit holders (Bacchetta 2018).

Summary

The concept of sovereign money is similar to the 100 per cent reserve system. In a sovereign money system, the central bank has full control over the money supply and the operational banks are deprived of the ability to create money through lending. After the introduction of the sovereign money system, all sight deposits would be transferred to the central bank. Consequently, the central bank would create sovereign money, manage it and guarantee its security and stability. Banks would act as financial agents.

In the third decade of the 21st century, sovereign money is only a theoretical concept for a monetary system. Through the Swiss Vollgeld initiative, an example of an organised, grassroots social movement for a change in the financial system, this concept was attempted to become a reality. Thanks to the system of direct democracy, the supporters of the Vollgeld reform were able to submit their proposal to the government and lead to a national referendum in 2018. However, *Monnaie Pleine* was doomed to failure almost from the start. The Swiss government, parliament, central bank and operational banks categorically opposed the adoption of the Vollgeld initiative, formulating numerous arguments against it. However, the

initiative may provide the impetus for an international debate on the condition of modern monetary systems.

According to the author of this article, sovereign money is a concept that requires further research, especially in the area of monetary system transformation. Granting a central bank a monopoly on the creation of cashless money seems to be a solution conducive to increasing the security of the banking sector, but it also carries the risk of destabilising the financial system and temporarily weakening the economy. The Swiss National Bank and banks such as UBS, ING and UniCredit were against the Vollgeld initiative. It can be assumed that if the banking sector continues not to support the concept of sovereign money in the future, attempts to implement it will not be successful.

The issues discussed in this article are rarely addressed by economists, as shown by the small number of available articles and analyses in this area. Sovereign money has not yet been introduced by any country and it can be predicted that this situation is unlikely to change. As an international financial centre, Switzerland had legitimate concerns that a new monetary regime would seriously damage its prestigious position. The arguments presented lead to the conclusion that, in theory, the concept of sovereign money makes it possible to increase control over the lending activities of operational banks, but in the case of a small open economy, its implementation carries numerous risks for the stability of the economic system. In the opinion of the author of this article, the possible experimental introduction of sovereign money should be preceded by in-depth research and simulations of market reactions.

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Ransomware as a threat to the security of critical infrastructure, with a focus on the financial system

Abstract

Scientific objective: The aim of this article is to summarise contemporary knowledge of ransomware threats and to examine their impact on critical infrastructure in Poland.

Research problem and methods: The research problem is to analyse the growing threat of ransomware, especially in the context of its impact on public and private institutions. Research methods include a critical analysis of the literature and case studies of actual attacks. Based on the literature review and incident analysis, the paper discusses the stages of a ransomware attack, examples of known incidents in Poland and analyses the level of threat in different economic sectors.

Results: The analysis shows that ransomware has become a serious threat to various sectors, especially critical infrastructure, capable of paralysing institutional operations and causing data leaks.

Conclusions: The author emphasises the urgent need to strengthen security and user education as key defence strategies. He also recommends regular backups and international cooperation in the field of cyber security. The article brings new knowledge on strategies to counter ransomware and emphasises the need for continuous development of security technologies in response to growing digital threats.

Keywords: ransomware, critical infrastructure, critical infrastructure security, financial system, digital threat

JEL Codes: L89

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Ransomware jako zagrożenie dla bezpieczeństwa infrastruktury krytycznej, ze szczególnym uwzględnieniem systemu finansowego

Streszczenie

Cel naukowy: Artykuł ma na celu podsumowanie współczesnej wiedzy na temat zagrożeń związanych z ransomware oraz zbadanie ich wpływu na infrastrukturę krytyczną w Polsce.

Problem i metody badawcze: Problemem badawczym jest analiza rosnącego zagrożenia ransomware, zwłaszcza w kontekście jego wpływu na instytucje publiczne i prywatne. Metody badawcze obejmują krytyczną analizę literatury oraz studium przypadków rzeczywistych ataków. Na podstawie przeglądu literatury oraz analizy incydentów, artykuł omawia etapy ataku ransomware, przykłady znanych incydentów w Polsce oraz analizuje poziom zagrożenia w różnych sektorach gospodarki.

Wyniki: Analiza wykazuje, że ransomware stał się poważnym zagrożeniem dla różnych sektorów, szczególnie dla infrastruktury krytycznej, zdolnej do paraliżowania działalności instytucji oraz powodowania wycieków danych.

Wnioski: Autor podkreśla pilną potrzebę wzmocnienia zabezpieczeń oraz edukacji użytkowników jako kluczowych strategii obronnych. Rekomenduje również regularne tworzenie kopii zapasowych oraz współpracę międzynarodową w dziedzinie cyberbezpieczeństwa. Artykuł wnosi nową wiedzę na temat strategii przeciwdziałania ransomware oraz podkreśla potrzebę ciągłego rozwoju technologii zabezpieczeń w odpowiedzi na rosnące zagrożenia cyfrowe.

Słowa kluczowe: ransomware, infrastruktura krytyczna, bezpieczeństwo infrastruktury krytycznej, system finansowy, zagrożenie cyfrowe

Kody JEL: L89

Introduction

One of the more popular types of malware is ransomware[1], which is malware that aims to block the operation, access or prevent the reading of stored data in order to later obtain a ransom from the virus victim (O'Gorman and McDonald 2012). Attacks of this type are on the increase and newer families of ransomware are also being developed. Ransomware is a threat to both individuals and public institutions, where, with the carelessness of the entity responsible for IT network security, the proper operation of the institution can be severely disrupted or prevented. The National Programme for Critical Infrastructure Protection identifies ransomware as one of the potential threats to critical infrastructure security (Government Security Centre 2023). Hackers can also target a country's critical infrastructure with potentially serious and devastating consequences for national security and the operation of critical services. This article aims to summarise the current literature with regard to ransomware threats and provide the reader with key knowledge to understand the fundamental issues relating to this phenomenon. The research methods used in

[1] The name comes from the English words ransom and software.

the article are: a critical analysis of the literature on the subject, an analysis of real, documented attacks on critical infrastructure and an attempt to determine the level of the ransomware threat in Poland.

Pursuant to the Act of 26 April 2007 on crisis management (Journal of Laws 2007, No. 89, item 590), for the purposes of this article, critical infrastructure objects are defined as systems and their constituent functional interconnected objects, including buildings, equipment, installations, services that are key to the security of the state and its citizens and that serve to ensure the efficient functioning of public administration bodies, as well as institutions and entrepreneurs.

1. Stages of a ransomware attack

The European Cyber Security Agency (ENISA) distinguishes four stages of a ransomware attack in its 2022 report:

1. Gaining access – at this stage, the cybercriminal seeks to gain access to the victim's computer system. The malware can be installed on its own, by the victim being misled by phishing methods (King 2024) or by connecting via a remote desktop (Garg, Thakral, Nalwa and Choudhury 2018),[2] exploit kits (O'Kane, Sezer and Carlin 2018), Oracle WebLogic vulnerabilities and vulnerabilities (Snoke and Shimeall 2020), computer worms (Liu, Zhuge and Wu 2018), password cracking (Cobb, Cobb, Kabay and Crothers 2012), code injection[3] (Paul Joseph and Norman 2020) and drive-by installation[4] (Singhal and Levine 2019).
2. Action – ransomware starts by encrypting, blocking access to, deleting or stealing resources stored on the attacked system. These may include files, folders, databases, interface screen, disk memory allocation tables (MFTs), system boot records (MBRs), cloud resources, website content management system (CMS) (ENISA 2022).
3. Blackmail – the cybercriminal makes a demand on the victim to take a certain action, share certain data or, most often, make a payment of a requested sum of money, usually via cryptocurrencies (Kshetri and Voas 2017) or prepaid cards (Simoiu, Bonneau, Gates, Goel 2019), so as to make it difficult to trace the transaction and the perpetrator of the crime.
4. Negotiation – the cybercriminal negotiates the ransom rate with the victim. More often than not, the initial rate is inflated and the victim is left under false time pressure so that they agree to high rates.

[2] Exploit – a vulnerability in software security.

[3] Code injection – a method of attack that exploits a security vulnerability to 'inject' (insert) malicious software code into the victim's software, e.g. SQL injection, XPath injection, LDAP injection (Allodi, Massacci 2014).

[4] Spontaneous installation of malware via an infected website (niebezpiecznik.pl, n.d.).

2. Examples of ransomware attacks

An example of a hacking attack using ransomware against critical infrastructure institutions in Poland is the attack carried out against the Polish Mother's Hospital in Łódź. The attack was carried out by the Lockbit 3.0 group (one of the most active hacker groups). According to Sekurak.pl (2022), backups were also encrypted, and it was possible to leak patients' personal data. A year later, in 2023, the Central Clinical Hospital of the Medical University of Lodz was attacked, also using ransomware, which significantly disrupted the hospital's operations (Sekurak.pl 2023). ENISA, in its report 'Health Threat Landscape' (2023), notes that ransomware accounts for 54% of all security incidents involving the healthcare system. According to this report, 6 cyberattack incidents were reported in Poland between 2021 and the first quarter of 2023, including 1 in 2021, 4 in 2022 and 1 in the first quarter of 2023. A hospital in Pajęczno also fell victim to cybercriminals in 2022, where almost all files were encrypted and cybercriminals demanded a high ransom from the hospital authorities (Sekurak.pl 2022).

Figure 1. WannaCry ransomware interface

Source: CERT (2017).

In the case of the financial sector, we can note the attack on the Cooperative Bank of Zambrow (Sekurak.pl 2024). The problem of maintaining and setting up IT systems in cooperative banks is highlighted by Kotlinski (2022), who notes that cooperative banks should consider creating common systems uniform for the association or even that post-association solutions should be considered.

Public offices were also victims of ransomware. In the case of the municipality of Nowiny, the databases of the human resources and finance programme were encrypted, and the infection probably occurred at as a result of a municipality employee downloading and installing the malware (Sekurak.pl 2021).

3. Ransomware threat level in Poland

According to CERT Orange (2024), ransomware was the second most frequently detected threat type on the mobile network in 2023, and accounted for 24% of all detections. The most commonly detected threats were adware and HiddenApps, which together accounted for 54% of detected threats. An analysis of the CERT data shows that the highest number of ransomware incidents was reported in business entities, where as many as 81 cases were reported. In second place is public administration with 31 cases, and in third place are private individuals with 30 cases.

The most commonly used ransomware families in Poland are Phobos, which was responsible for 29 incidents, LockBit with 13 incidents and MedusaLocker and Djvu with 7 incidents each. In fifth place is Makop, which was responsible for 6 incidents. The increase in the number of ransomware attacks in Poland can be attributed to several factors. Firstly, increasing digitalisation and reliance on technology are making more and more entities a potential target for cybercriminals. Secondly, the development of encryption technologies and attack tools is making ransomware more sophisticated and more difficult to detect and neutralise.

4. Main methods of ransomware prevention

Beaman, Barkworth, Akande, Hanak and Khan (2021) distinguish two main categories of ransomware countermeasures:

1. Prevention and mitigation, which involves stopping or reversing the effects of ransomware. These methods include:
   a. Backups – enabling the system to be restored to its state prior to the computer attack; cyclical backups are required for this method to work,
   b. Obtaining the decryption key – with some types of software, the decryption key can be obtained from its files. In a study by Bajpai and Enbody (2020), who conducted a side-channel attack on malware, this method achieved 100% success against ransomware such as NotPetya, WannaCry, LockCrypt, CryptoRoger. There are also reported cases of keys being obtained by breaking up a cybercrime group.
   c. User awareness – educate users on the dangers of ransomware and best security practices, such as avoiding opening suspicious attachments and clicking on unknown links, which can prevent infections.

   d. Network segmentation – segmenting the network to limit the spread of ransomware in the event of infection. This makes it harder for malware to access critical resources, which can minimise damage.
   e. Access control – implementing strict access control policies such as multi-level authorisation and limiting user rights to the minimum necessary to perform their duties, making it difficult for ransomware to gain administrative rights and encrypt the entire system.
2. Ransomware detection:
   a. Machine learning
   b. Honeypot
   c. Network traffic analysis
   d. File analysis
   e. Analysis of reports of ransomware
   f. The machine is finished
   g. Analysis of the IT system (e.g. Windows registry keys and system logs)

5. Potential actions

If the system is infected, CERT (2021) recommends the following actions:

1. Isolation of the infected machine, preventing the virus from spreading to uninfected systems.
2. Identification and elimination of infections.
3. Identification of the ransomware family.
4. Restore system operation.
5. Report the incident to the NASK CSIRT team, to which a minimum of 2 encrypted files and a note with the ransom demand from the offender should be attached. It is also recommended to send a sample of the malware, logs from the infected machine and security systems, as well as the originals of the infected files, if available.

CERT also provides a free tool from recovering the ransomware Vortex encryption key.

For ad hoc actions (especially if the institution decides to negotiate with offenders), the NCC study (2021) recommends the following:

1. If a staff member notes an infection, do not continue the interaction so as not to activate the timer.
2. Decisions should not be made under time pressure, despite the pressure exerted by offenders. Requests to give victims more time are usually effective.
3. Cybercriminals often agree to ransom amounts less than initially requested (e.g. USD 350,000 instead of USD 1 million). In the NCC study, messages from the victim company about their low income and inability to pay the requested amount, along with a proposal for an alternative, smaller ransom amount, were effective.

4. Do not inform cyber criminals that you have ransomware insurance.
5. An external communication channel should be established to prevent interference and interference by third parties.
6. Cybercriminals often share information about system vulnerabilities within a company if they are asked for it by a victim who has agreed to pay a ransom.

It should be noted here that deciding to pay the ransom, in whole or in part, does not guarantee that the data will be unlocked and the system restored to working order. It should therefore be considered as a last resort, in cases where it is necessary to restore the proper functioning of the institution and the data is impossible to recover or restore by any other means. Guidance on negotiating with cybercriminals is included in this article because, according to the ENISA report (2023), more than 60% of victims of ransomware attacks may have chosen to pay the ransom. The information is therefore important from the perspective of reducing the severity of the attack. CERT (2017) does not recommend paying the ransom, but recommends restoring the system using a backup or moving the infected data to a separate drive and reinstalling the infected operating system to enable decryption of the data without paying the ransom in the future.

Summary

Ransomware is a growing threat to digital security that involves blocking access to data and demanding a ransom to unlock it. The article analyses cases of ransomware attacks on critical infrastructure in Poland, examining both the technical aspects of these attacks and their consequences for the affected entities. Using a case study analysis, the author highlights the increasing complexity and effectiveness of these attacks and their significant impact on the operations of public and private institutions.

Research shows that the key stages of an attack include gaining access to a system, spreading malware, encrypting data and demanding a ransom. The examples of attacks discussed demonstrate the variety of methods used by cybercriminals, from phishing to advanced exploits.

Based on the article, we can therefore identify five main recommendations:

1. Strengthening security: institutions should invest in advanced security systems, regularly update software and apply multi-layered defence strategies against ransomware attacks.
2. Employee training: educating employees on how to recognise phishing attempts and other social engineering methods is key. Regular training can significantly reduce the risk of a successful attack.
3. Regular backups: making regular backups of data and storing it securely offline can significantly reduce the impact of a ransomware attack. Institutions should develop and test data restoration plans.

4. International cooperation: increased international cooperation in sharing threat information and best practices can help to respond more quickly to new types of ransomware attacks.
5. Research and development: continued research into new methods of detecting and neutralising ransomware, as well as the development of security technologies, is essential to maintain an edge over cybercriminals.

In conclusion, the article demonstrates the urgent need for comprehensive measures to increase resilience against ransomware attacks. Adopting proactive strategies and continuously improving defensive measures can significantly reduce the risk and impact of these attacks, protecting both data and the business continuity of key institutions.

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Consumer bankruptcy and the problem of financial exclusion

Abstract

Consumer bankruptcy allows insolvent consumers to be put out of debt, but it also carries risks related to restrictions on access to certain financial services, including transactional and credit services (e.g. blocking money in a bank account), which can cause serious difficulties for over-indebted individuals in managing their personal finances. Banks may discriminate against insolvent persons in various areas of financial services during and even after insolvency proceedings. The financial exclusion of insolvent persons exacerbates their economic problems, including exposure to poverty and social exclusion as persons unable to carry out normal household activities. From a macroeconomic perspective, the increasing number of consumer insolvencies causes losses to financial institutions from these transactions and indirectly affects access to credit. However, the arbitrary exclusion of bankrupts from these services may deprive many debtor consumers of the opportunity to improve the well-being and economic condition of their households once valuable assets have been liquidated in the course of bankruptcy proceedings.

Keywords: consumer bankruptcy, financial exclusion, over-indebtedness

JEL Codes: K 34, L 31

Upadłość konsumencka a problem wykluczenia finansowego

Streszczenie

Upadłość konsumencka pozwala na oddłużenie niewypłacalnym konsumentom, ale niesie też zagrożenia związane z ograniczeniami w dostępie do niektórych usług finansowych, w tym usług transakcyjnych i kredytowych (np. zablokowanie pieniędzy na rachunku bankowym), co może powodować poważne utrudnienia dla nadmiernie zadłużonych osób w zarządzaniu finansami osobistymi. Banki mogą w różnych obszarach usług finansowych dyskryminować

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upadłych w trakcie postępowania upadłościowego, a nawet po jego zakończeniu. Wykluczenie finansowe osób niewypłacalnych pogłębia ich problemy ekonomiczne, w tym naraża na ubóstwo oraz wykluczenie społeczne jako osób niezdolnych do prowadzenia normalnej działalności w gospodarstwie domowym. Z perspektywy makroekonomicznej zwiększająca się liczba upadłości konsumenckich powoduje straty instytucji finansowych z tych transakcji, a pośrednio wpływa na dostęp do kredytów. Niemniej, arbitralne wykluczenie upadłych z tych usług może pozbawić wielu oddłużonych konsumentów możliwości poprawy dobrostanu i kondycji ekonomicznej ich gospodarstw domowych po upłynnieniu wartościowych aktywów w toku postępowania upadłościowego.

Słowa kluczowe: upadłość konsumencka, wykluczenie finansowe, nadmierne zadłużenie

Kody JEL: K 34, L 31

Introduction

Loss of liquidity will generally lead to insolvency, which will trigger court and then enforcement proceedings by creditors and expose the debtor to a number of problems in accessing various financial services, most notably credit and loans. A state of insolvency lasting at least two months allows the court to declare the debtor bankrupt. Thanks to the debt relief procedure, which was introduced into the national legal order on 31 March 2009 by an amendment to the Act of 28 February 2003. Bankruptcy and Reorganisation Law (Journal of Laws of 2003, No. 60, item 535), the debtor can get rid of the ballast of debt, which will enable him to carry out normal activities, including the management of his personal finances. The course of the bankruptcy procedure is complex and multi-stage, and the proceedings themselves may last many years, when the debtor will have to face various difficulties that may worsen his economic situation.

The aim of this article is to analyse the impact of bankruptcy proceedings on the bankrupt consumer's ability to use financial services and to assess to what extent the existing solutions are inclusive, i.e. including the financially excluded debtor in the financial system as a full participant. To this end, a critical analysis of the literature on the phenomenon of financial exclusion was carried out, taking into account the academic literature on over-indebted people and an analysis of relevant statistical data in the area of transactional and credit services. Part of the article was devoted to considerations concerning the relationship between debt relief procedures and financial exclusion of bankrupt consumers, mainly based on the interpretation of legal acts, as well as the analysis of statistical data covering the number of bankruptcies declared in Poland and the number of debtors registered by economic information bureaus

1. The phenomenon of financial exclusion of insolvent persons

Financial exclusion consists of depriving an individual of access to financial services or making it difficult to use these services. Research on this phenomenon has been ongoing since the 1980s, and initially focused on the analysis of geographically based determinants (Leyshon, Thrift 1997, pp. 21–22). Gradually, the research spectrum was broadened to include socio-economic factors, and consideration was given to the relationship between financial exclusion, poverty and social exclusion (Kempson, Whyley, Caskey, Collard 2000, pp. 7–8). With time, thanks to the use of better research instruments drawn, inter alia, from behavioural finance, the determinants of this phenomenon were diagnosed more accurately, including those of a non-economic nature such as psychological (Solarz, Swacha-Lech 2011, pp. 41–46).

The set of determinants of financial exclusion is extensive, including, inter alia, determinants of an economic nature (e.g. the price of services), marketing (e.g. the lack of an offer for certain customer groups), as well as educational or cultural ones, resulting from the level of low economic awareness (Anderloni, Carluccio 2007, pp. 6–8). The European Commission considers financial exclusion as a process that can lead to social exclusion, preventing an individual from functioning normally in society (EC, Finacial servises… 2008 p. 9). Households' financial exclusion can be influenced by both external determinants, including inflation, leading to tighter monetary policy and higher loan servicing costs, and internal determinants (e.g. low or unstable income preventing the use of credit services). Regardless of the different approaches, financial exclusion is a manifestation of discrimination and marginalisation of the consumer resulting from financial institutions finding it unprofitable or too risky to serve certain groups of customers (Polasik, Piotrowska 2014, p. 317).

The considerations undertaken in the article concern the specific determinants of financial exclusion of bankrupt, i.e. insolvent persons who experience various difficulties in accessing financial services, as a result of both a difficult economic situation, enforcement actions and the debtors' possible withdrawal from socio-economic life, or even a kind of escape from problems by taking up work in the '*shadow* economy', in order to evade severe bailiff enforcement. Financial exclusion in this article will not be seen as a state, but as a progressive process marked by successive stages of debt relief proceedings.

It should be emphasised that the phenomenon of financial exclusion itself, which has been the subject of numerous scientific studies, public debate, legislative changes, as well as various activities of many institutions, has been noticeably reduced in recent years. According to a World Bank study (World Bank 2021), in the decade 2011–2021 in Poland the average percentage of people with a bank account increased from 71% to 96%, and in the group of poorer people the increase was even greater (from 62% to 94%), i.e. the number of bank account users increased by several million people, approaching the level for the euro area (Table 1). This is mainly due to an improvement in the living standards of Polish households and the development of the financial services on offer, mainly after Poland's accession to EU structures (Kuchciak 2020, p. 95). The

progressive digitalisation of the economy, which facilitates the management of personal finances and also improves access to financial services for residents of smaller towns and cities where bank outlets do not operate, also has an impact on reducing the number of so-called bank absentees (Czerwiński 2021, p. 283). Comparing financial exclusion in Poland and the euro area, it can be seen that within transactional services, the level of financial exclusion is similar, but credit services were used by significantly fewer customers in Poland. In addition, the total value of household debt to GDP in Poland, according to the International Monetary Fund, in 2023 was 24% being significantly below the level of consumer debt in wealthier economies. Among the G7 countries, for example, this percentage was 77% (INF 2023).

Table 1. Percentage of people with a bank account and a loan in a financial institution in the supervised financial services market in Poland and the euro area [in %]

Specification	Years			
	2011	2014	2017	2021
Banking in Poland[a)]	71	78	87	96
Banking[a)] in the EURO area	90	95	95	98
Banked[a)] among the 40% of the population with the lowest income in Poland	62	71	84	94
Bankedness in group[a)] 40% of the population with the lowest income in the EURO area	90	92	94	97
Percentage of population with borrowing in Poland[b)]	10	22	29	28
Percentage of population with borrowing in the Eurozone[b)]	12	42	46	48
Percentage of population with borrowing[b)] among the 40% with the lowest income in Poland	5	22	29	28
Percentage of population with borrowing[b)] in the group of 40% with the lowest income in the EURO area	12	33	37	45

[a)] Number of bank account holders to total population
[b)] Number of borrowers to total population

Source: own elaboration based on https://databank.worldbank.org/source/global-financial-inclusion

Groups at particular risk of financial exclusion include insolvent debtors, especially when they are vulnerable individuals (e.g. sick, elderly, single parents). Exclusion from the financial system causes a number of negative consequences for insolvent individuals, which may contribute to gradual pauperisation, resulting from the need to reduce many expenses and thus lower living standards (Reczuch 2020,

pp. 141–143). Financial exclusion caused by insolvency can lead not only to poverty but also to social exclusion. Increasing financial problems will affect other aspects of a household's functioning, e.g. limiting the ability to use health services, causing conflicts within the family or the inability to participate in socio-cultural life, or even leading to pathological phenomena in the form of, for example, alcoholism, and stigmatising all its members, including children (Grzega 2022, p. 93).

The financial exclusion of an insolvent person is mainly due to legal restrictions stemming from ongoing debt collection, court (including insolvency) and enforcement proceedings, which prevent normal household management.

Financial exclusion due to insolvency negatively affects the following areas of household finances:

- restrictions on the use of transactional services due to the attachment of a bank account;
- difficulties in accessing credit due to the disclosure of debt in debtors' registers;
- a reduction in creditworthiness resulting from a reduction in income due to seizures by the enforcement authority;
- disclosure in the land and mortgage registers of pending court and enforcement proceedings, making it practically impossible to obtain a loan or mortgage and benefit from a so-called reverse mortgage.

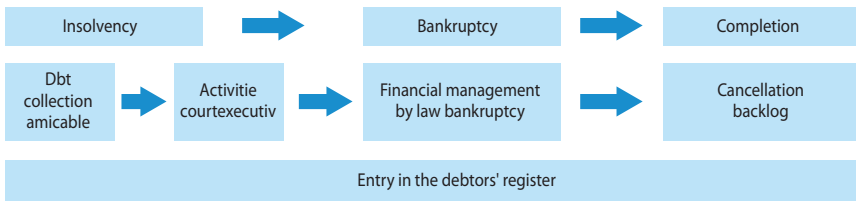
The two main areas of financial exclusion for a bankrupt person include credit and loan services and transactional services. Financial exclusion can also extend to other areas of services, including savings, investments or insurance, which are important for the wellbeing and security of the household (EC, Finacial servises… 2008, pp. 11–14). However, the key difficulties of over-indebted people will be linked to transactional and credit services, which are the main focus of this study. Problems in using other areas of financial services are seen as an offshoot of the debtor's financial distress, limiting the use of, for example, savings products.

The bankruptcy procedure has been amended several times, including in 2014 (Journal of Laws 2014, item 1306) and 2019 (Journal of Laws 2019, item 1802), and the amendments made have generally liberalised the procedure, making it more accessible to insolvent persons. According to the current legislation, three main stages of the insolvency procedure and the post-bankruptcy stage can be distinguished, which can affect the degree of financial exclusion of the debtor:

1) the adjudication of the bankruptcy petition (from the filing of the bankruptcy petition by the debtor to the declaration of bankruptcy);
2) proper insolvency proceedings in which, among other things, the debtor's assets are liquidated;
3) a repayment plan, during which the debtor pays his creditors – this is an optional stage, as in exceptional cases the court remits the arrears without setting a repayment plan;
4) the post-bankruptcy stage (from the discontinuance of the proceedings to the removal of the debtor from the National Debtors Register database).

The build-up of a debtor's financial problems is gradual. Before a debtor loses liquidity, he or she usually makes attempts to restructure his or her debt, expenditure reduction or measures to increase income (cf. Swiecka 2009, p. 123). In a situation of deteriorating financial health, debtors become increasingly chaotic or panicky in managing their personal finances, including taking out further loans to repay their loans. In the case of delays in debt repayment identified in debt monitoring, creditors initiate amicable debt collection, initially trying to motivate the debtor to voluntarily repay the debt, without resorting to court enforcement tools. Usually, already at this stage, the debtor is entered in the debtors' registers, making it difficult for him to use credit services. More serious problems in the management of personal finances will arise with the initiation of foreclosure, initially from the bank account and other assets and, at a later stage, also from the property, making it impossible to take out a mortgage loan (Figure 1).

Figure 1. The course of the debt process leading to insolvency and bankruptcy and its impact on the different areas of financial exclusion



Source: own elaboration.

Insolvency proceedings are a complex process during which the management of the bankrupt's assets is strictly regulated by the insolvency law regime. The process of the bankrupt's return to the financial market (financial inclusion of the bankrupt) is usually lengthy, and the debtor's full inclusion in the financial system can only occur after the bankruptcy entry has been removed. Even the cancellation of the debt does not result in the full inclusion of the bankrupt into the financial system, although the bankrupt regains the ability to freely manage his or her assets. This is because the bankrupt will continue to be listed on the National Debt Register for the applicable period.

The realisation of one's own consumption aspirations by households is one of the key pillars of economic freedom, which may be restricted only for reasons of important public interest (Article 22 of the Polish Constitution). The protection of creditors' rights requires the application of certain restrictions imposed on debtors in order to discipline them to service their obligations, as well as to reduce creditors' losses or improve the efficiency of the debt collection process. On the other hand, however, restrictions on the management of personal finances should respect the essence of the principle of proportionality. Such limitations are necessary in a democratic state of law for, inter alia, its security and public order, protection of freedoms

and rights of other persons, including creditors (Article 33(3), first sentence, of the Constitution). The principle of proportionality emphasises the adequacy of the measure to the goal – if a specific effect may be achieved by means of a less onerous measure, then a more beneficial solution for the citizen should be chosen (Judgment of the Constitutional Tribunal of 8.10.2007, file ref. K 20/07). Moreover, in accordance with the principle of proportionality, *such restrictions may not infringe upon the essence of freedoms and rights* (Article 33(3) sentence 2 of the Constitution). Hence, legally imposed restrictions on the management of household finances may not prevent the fulfilment of the household's elementary socio-economic functions, including the consumption function of satisfying the basic needs of life.

The application of the principle of proportionality requires a proper balancing of the conflicting interests of two stakeholder groups: debtors and creditors, in particular financial institutions. On the one hand, restrictions must be imposed on insolvent persons' access to financial resources in order to prevent their further indebtedness, but also to protect the creditor's interest for the sake of the stability of the financial system as a whole. On the other hand, the restrictions imposed on debtors must serve a purpose and, at the same time, these burdens must be the least onerous of the possible solutions to achieve the desired objective.

2. The pre-bankruptcy stage of the insolvency process

With the Act of 6 December 2018 on the National Register of Debtors (Journal of Laws 2019, item 55), a remote bankruptcy procedure was introduced from December 2021, via the National Register of Debtors platform. This made it simple, fast and free to follow the ongoing activities in bankruptcy cases, even without having to register on the KRZ platform.

From a formal legal point of view, if the debtor has not paid his debts for at least 2 months (art. 11 pr. up). he may file a consumer bankruptcy petition. The mere filing of the application results in the disclosure of this fact in the National Register of Debtors. An entry in the NCR may aggravate various socio-economic problems of the debtor (e.g. the possibility to rent a flat on the free market), but these are unlikely to be difficulties related to credit services in regulated credit institutions, after all such a debtor will – as a rule – already be listed in other registers (e.g. economic or credit information bureaus), which are used by financial institutions in the procedure of examining applications for credit or loans.

While awaiting the declaration of bankruptcy, the debtor may continue to incur debts with various unregulated institutions (e.g. para-banks or payday lenders), but usually on very unfavourable financial terms. Such behaviour creates negative consequences in the future by setting up a long repayment plan. Therefore, after filing the bankruptcy petition, the debtor should refrain from contracting any liabilities, especially additional credits or loans, as such behaviour may cause negative consequences in the future and the court may find that the debtor, by contracting

many credits and loans, did so intentionally or with gross negligence, which will lead to the establishment of a repayment plan of 36 to 72 months (art. 491^{15} para 1a of the Bankruptcy Act). In the first phase of bankruptcy proceedings, from the filing of the petition to the declaration of bankruptcy, the degree of financial exclusion of the debtor should not worsen, after all, the bankrupt as an insolvent person will as a rule have already experienced various difficulties on the financial services market, inter alia due to the attachment of the bank account by the enforcement authority.

3. Stage of the actual insolvency proceedings

As a result of the adjudication of the debtor's petition, the court declares his bankruptcy by a decision, which results in the abolition of the debtor's freedom to manage his assets (Article 75 of the Bankruptcy Act), as from the date of the declaration of bankruptcy, the debtor loses the right to dispose of the bankruptcy estate (Article 61 of the Bankruptcy Act), with exemptions for statutorily defined categories of assets (inter alia, basic household equipment – Article 62(1)(1) of the Bankruptcy Act in connection with Article 829 of the Code of Civil Procedure. After the declaration of consumer bankruptcy, the role of the enforcement authority will be taken over by the trustee and other bodies of the bankruptcy proceedings, whose main goal is not the collection of debts but debt relief (Article 2(2) pr. up.).

From an economic point of view, over-indebted households run a simple household economy, consisting of meeting basic consumption needs (mainly existential), trying to survive with the prospect of debt relief in the future. For such households, transactional services are crucial, enabling necessary current payments (e.g. food expenses, utility and rent payments) to be met.

Pursuant to Article 63(1)(1) of the Bankruptcy Law, property not subject to seizure under the Code of Civil Procedure (Journal of Laws 2023, item 1550, as amended) is excluded from the bankruptcy estate. With regard to income exempt from execution (e.g. alimony), the debtor may freely dispose of funds, including depositing them in a bank account. The amount of funds free from seizure is set out in Article 54 of the Banking Law (Journal of Laws of 2024, item 1646), stating that *funds held in savings accounts, savings and checking accounts and savings term deposit accounts of a single person, regardless of the number of agreements concluded, are free from seizure under a court or administrative enforcement order, in each calendar month in which the seizure is in force, up to 75% of the minimum remuneration for work, determined pursuant to the Act of 10 October 2002 on the minimum remuneration for work (Journal of Laws of 2020, item 2207 and of 2023, item 1667) to which a full-time monthly employee is entitled*. Therefore, in 2025, the bankrupt will be able to dispose of funds up to the amount of PLN 3499.50 accumulated in bank accounts. In light of the current legislation, declaring bankruptcy should not impair the debtor's ability to use the funds in the bank account, although the trustee will replace the enforcement authority. The limit of funds free from seizure in the bank account

will remain unchanged. Moreover, after the declaration of bankruptcy, under the disposition of Article 152 of the Bankruptcy Act, the commissioner judge may, in justified cases, reduce the scope of deductions or release the debtor's bank account altogether.

Banks making funds available to the debtor, which constitute the bankruptcy estate, expose themselves to liability under Article 78 of the Bankruptcy Act, [...] *the fulfilment of a benefit to the bankrupt made after the announcement of the bankruptcy announcement in the Register does not release the bankrupt from the obligation to fulfil the benefit to the bankruptcy estate, unless the equivalent of the benefit has been transferred by the bankrupt to the bankruptcy estate.* In connection with the above, the Financial Supervision Commission issued a communication:

1) banks should keep the Court and Commercial Monitor (after 1 December 2021, the National Debt Register) up to date with regard to notices concerning announcements of consumer bankruptcy orders of account holders held by the banks and carry out immediate account freezes on the basis of such notices;

2) banks should refrain from disbursing the funds in the bankrupt's account or carrying out other instructions of the bankrupt regarding the blocked account until they receive an appropriate instruction from the trustee, unless, based on the information in their possession, they are able to unequivocally assess that the funds in the account do not form part of the bankrupt's estate pursuant to Article 63 of the Bankruptcy Act."

Observation of practice indicates that the banks' obligation to monitor publications on the National Debtors Register platform on an ongoing basis means that sometimes debtors find out precisely from the banks about their declared bankruptcy thanks to the SMS information received. Similarly, despite the FSC's guidelines, banks' practices are still patchy, as in many cases banks unlawfully block funds while waiting for the trustee's instruction, which in the best case can take several days before the trustee completes the formalities at the bank. During this period, bankrupt pensioners, pensioners or single parents, among others, are deprived of access to their non-seizable funds in bank accounts. Given that these people usually have no other savings in cash, the transactional exclusion will result in an inability to meet even the most basic needs.

It is well known that some bankrupt bank customers give up their bank account, collecting income or benefits due in cash. However, not all payers, especially in the micro, small and medium-sized enterprise sector, maintain cash services. Unfortunately, the blocking of funds by the bank to the extent that they should remain at the debtors' disposal, combined with the delayed actions of the trustee, can expose bankrupts to a kind of unexpected economic shock of suddenly being deprived of access to money.

According to the recommendation of the FSC, banks should assess, on the basis of the information they have, whether the funds in the bank account are part of the bankruptcy estate. From the Author's practice, it appears that some banks allow transactions within these funds and even publish clear information for bankrupts to

make them aware of their right to freely dispose of funds within statutory limitations. Unfortunately, this is not common standard. A bankrupt can file complaints about the discriminatory practices of banks, or simply change banks by choosing an outlet that will allow limited use of the account, or file complaints about the discriminatory practices of banks. This requires knowledge and discernment of the financial services market, and debtors are sometimes people with shallow economic awareness and a low level of knowledge about managing personal finances.

When analysing the phenomenon of the bankrupt's exclusion from credit services, it should be noted that, from a formal legal point of view, the bankrupt may incur such financial obligations at any stage of bankruptcy proceedings. The only exception to this is the prohibition of mortgaging assets under Article 81 of the Bankruptcy Act, i.e. any products involving mortgage collateral will be unavailable to bankrupts. Of course, the bankrupt will still be able to perform minor acts of simple housekeeping with the property left to the bankrupt, but any decisions beyond that should at least be agreed with the trustee.

Market analysis shows that there are loan companies that specifically target debtors in insolvency proceedings. Using their services even dramatically worsens the economic and financial situation of debtors in bankruptcy proceedings.

4. Repayment plan implementation stage

Once the list of claims has been established and the debtor's assets have been liquidated, which is the main part of the insolvency proceedings, the court decides on the establishment of a repayment plan. Other options are also possible, i.e. write-off or conditional write-off of arrears and refusal to set a repayment plan. In practice, the most common option is to establish a repayment plan, as debt write-offs occur exceptionally (Hrycaj, Kosma 2021, p. 38).

The establishment of a repayment plan in principle results in the bankrupt regaining almost complete freedom to manage his assets. During the period of implementation of the repayment plan, the bankrupt may not carry out legal actions concerning his assets that could impair his ability to fulfil the plan of repayment of creditors (art. 491^{18} sec. 1 pr. up.) and is obliged to submit annual financial statements (art. 491^{18} sec. 2 pr. up.). Also, during this period, no enforcement proceedings may take place with respect to debts incurred prior to the establishment of the repayment plan, with the exception of certain categories of debts (e.g. alimony – art. 491^{18} para. 5 pr. up.). Despite the fact that the bankrupt must carry out the repayment plan, the overall economic condition of his household should improve, after all the court, when fixing the repayment plan, takes into account, inter alia, the earning capacity and the necessary costs incurred by the bankrupt and his dependants, including their subsistence needs (art. 491^{18} sec. 4 pr. up.).

5. Termination of insolvency proceedings and the problem of financial exclusion

Once the repayment plan has been implemented, the court issues an order to write off the arrears, with the exception of a few categories of debts, e.g. alimony (art. 491^{21} pr. up.). At this point, the bankrupt has no debts and his debt relief process is completed. However, this does not imply full financial inclusion and integration of such a person into the financial system as a full participant, as even after the bankruptcy proceedings are completed, the debtor may experience problems in managing his personal finances (Table 2). Obtaining credit will be much more difficult for the next 10 years, as for such a period the information on bankruptcy will appear on the platform of the National Debtor Register (art. 11(2) ustawa o KRZ Dz.U. 2019 poz. 55).

Table 2. constraints of bankrupt people in managing their finances

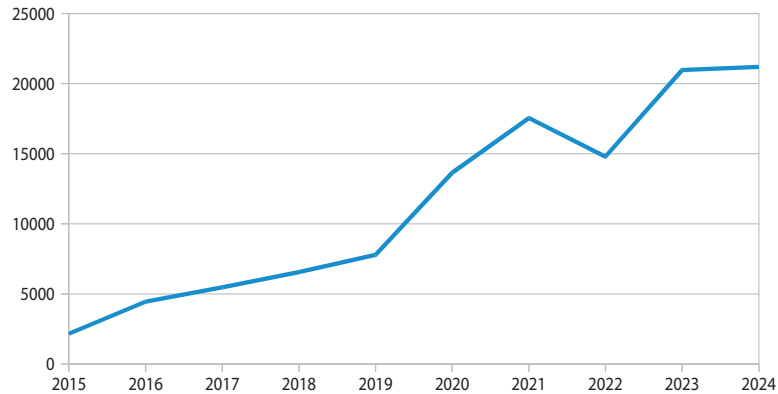
Restrictions	Steps in the bankruptcy process			
	Submission of the application	**Declaration of bankruptcy**	**Repayment plan**	**Cancellation of debts**
Enforcement of the account conducted by the enforcement body	Yes	Not	Not	Not
Blocking of accounts (art. 63 pr.up.) by the trustee	Not	Yes	Not	Not
NCR Register	Yes (information on the application submitted)	Yes	Yes	Yes (10 years after redemption)

Source: own elaboration.

It should be taken into account that the debtor may appear in registers other than those in the NCR (e.g. Credit Information Bureau SA, economic information bureaus). Although the final discontinuation of the arrears should be recorded by these entities and the debtor's data deleted, some information still remains visible. In addition, the deletion of data from the registers of business information bureaus does not take place automatically after the conclusion of bankruptcy proceedings, but requires the initiative of the debtor or creditor. Finally, access to these databases is neither general nor free of charge, and the bankrupt may not even know that the debtor's information is still visible after the completion of the debt relief process.

Banks' reactions to the phenomenon of increasingly massive consumer bankruptcies are not known. So far, banks have also not disclosed data on the losses incurred on this account, although it is known from KRD BIK that creditors lost PLN 304.3 million as a result of consumer bankruptcy in 2024 (KRD BIG 2024), part of which is due to banks. Overall, the value of all consumer debts owed to banks (including liabilities not covered by bankruptcy proceedings) amounted to PLN 39.5 billion in 2024 and shows an increasing trend (InfoMonitor 2024). Moreover, the number of bankruptcies being declared is also increasing, which is likely to increase banks' losses from written-off consumer arrears in bankruptcy proceedings.

Figure 2. Number of consumer insolvencies declared between 2015–2024



Source: own compilation based on data from the Ministry of Justice.

In such circumstances, banks are likely to refuse to lend to bankrupts for a number of years after the declaration of consumer bankruptcy. Which will mean not only refusing credit for household investment purposes (e.g. buying a property), but also to make other relatively small purchases (e.g. buying white goods on hire purchase, obtaining a debit card with a small debt limit or, even more so, a credit card). Such bank policies can make it more difficult for people who have gone through the complicated debt relief procedure and made a repayment plan to run their household. Debtors who have previously lost virtually all of their life's possessions as they were liquidated in the course of bankruptcy proceedings will want to rebuild the material base of their household, especially to meet their housing needs. When examining debt in Poland in 2024, it should be noted that the most indebted were those aged 36–45 (InfoDług 2024), and that debtors aged 40–50 were the most likely to declare consumer bankruptcy (COIG 2024). Given that these people will regain their creditworthiness several years after the bankruptcy declaration, i.e. after they are over fifty or even sixty years old, many of them will be deprived of the chance to obtain a mortgage, even for the purchase of a bedsit. The problem of the exclusion of bankrupts from the area of credit services can be considered on at least several levels. From the point of view

of the entire economic system, the losses of banks resulting from increasingly frequent consumer bankruptcies will inevitably translate into increased costs of financial services for all customers and, in extreme cases, may even lead to a serious economic collapse, the most notable example of which was the global economic crisis triggered by the bankruptcy of the US investment bank *Lehman Brothers* in 2008 (Taylot 2010, pp. 111–112). The financial crisis was caused by a number of overlapping factors, but one of the causes was the granting of too many real estate mortgages in the US to people without proper incomes, who were unable to pay the loan instalments and became insolvent and had their properties repossessed by banks. The increase in the number of homes put up for sale by the banks and the eventual collapse of property prices contributed to the bankruptcy of numerous banks, triggering a deep recession in many economies. It should be noted here that the United States has a liberal model of bankruptcy, which is based on the so-called '*fresh start*' concept, which enables debts to be discharged smoothly. Thanks to this solution, consumers are quickly de-indebted, incorporated as full-fledged market participants and can realise their consumption aspirations, thus mitigating various economic shocks and turbulence in the short term and allowing the entire economy to grow stably in the long term (Christian, Reller 2022, p. 403). In so-called continental Europe, also in Poland, a different, more restrictive model of insolvency proceedings based on re-educating the debtor and mobilising him to repay at least part of the debt, focusing primarily on the interests of creditors, prevails (Swiecka 2009, pp. 198–199). These two models have been converging somewhat in recent years. Access to bankruptcy was tightened in the US in 2005, due to the reprehensible practices of debtors of getting back into debt and declaring bankruptcy as a kind of way of life (White 2010, p. 15); there are also discernible legislative actions in European countries, including Poland, aimed at reducing the rigour of the continental model of bankruptcy proceedings, as it is unable to effectively reduce the number of insolvent consumers.

Banks' rationing of access to credit for bankrupts is a measure justified not only by the stability of the financial system as a whole, but also by the protection of debtors against renewed over-indebtedness. However, overlong and onerous restrictions on bankrupts can have a dampening effect on the economy by preventing households from realising various consumption aspirations. However, taking into account the microeconomic aspects of credit exclusion and examining its impact on the bankrupt's household, it is important to note that the lack of access to credit services may hinder the economic well-being of a bankrupt who has repaid his or her debts and seeks to reasonably improve his or her standard of living. One of the main objectives of consumer bankruptcy in the continental model is the re-education of the debtor, who should acquire appropriate skills in household management during this procedure. A repayment plan plays a key role in this, and the length of the repayment plan translating into its severity has been made dependent on the degree of culpability of the bankrupt in losing financial liquidity. Thus, the more recklessly and irrationally the bankrupt has previously indebted himself, the longer he will have to fulfil his obligations to his creditors, which should influence an appropriate correction of his behaviour.

Despite a mature financial services market, with a rich and varied offer, fewer consumers are taking out credit in Poland than in the Eurozone countries. At the same time, the sector of non-bank lending companies is growing. According to BIK S.A. data, in 2024, the value of non-bank loans granted to households contributed 1.7 billion (1144 thousand new loans) and the number of such loans was 8.3% higher than in 2023, while their amount increased by 32.8% in that period (BIK, pp. 1–3). As a result of the exclusion of bankrupts from the main credit services market, they will be forced to use the services of loan companies. It should be added that the assessment of creditworthiness carried out by loan companies is sometimes superficial, although it should be carried out extremely thoroughly and reliably with regard to people who have previously declared bankruptcy. Hence, the indebtedness of bankrupts with loan companies may give rise to the risk of their subsequent insolvency.

6. Consumer bankruptcy and financial inclusion

The debt relief procedure should be inclusive, gradually integrating the bankrupt into the financial system. Inclusion should include the two key areas of personal financial management for the bankrupt, namely transaction services and credit services. Transactional services should be seen as a fundamental personal financial management tool of fundamental importance to the household economy. The transactional exclusion severely restricts the individual's freedom and autonomy, so restrictions on debtors' use of a bank account should be balanced so as not to violate the principle of proportionality. The debtor should be able to carry out payment services, operate a payment card or receive and collect money to the extent allowed by the regulations, without additional obstacles, at any stage of the insolvency proceedings.

The problem of excluding an insolvent from credit services is more complex. An insolvent person, being excluded from the mainstream credit services market, may be forced to use the services of loan companies. Customers of loan companies are focused on solving current problems without analysing the long-term consequences of their actions (Walega, Walga… 2020). Insolvent people experience a lack of various assets, including *cognitive* resources (*cognitive resources*), which may limit their decision-making capacity to make financial commitments (Mani, Mullainathan, p. 980). For insolvent individuals, their deficits in financial resources may also be linked to a lack of knowledge about personal finances, and patterns of behaviour based on cognitive errors may be strongly entrenched. Individuals who have been in a state of permanent insolvency for many years may have adapted to this situation by developing strategies to survive the most severe phases of the crisis by staying out of the mainstream financial services market and using, for example, pawnshops. Changing established patterns of behaviour during the period of a crippled household economy requires an upgrade in personal finance skills.

The socio-economic inclusion of a bankrupt person cannot be equated solely with the recovery of liquidity. While solvency is a certain key foundation for the secure functioning of households, efficient management of personal finances should improve the economic condition of households, including the possibility to accumulate assets, after bankruptcy proceedings. The debtor should, as a result of re-education, acquire the appropriate competences that will enable him or her to raise the standard of living of his or her household in a rationalised manner in the future. The bankruptcy procedure contains educational elements, including, above all, a repayment plan, in the elaboration of which the bankrupt should take an active part, i.e. cooperate with the bankruptcy authorities in order to restructure the debt, and then implement this plan by submitting annual reports on its implementation. It is important to note that the debtor will bear the consequences of his financial decisions and repay his debts at least to some extent.

In macroeconomic terms, access to financial services is one of the key tools to reduce poverty, social inequality, but also fosters capital accumulation, technological innovation and thus stimulates economic development (Adamo, Federico, Notte p. 37). The financial inclusion of bankrupt and insolvent persons will have a positive impact on the economic development of the country, translating into an improvement in the economic condition of all households.

7. Postulated changes to address financial exclusion of bankrupts

The phenomenon of financial exclusion can give rise to a number of potential risks for both financial institutions, their customers and the financial system. Changes to the law are needed to clearly and precisely enable people with consumer bankruptcy to use a bank account to the extent permitted by law. At the same time, it is also necessary to tighten up the possibilities for debtors who, with extreme recklessness, have taken on too many financial obligations and may again lose liquidity in the future. Post-bankruptcy sanctions should be introduced for this category of debtors, following the example of other countries – e.g. England (Kabza 2009, p. 128) – and bankrupts should remain under the control of the relevant state authorities with regard to their household economy even after the bankruptcy proceedings have ended. In Poland, all bankrupts are disclosed in the National Debt Register for many years after the end of the proceedings, which discriminates against those debtors for whom there is no rational justification to publish their bankruptcy data for such a long time, making it difficult for them to access credit services (Table 3).

Table 3. Proposals for change

Consumer organisations	Regulator	Financial institutions	Legislator
– information campaigns on the debt relief procedure; – legal and financial advice to insolvent persons.	– ensuring the security of the financial system; – credit rationing guidelines.	– lending in line with the concept of responsible finance.	– Increasing consumer protection against transactional exclusion; – imposing restrictions on access to credit by bankrupts who have grossly negligently over-borrowed and may replicate their reprehensible behaviour in the future; – closer supervision of the bankrupt's financial management during insolvency proceedings.

Source: own study.

Bankrupts may need access to financial resources, especially young people interested in improving the economic health of their own household. A series of difficulties associated with previous insolvency may have caused them to change and adjust their economic behaviour towards a more responsible one. Banks should develop individualised offers, taking into account the specifics of the debt process, conducting a more thorough analysis of the situation. For example, a bankrupt who has become insolvent for reasons beyond his or her control should be assessed differently from a person with dozens of different loans taken out in a short space of time for current needs. Financial institutions, within the framework indicated by the regulator, should make an appropriate selection and allow the use of credit services to certain groups of bankrupts who give adequate guarantee that they will use them rationally.

In the wake of the global financial crisis, the G20 countries developed the so-called concept of responsible finance addressed to all financial market participants (G20, Innovative… 2010, p. 8). According to this concept, banks should take measures to include financially excluded people by appropriately selecting financial products and providing borrowers with knowledge of financial management in addition to money (World Bank, Financial… 2012, pp. 11–18). The concept of responsible finance obliges banks to raise the economic awareness of borrowers through the use of educational tools. The idea of responsible finance is also one of the key foundations of the concept of sustainable economic development, based on the assumption that economic growth should take place in a harmonious manner for the entire society, without generating negative consequences such as poverty or social or financial exclusion (Solarz 2009, p. 159). In addition, an important role in the process of social

inclusion of bankrupts should be played by consumer organisations that can provide assistance in the broadly understood legal and economic counselling, enabling not only the proper completion of formalities during bankruptcy proceedings, but also assistance in solving numerous problems in managing personal finances by over-indebted persons.

Within the framework of supervision, the judge-commissioner may issue certain instructions (Article 152 pr. up.), but the scope of his competence in the area of the bankrupt's financial management is not clearly defined in the Act. The judge-commissioner should be allowed to give instructions to the bankrupt, e.g. with regard to contracting financial obligations, making them conditional on his consent. Financial management should be carried out by the bankrupt under closer supervision of the bankruptcy authorities. Naturally, the scope of decision-making should include both increasing restrictions and loosening them, including leaving a bankrupt's bank account at the bankrupt's disposal (without restrictions) if he has legitimate financial burdens with relatively low income – e.g. for treatment of sick children.

Summary

Simplified and accessible to almost every debtor, the remote bankruptcy procedure, which facilitates debt relief proceedings, is an important tool for the socio-economic inclusion of the consumer. In the area of financial services, an important role is played by the repayment plan, which forces the bankrupt to conduct a prudent economy for a period of 1 to 7 years. However, there are risks for the debtor, notably from the sudden and unexpected blockage of a bank account after bankruptcy, as well as potential difficulties in accessing credit services.

When assessing the level of financial exclusion from transactional services in Poland, it should be noted that there has been a significant increase in the bankisation rate in recent years – although there are still several hundred thousand people without a bank account. In an era of rapid development of the digital economy and technological innovation, unjustified and excessive barriers to accessing payment services should be removed, including allowing bankrupts to dispose of money in a bank account within legally permissible limits.

A comparison of data on bank lending in Poland and other euro area countries shows that Poles are rapidly catching up. The comparison is much worse in the category of financing household needs with bank loans – although even here, significant progress can be seen in all analysed groups of borrowers (Table 1). Assuming a likely increase in consumer activity in the financial services market, special attention should be paid to the risk of so-called over-consumption and the potential risk of re-borrowing financial liabilities to an extent that exceeds the ability to service them by those who have already experienced a loss of capacity for normal repayment. On the other hand, however, credit for households is one of the key tools for achieving consumption aspirations, and consumption itself is becoming an

increasingly important factor for economic development in the modern world. For people who have declared bankruptcy, further credit can be both an opportunity and a threat, and financial institutions should take a particularly responsible approach to lending to this client group, without automatically excluding such people from access to monetary resources.

In an era of increasing numbers of consumer bankruptcies, the socio-financial inclusion of bankrupts is one of the important challenges of civilisation. However, the problem of financial exclusion of bankrupts is not well diagnosed, neither in the demographic-social dimension, nor in the formal-legal dimension, nor in the financial services practice of financial institutions. It raises the risk of arbitrary exclusion from the field of financial services. debtors of the middle-aged and older generation, who, once cleared of arrears, could carry out normal household financial management. Coordinated action by various institutions, both public and private, including in particular the legislature and financial institutions, should eliminate a number of risks and harmful consequences associated with consumer bankruptcy experienced by households.

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Miscellanea

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Bank Individual Retirement Accounts – the safest way to save for retirement

Abstract

Individual Retirement Accounts (IKE) are one of the voluntary forms of additional retirement savings. They are offered by five types of financial institutions, including banks. Guarantees of return of capital to savers are provided by three different entities, resulting in differences in the maximum amount of guarantee protection, among others. Other aspects of the attractiveness of IKE are the guarantee of return of the paid-in capital or the fees associated with saving. The aim of the study is to answer the question: *why IKE operated by banks is the safest form of individual saving for retirement*. In pursuing this objective, a critical analysis of the literature on the subject, an economic analysis of the law, as well as methods of inference and deduction were used. The research shows that bank IKEs have the highest deposit return guarantees, are characterised by positive nominal interest rates and are distinguished by various privileges, such as the enforcement privilege. It is also worth noting that the products analysed do not have handling fees associated with making individual deposits.

Keywords: long-term savings, 3rd pillar of the pension system, saving for old age, banking products

JEL Codes: J32, G21, D14, G51

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Bankowe Indywidualne Konta Emerytalne – najbezpieczniejsza forma oszczędzania na emeryturę

Streszczenie

Indywidualne Konta Emerytalne (IKE) stanowią jedną z dobrowolnych form dodatkowego oszczędzania na emeryturę. Oferowane są przez pięć rodzajów instytucji finansowych, w tym przez banki. Choć bez względu na rodzaj instytucji oszczędzający mają gwarancję zwrotu kapitału, to zapewniają je trzy różne podmioty. Skutkuje to chociażby różnicami w maksymalnej wysokości zwrotu. Innymi aspektami, które wpływają na atrakcyjność akumulacji środków, w tym ich bezpieczeństwo, mogą być m.in. gwarancja zwrotu wpłaconego kapitału czy też kwestia opłat związanych z oszczędzaniem. Celem publikacji jest odpowiedź na pytanie badawcze: *dlaczego IKE prowadzone przez banki można uznać za najbezpieczniejszą metodę indywidualnego oszczędzania na emeryturę*. Do jego zrealizowania zastosowano krytyczną analizę literatury przedmiotu, ekonomiczną analizę prawa, a także metody wnioskowania. Z przeprowadzonych badań wynika, że bankowe IKE mają najwyższe gwarancje zwrotu depozytu, cechują się dodatnimi nominalnymi stopami procentowymi oraz wyróżniają się różnymi przywilejami, np. przywilejem egzekucyjnym. Warto także zwrócić uwagę, że w przypadku analizowanych produktów nie występują opłaty manipulacyjne związane z oszczędzaniem poszczególnych wpłat.

Słowa kluczowe: oszczędzanie długoterminowe, III filar systemu emerytalnego, oszczędzanie na starość, produkty bankowe

Kody JEL: J32, G21, D14, G51

Introduction

Five forms of voluntary yet institutionalised pension saving are offered on the Polish financial market. These are: Individual Retirement Accounts (IKE), Employee Pension Schemes (EPP), Individual Retirement Security Accounts (IKZE), Employee Capital Plans (PPK) and the Pan-European Personal Pension Product (OIPE)). These forms have both similarities and differences, which are identified in both domestic and foreign literature. There is a consensus in the literature regarding the need for additional saving for old age (Banaś 2023a, p. 58; Błaszczyk 2020, p. 9; Kawiński and Sieczkowski 2022, p. 107; Olejnik 2020, pp. 141–143; Ratajczak 2019, p. 110; Walczak, Kolek, Wojewódka and Pieńkowska-Kamieniecka 2017, p. 149). In addition, they all have a non-identical status due to the assessment of their attractiveness to the saver and, above all, the knowledge to make an informed choice. From this point of view, a relatively simple and secure instrument is the IKE offered by banks. Despite this, a small percentage of society voluntarily saves for retirement. The most common reason is the lack of income or its insufficient level. Other determinants responsible for not saving for old age include income per person and the household spending strategy, employment history, and knowledge about the pension system (Bucholtz and Szczepański 2022, pp. 5–7).

IKE can be found in the offerings of five different financial institutions; this paper focuses on IKE[1] maintained by banks in the form of a savings account, answering the question: *why IKE maintained by banks can be considered the safest method of individual saving for retirement*. A critical analysis of the literature on the subject, an economic analysis of the law, as well as methods of inference and deduction were used to develop the answer.

The first part of the article characterises the basic assumptions that apply to all IKE. The advantages and disadvantages of this method of saving for old age are also indicated. It then focuses on IKE offered by banks as a specific form of accumulating funds for retirement. The third part deals with issues of security of deposited funds, comparing, inter alia, guarantees from the Bank Guarantee Fund, the Insurance Guarantee Fund and the compensation scheme of the National Depository for Securities (Krajowy Depozyt Papierów Wartościowych S.A.).

1. IKE – basic assumptions

IKEs have been in operation in Poland since 2004. They were intended to enrich the offer of voluntary saving for old age. Previously, the only product available was PPE[2], which was assessed critically (Dopierała 2018, p. 32; Ofiarski 2020, p. 41). Anyway, access to them was (and still is) highly limited, as PPE is a form of group savings that must be initiated by the employer at the workplace. Initially, IKEs were offered by four types of financial institutions (banks, open-ended investment funds managed by investment fund companies, brokerage entities and life insurance companies). However, since 01.01.2012, IKE can be operated by voluntary pension funds managed by universal pension companies (art. 8, Journal of Laws 2004, No. 116, item 1205).

Saving in an IKE has many advantages. Undoubtedly, the main one is the freedom to choose the institution offering this product, and to change it (transfer withdrawal) during the working life, and afterwards until the withdrawal is made. This allows investments to be made according to the saver's preferences and makes it possible to adapt the saving strategy adequately to the economic situation.

Another advantage of IKEs is their widespread availability to individuals over the age of 16. However, in practice, only a small percentage of active individuals use IKE – the number of accounts held, at the end of 2024, did not exceed 965,000[3] (KNF

[1] Due to the very limited offer of this product, only one commercial bank in the form of a joint stock company, and its lower popularity, IKZE was omitted. When creating regulations for IKE in Poland, the legislator modelled itself on IKE (Waliszewski and Banaś 2023, p. 37). It should be pointed out that IKE and IKZE are very similar. They differ in tax relief, the age of the saver allowing withdrawals with tax preference, and the annual contribution limit. A more detailed comparison between IKE and IKZE is presented in studies by Czupryn (2021, pp. 13–15), Jedynak (2014, pp. 70–72), among others.

[2] For more on PPE, see, among others, publications: Petelczyc (2016), Szczepański and Brzęczek (2016),Wojewódka (2021), Sierocka (2021).

[3] So far, the number of IKEs in total at the end of year, has not exceeded one million. The highest number of accounts in operation was 995,741 at the end of 2018.

2025). The reasons for the low interest in this form of saving are mainly attributed to demographic-socio-economic characteristics, such as age, education, place of residence, income level, tax burden, property ownership, form of employment and financial competence (Marcinkiewicz 2018). The issue of pension exclusion is also linked to low participation. It can be understood as the inability to use pension products (absolute approach), as well as the failure to use these products despite their availability (relative approach) (Jedynak 2020, p. 125). It may be due to a number of factors – obstacles to the use of this form of saving: lack of an institution offering the benefit in the area of residence, lack of promotion by the provider (e.g. withdrawing a product from the offer), or self-exclusion (Dybał 2019, pp. 109–110). Jedynak (2020), analysing the issue of self-exclusion, states that it is conditioned by the lack of offering of pension saving products and the low level of their use. A similar view is taken by Walczak (2019, pp. 66–67), who even states that Poles are not taught to save for their old age in this form, although they often put money aside in other forms that could be considered the fourth pillar, according to the World Bank's classification. This includes investments in real estate, the use of reverse mortgages[4], or alternative investments in the broadest sense[5].

In order to encourage saving in IKE, the legislator offered to exempt the money accumulated therein from capital gains tax (the so-called Belka tax). The analysis of the literature on the subject indicates that this advantage is often enjoyed primarily by the wealthiest people (Dybał 2016; Rutecka-Góra 2019). For this reason, funds are available for products that include tax benefits and which do not cause the loss of value of the accumulated funds, the so-called reallocation effect (Dybał 2016, p. 282; Marcinkiewicz 2018; Rutecka-Góra 2019, p. 49).

If you have one IKE, you are entitled to exemption from the obligation to pay capital tax (Belka tax). To make this possible, the accumulated funds must be paid out only after reaching the age of 60, regardless of gender (a special case is the acquisition of pension rights after the age of 55). Additionally, every person saving for retirement using IKE must meet one of the following conditions to obtain tax exemption (art. 34, Journal of Laws 2004 No. 116, item 1205):

- Funds must be deposited in an IKE for at least 5 years,
- more than half of the value of all contributions to the IKE must be made no later than 5 years before the date of the withdrawal request.

Regardless of the entity that offers an IKE, one person may have only one IKE (art. 5, Journal of Laws 2004, No. 116, item 1205). In the case of having at least two accounts, the taxation of each account will be 75% (art. 30, paragraph 1, point 7a, Journal of Laws 1991, No. 80, item 350). Ofiarski (2020, pp. 171–172) showed two situations when it is permissible to have two IKEs without charging the saver higher tax:

[4] A thorough study on reverse mortgages has been prepared by Kowalczyk-Rólczyńska (2018).
[5] More on alternative investments, among others, Banaś (2023b).

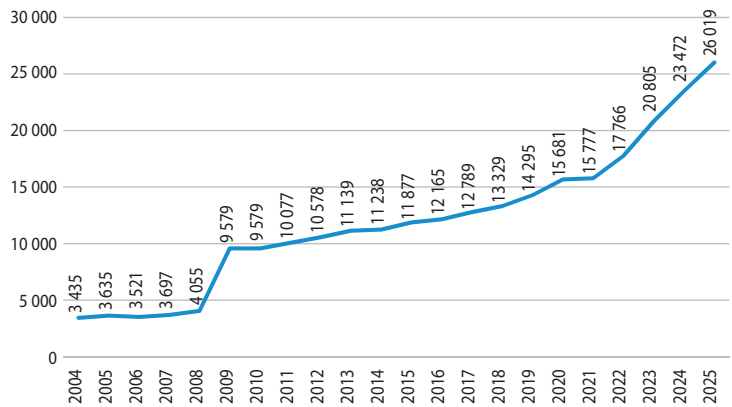
- transitional holding of two accounts when one is with an institution undergoing liquidation or bankruptcy proceedings,
- having multiple contracts with different funds that are managed by the same investment fund company.

When concluding an IKE agreement, only a declaration that you do not have any other IKEs is made. As there is no register (database) of IKE users, so the tax authorities have an extremely difficult task to demonstrate that a person has more than one IKE. The process of saving in an IKE is not declared in tax returns, as is the case with IKZE. Witczak (2012, p. 156) suggests, that as long as the funds are invested, the tax authorities may not be informed, that they are deposited in different accounts of the same person.

The individual nature of pension saving is clearly indicated in Article 5 of the Act on IKE (Journal of Laws 2004, No. 116, item 1205) and this applies to all types of IKE offered. Even close persons connected by family ties cannot have a joint IKE account. The holder may designate a beneficiary in the event of his or her death (art. 11, Journal of Laws 2004, No. 116, item 1205).

The limit of saving in IKE is the maximum annual contribution limit, which is 300% of the projected average salary in the economy for a given year[6] (persons under 18 can contribute as much as they earned in a given year under an employment contract). Although these limits are increased every year, there are two exceptions – 2006, when the possibility of making a contribution was reduced, and 2010, when the limit was left at the same level (Figure 1). As since 2008, after the amendment of the Act on IKE, it has been guaranteed that annual limits will be maintained at a level not lower than the one in force in the previous year (art. 13, point 1a, Journal of Laws 2004, No. 116, item 1205).

Chart 1. Annual limits on IKE contributions (in PLN)



Source: own elaboration.

6 Including 2008, the annual contribution limit was 150% of the projected average salary.

Analyses of the data on contributions show that in these limits are not fully used (Table 1). The highest average payments were made to IKEs operated by brokerage entities, as, with the exception of the years 2020 and 2024, at least 70% of the contribution limit was used. In contrast, the lowest average payments during a given year were observed in IKEs operated by life insurance companies.

Table 1. Average payments in 2004–2024 to IKE accounts maintained by various institutions (as a % of the annual payment limit)

Year	Total IKE	life assurance under-takings	investment fund companies	entities carrying out brokerage activities	banks	universal pension companies
2024	31	15	17	65	35	29
2023	29	15	15	73	36	28
2022	31	16	16	71	45	31
2021	33	20	29	78	29	37
2020	31	22	30	57	29	33
2019	32	22	29	73	37	29
2018	32	23	29	74	40	31
2017	30	23	28	75	36	32
2016	30	22	30	75	41	38
2015	29	22	31	73	38	39
2014	30	25	31	77	36	46
2013	28	20	29	79	42	52
2012	25	15	25	77	43	43
2011	20	15	18	79	29	–
2010	21	15	23	82	29	–
2009	19	15	20	88	27	–
2008	38	33	44	70	48	–
2007	46	37	63	84	33	–
2006	62	35	77	91	47	–
2005	61	33	76	92	42	–
2004	n.a.	14	68	96	n.a.	–

Source: Own elaboration based on KNF (2025).

Although the accumulation of funds by means of an IKE is aimed at long-term saving, this is not synonymous with the fact that withdrawal will only take place when the saver reaches the age of 60. The legislator has provided for the possibility of withdrawing the money earlier. In the case of IKE, this is a return, as well as a partial return (art. 37, Journal of Laws 2004, No. 116, item 1205). However, deciding on such a solution, the saver will receive funds reduced by due capital gains tax, which will be paid on his behalf by an institution maintaining the IKE account. The return takes place after termination of the agreement on operating IKE. The consequence is the withdrawal of all funds before the age of 60. The consequence is that it is not possible to make contributions to this IKE in a given year. Only in the following calendar year can a new account be established. On the other hand, in the case of a partial return, the saver has the option to withdraw part of the funds up to the applicable limit. If there was a transfer withdrawal from PPE and the funds are now in the IKE account, a partial return of this amount is not possible. In addition, it should be pointed out that when making a return of funds which were previously recorded within PPE, in addition to the deduction of the Belka tax, to the Social Insurance Institution (ZUS) will be paid 30% of those funds which were previously transferred from PPE to the saver's account (art. 37, point 3, Journal of Laws 2004, No. 116, item 1205). Because of this, these funds will be used in accordance with their original purpose, as they will increase the sum of contributions paid, which will be the basis for determining the amount of the pension.

Deciding when to withdraw funds accumulated in IKE depends on the saver. The legislature has in no way specified the term when it is to take place. The restriction is the age of 60 (in the case of acquisition of pension rights 55), which is one of the conditions for obtaining tax exemption. The saver must also decide whether the withdrawal is to be a one-off, or in instalments (art. 34, Journal of Laws 2004, No. 116, item 1205). Regardless of the type of withdrawal, it will not be possible to set up IKE again or make contributions (in the case of commencement of withdrawal in instalments), as the tax exemption is available to the saver only once. It is worth recalling that the funds can be only withdrawn to the saver, which also emphasises the individual nature of saving for old age[7]. In the event of the death of the account holder and not having withdrawn the entire amount, the remaining amount is inherited.

2. Bank IKE as a specific type of bank account

IKEs are offered by five types of financial institutions. The list of entities offering IKE is published by the Polish Financial Supervision Authority (KNF) with a breakdown by type of these institutions. In the case of banks, IKE can only be offered by domestic banks (art. 2, point 9, Journal of Laws 2004, No. 116, item 1205). According to the Banking Law Act, a domestic bank has its registered office in the territory of the

[7] The PPK provides for the payment of a spousal benefit in old age. For more on it, see: Banaś (2023a, p. 49); Jakubowski (2019, pp. 104–106).

Republic of Poland (art. 4, item 1, point 1, Journal of Laws 1997, No. 140, item 939). However, not all banks on this list offer them to new clients, because in the process of mergers or takeovers some credit institutions took over these products, or simply withdrew them from the offer for new clients due to low interest. It is worth knowing, that IKE is offered by some cooperative banks, associated in the Bank Polskiej Spółdzielczości Group, or in the SGB Bank. Identification of a specific cooperative bank requires an independent search, as the KNF list includes only the names of the affiliating entities. Therefore, if you want to find out whether a given cooperative bank offers IKE, you should contact it yourself or look for information on its website.

When deciding to save in an IKE at a bank, one should carefully analyse what type of product one is purchasing, and in particular whether it is an investment or savings product. The point is that banks also distribute products brokerage houses or investment fund companies, which belong to the same capital groups. Often, when wishing to obtain information via a contact form or email with a particular bank, we may be redirected by consultants to the websites of entities other than banks, although they are precisely in the same group (even though we indicate clearly that we are interested in a savings product). This issue is important for a person planning to save with an IKE, as it may affect the future costs incurred during the accumulation of funds, the financial result, and finally the security of the funds collected due to the level of guarantees for this financial instrument.

Under current regulations, bank IKEs take the form of a savings account (art. 32, Journal of Laws 2004, No. 116, item 1205). For this reason, they can be considered as conservative products, and at the same time relatively simple to operate. Accumulating funds on them, for the period of old age, does not require specialist economic knowledge. However, in one's own interest it is worth comparing market offers and choosing the most advantageous one. The IKE maintenance agreement is concluded for an indefinite period of time, and the interest rate on the deposited funds, among others due to the long time horizon, is variable. Banks are free to shape their offer and often use various reference indices, e.g. WIBID6M, WIBOR6M, or the NBP reference rate (often the bank's margin is subtracted from it) to determine the interest rate. You can also find a fixed interest rate for a specific period (e.g. 3% per annum). Rutecka-Góra and Rutkowska-Tomaszewska (2023, p. 109), based on their research, showed that the interest rate on IKE has been gradually decreasing since their inception. However, it is worth noting that retirement savings in bank IKEs are interest-bearing at a positive, nominal interest rate. Thanks to this, people saving for retirement do not have to worry that the payout will be less than what was paid in. Considering the length of the period of depositing funds for old age, as well as the uncertainty related to the level of inflation, one has to be aware that this product is not always able to ensure real profits for the saver

IKEs operated in the form of bank savings accounts, are covered by the deposit guarantee of the Bank Guarantee Fund (BFG). As a result, funds accumulated for the period of retirement together with other deposits in a given bank are guaranteed up

to the PLN equivalent of EUR 100,000 per depositor[8]. This is particularly important for seniors, who have a lower knowledge of risks (Finke, Howe and Huston 2011; Frączek 2014), and therefore the security aspect is particularly important for them. If the saver chooses to withdraw in instalments, the guarantee still covers the funds that have not been withdrawn.

The benefit of saving in a bank IKE is also the absence of fees for the account (Ofiarski 2020, p. 60; Rutecka-Góra and Rutkowska-Tomaszewska 2023, p. 109). This means that the entire amount deposited is saved and interest is calculated on the total value of the invested funds. In addition, interest accrues to the saver until the date on which a transfer payment, refund or partial refund is made, in accordance with the rules laid down in the agreement (as if the saving process had not been interrupted) (art. 33, Journal of Laws 2004, No. 116, item 1205).

Another privilege granted to funds in IKE is exemption from seizure in the course of execution up to the equivalent of 75 minimum wage[9] (art. 54 and 54a, Journal of Laws 1997, No. 140, item 939), (from 1 January 2025, it amounts to PLN 3,499.50).

Both the Banking Law and the Act on Individual Pension Accounts and Individual Pension Security Accounts provide for an institutional disposition in the event of death, while the latter provides for a wider circle of entitled persons. It can be any natural person. In addition, the disbursement of funds is not limited (the Banking Law indicates that an instruction cannot be higher than 20 times the average salary). Ofiarski (2020, pp. 261–262) on the issue of instructions in the event of death in the case of IKE points to the differentiation of the status of entities operating such accounts in the fiscal aspect. In particular, only banks and investment fund companies receive preferential treatment in the law on inheritance and gift tax.

In the event of termination of the agreement on the operation of an IKE within 12 months of its conclusion, the bank has the right to charge the customer an additional fee as specified in art. 39, paragraph 1 Journal of Laws 2004, No. 116, item 1205. It may be charged both in the case of a refund, withdrawal and transfer withdrawal. As Rutecka-Góra and Rutkowska-Tomaszewska (2021, p. 46) point out, in a particular case this may result in the loss of even the entire interest for that period. Furthermore, in cases, where the liquidation fee is expressed in terms of a sum, its amount may exceed the made payments. In addition, the bank may charge, throughout the term of the agreement indicated in the agreement, other (standard) fees, which are in the table of fees and commissions specified bank's (e.g. for setting up a deposit instruction in the event of death). The circumstances and method of changing these fees should be specified in the bank account agreement or its template (Rutkowska-Tomaszewska 2013). However, this does not

[8] It is worth recalling that this level is equal in all EU member states as a result of the implementation of Directive 2009/14/EU (Banaś 2022, p. 80).

[9] Funds from benefits, allowances, benefits and additional annual cash benefits for pensioners (the so-called thirteenth pension) are an exception, as they are free on the basis of a court or administrative enforcement title (art. 54a, Journal of Laws 1997, No. 140, item 939).

apply to handling fees, that may be applied by other financial institutions offering IKE, which is particularly important in the case of making small-value payments, which reduce their value.

For the bank, in turn, funds deposited on IKE are not subject to calculation of obligatory reserves (art. 38, Journal of Laws 1997, No. 140, item 938). Therefore, banks should rather be interested in long-term capital, which is less frequently paid out than funds on sight or from bank deposits.

3. Comparison security of saving for retirement on IKE

The issue of security of saving is one of the most key issues for Poles, as confirmed by research. In addition to this, the return on invested capital is important to them (Gładys-Jakóbik 2014, pp. 42–43; Kłopocka 2018, p. 465). The results of a study conducted by the Warsaw Institute of Banking (2024, p. 25) indicate that almost 70% of Poles are afraid of incurring losses, as well as the risk associated with investing. In addition, almost half of the people stated that they did not have sufficient knowledge. Therefore, in the opinion of the author of this article, a product for saving for retirement, which guarantees a return of the paid-in capital and reduces the risk of negative nominal rates of return to almost zero, may be perceived as safer. Mainly because you will receive accumulated funds and you will not incur losses in connection with such long-term savings. These aspects are provided by bank IKE, which cannot be said about IKE maintained by other financial institutions, because they may lose part of the invested funds.

All IKEs, regardless of the institution operating such an account are guaranteed to return capital. The guarantors can be: the Bank Guarantee Fund (BFG), the Insurance Guarantee Fund (UFG) or the compensation scheme of the National Depository for Securities S.A. Therefore, it can be concluded that the systems for protecting deposits collected in IKE are sectoral in nature. It is worth pointing out that these issues are regulated in various acts. These laws are:

- Act of 22 May 2003 on compulsory insurance, the Insurance Guarantee Fund and the Polish Motor Insurers' Bureau (Dz. U. 2003 No. 124, item 1152),
- Act of 29 July 2005 on trading in financial instruments (Journal of Laws 2005 No. 183, item 1538),
- Act of 10 June 2016 on the Bank Guarantee Fund, deposit guarantee scheme and forced restructuring (Journal of Laws 2016, item 996).

This differentiation of situation of the legal-guarantee the saver may cause saver problems for the in understanding his or her situation and even reduce the inclination to save in this way. Therefore, the author of the article made a synthetic, relatively simple comparison of the differences in the guarantees of deposits in IKE accounts in various financial institutions (Table 2). It omits universal pension societies, as Chapter 3 of the Act on the Organisation and Operation of Pension Funds (Journal

of Laws 1997 No. 139, item 934), which defines the functioning of these institutions, does not contain information on the amounts of guarantees for savers. In Article 48 of this legal act, there is only information about the Guarantee Fund, which is regulated in Chapter 19. However, no amounts are indicated there either, which could be information for a person wishing to save in this manner. The largest guarantee can be obtained in the case of IKEs operated by banks, the PLN equivalent of EUR 100,000. This is defined in Article 24, Journal of Laws 2016 item 996, and is due to the fact that it is conducted in the form of a bank account. Thanks to this, another aspect of the high level of security of funds invested in this way can be pointed out. On the other hand, the lowest level of guarantee is in entities conducting brokerage activities, as well as investment fund companies. It amounts to a maximum of the PLN equivalent of EUR 20,100. It should be pointed out that in the case of the second type of indicated institutions, there is a clear reference in the Act on investment funds and management of alternative investment funds (art. 32, point 2c, Journal of Laws 2004, No. 146, item 1546), that the provisions found in the Act on trading in financial instruments, concerning the obligatory compensation system, are applied.

Table 2. Differences in deposit guarantees, in case of bankruptcy of an institution maintaining IKE accounts

Characteristics guarantee	Institution which manages IKE			
	life assurance undertakings	investment fund companies	entities carrying out brokerage activities	banks
Institution guaranteeing the return of the deposit	UFG	NDS compensation scheme.	NDS compensation scheme.	BFG
Maximum guarantee amount for the saver	50% of claims up to the PLN equivalent of EUR 30 000	100% up to the PLN equivalent of €3,000 and 90% above this value, up to the PLN equivalent of €22,000. Total PLN equivalent of EUR 20 100 (3 000 + 17 100)	100% up to the PLN equivalent of €3,000 and 90% above this value, up to the PLN equivalent of €22,000. Total PLN equivalent of EUR 20 100 (3 000 + 17 100)	the PLN equivalent of EUR 100 000
Possibility to claim more than the guaranteed amount from the bankruptcy estate	Not	Yes	Yes	Yes

Source: own elaboration based on: Journal of Laws 2003, No. 124, item 1152; Journal of Laws 2004, No. 146, item 1546; Journal of Laws 2005, No. 183, item 1538; Journal of Laws 2016 item 996.

By adding up the average payments made to particular types of IKE in the years 2004–2023, it can be observed that the invested funds could be fully guaranteed in the event of a bank bankruptcy (Table 3). If the owner of an IKE in each year of saving deposited funds of the value of the limit in force in a given year, then in the case of bankruptcy of the institution managing such an account, he would obtain the right to a full refund. It is worth noting that in the case of investment fund companies, the so-called is applied the co-insurance for amounts saved above the PLN equivalent of EUR 3,000, which means that the owner of such a deposit participates in the losses of the bankrupt institution – with a 10% part of his contribution, in the range of the PLN equivalent of EUR 3,000 to EUR 22,000. Although, theoretically, he can pursue his claims from the bankruptcy estate. In life insurance companies, co-insurance is much higher and amounts to as much as 50% for savings up to a limit of €30,000 and the saver has no right to claim the rest of his contribution from the bankruptcy estate. In entities carrying out brokerage activities, the maximum guarantee limit of the equivalent of €20,100 would be used, which is around PLN 85,000. The rest of the funds can be claimed from the bankruptcy estate.

Table 3. Average payments into particular types of IKE in 2004–2024 (in thousand PLN)

year	Total IKE	life assurance under-takings	investment fund companies	entities carrying out brokerage activities	banks	universal pension companies
2024	7,3	3,6	4,0	15,3	8,1	6,8
2023	6,1	3,1	3,2	15,1	7,5	5,9
2022	5,5	2,9	2,9	12,7	8,0	5,5
2021	5,2	3,1	4,6	12,3	4,6	5,9
2020	4,8	3,5	4,7	9,0	4,6	5,1
2019	4,6	3,2	4,2	10,5	5,3	4,1
2018	4,2	3,0	3,8	9,8	5,3	4,1
2017	3,9	3,0	3,6	9,6	4,6	4,1
2016	3,7	2,7	3,7	9,1	5,0	3,6
2015	3,5	2,6	3,7	8,7	4,5	4,6
2014	3,4	2,8	3,5	8,6	4,0	5,2
2013	3,1	2,2	3,2	8,8	4,7	5,8
2012	2,6	1,6	2,6	8,1	4,6	4,6

Table 3 (continued)

year	Total IKE	life assurance under-takings	investment fund companies	entities carrying out brokerage activities	banks	universal pension companies
2011	2,0	1,5	1,8	8,0	2,9	–
2010	2,0	1,4	2,2	7,8	2,8	–
2009	1,9	1,4	1,9	8,4	2,6	–
2008	1,6	1,4	1,8	2,8	2,0	–
2007	1,7	1,4	2,3	3,1	1,2	–
2006	2,2	1,2	2,7	3,2	1,6	–
2005	2,2	1,2	2,8	3,3	1,5	–
2004	n.a.	0,5	2,3	3,3	n.a.	–
SUMA	**71,5**	**47,3**	**65,5**	**177,5**	**85,4**	**65,3**

Source: own elaboration based on KNF (2025).

The data in Table 3 show that in the event of bankruptcy of an institution operating an IKE, only a statistical depositor saving between 2004 and 2024 would be reimbursed the full value of the deposit from the BGF. On the other hand, the data illustrates that the contribution IKE accumulated at entities brokerage is ca 2.78 times higher than at banks. Unfortunately, the guarantee limit with co-insurance compensation system of the NDS not exceeding the PLN equivalent of 20,100 EUR would expose IKE owners to relatively large losses and the chance of obtaining a return from the bankruptcy estate would be small. Neither could savers of IKEs count on full compensation at life insurance companies or investment fund companies.

Summary

IKEs do not enjoy much interest among Poles, as their number has not exceeded one million over a period of 20 years (according to KNF data). This is not improved by significantly the privileges granted to this form of saving (e.g., exemption from the so-called Belka tax). This does not mean that other institutionalized forms of individual saving for old age are more common.

IKEs offered by banks can be considered a conservative way of saving for retirement, as all that is required of the saver in this way is to deposit funds into a special account. Interest is calculated automatically, according to a schedule in the contract. By depositing money in this way, we are assured that the nominal interest

rate will be positive. A saver in this way cannot always count on high rates of return. There is also no certainty, that the interest rate will be higher than the inflation rate. However, it is worth reminding once again about the Belka tax exemption, which will also affect the amount of the accumulated amount, if compared to saving for the same period on a regular bank deposit.

The feeling of security of funds accumulated on bank IKE is influenced by the guarantee of the BFG, which amounts to the PLN equivalent of EUR 100,000 in (together with other funds of a given depositor in a given bank. In the incase of other guarantees, other institutions offering IKE, the guarantee system provides for the so-called co-insurance in the range of 10 to 50%.

The specific nature of the demographic structure and the pension system in force should provide a strong incentive for future pensioners to take care of their well-being through self-saved funds. Other financial institutions could also be expected to and especially banks promote saving in the form of IKE. This is all the more so as both depositors and depositories can benefit from the privileges that the legislator has conferred on IKE funds.

Therefore, it is worth analyzing in further research what factors influence banks' reluctance to offer this product. According to the author of this article, banks, using access to a wide base of their customers, could more effectively encourage saving for retirement using IKE. Research on the implementation of mechanisms known from behavioural economics, such as those in PPK, into IKE may also prove interesting.

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Reviews

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On the essence of a central bank

Review of Andrzej Slawinski's book, *Central Banking. Evolution and the Future*, CeDeWu Publishing House, Warsaw 2024

In Andrzej Slawinski's book entitled 'Central Banking. Evolution and the future' (CeDeWu Publishing House, Warsaw 2024), references can be found to the 17th century, when the first central banks were created to control the war spending of kings, as well as to the early 20th century, when the Federal Reserve System, or the US central bank, was established, and finally to the turn of the 20th and 21st centuries, when the Bank of Japan decided to apply *quantitative easing* (*QE*). However, the book should by no means be regarded as a historical study. The author has discussed selected events from the past in order to make a convincing case for, the origins of modern central banks, the most important objectives of their activities and the most difficult challenges they face.

The argument opens with a clear presentation of the mechanisms of money creation, the relationship between the creation of deposit money by commercial banks and its exchange for liquid reserves and cash, which is done at the central bank. It is the commercial banks that create money, but their liquid reserves are in accounts at the central bank. And it is only the withdrawal from these accounts that allows some of the reserves to be converted into paper money. At first glance, therefore, the central bank's role in money creation may appear limited, but upon deeper analysis it reveals its crucial nature.

The next step in the consideration is the question of the settlement of mutual obligations between commercial banks. Back in the nineteenth century, this could be done through private clearing houses, but in situations of shaky confidence

between commercial banks and growing concerns about their mutual solvency, these clearing houses proved too weak to cope with a liquidity crisis. The example of the Federal Reserve System has been used to portray it as a nationwide clearing house with the power to create unlimited liquid reserves. In this view, the central bank becomes the lender of last resort, able to protect the economy from a sudden credit crunch and individual commercial banks from bankruptcy.

The different approach to commercial bank balance sheets and central bank balance sheets was illuminated from the perspective of government bond purchases. Cash deposits held at commercial banks can be used as a source for purchasing government bonds for their portfolios, and a sufficient supply of savings ensures that even large budget deficits do not create strong inflationary pressures. In contrast, central banks in many countries are prohibited from buying government bonds in the primary market, i.e. directly from the government. This is due to the fear that payment funds from the central bank, going via the accounts of the Ministry of Finance to the accounts of businesses and households, could be spent on purchases of goods and services and consequently intensify inflationary pressures (so-called helicopter drops). Analysing this issue through a discussion of the quantitative easing that took place in response to the global financial crisis of 2007–2009, Andrzej Slawinski points out that such a danger was limited under conditions of recession and weak credit, and subject to the moderating effect of the growing excess savings of large enterprises.

The consideration of the means of payment going from the central bank to the government's accounts is supplemented by the extremely important issue of the transfer to the government of profits earned by the central bank. This should apply to those profits derived from interest on foreign exchange reserves held in the form of foreign currency bonds and deposits. On the other hand, balance sheet profits arising from the depreciation of the domestic currency – in which the foreign exchange reserves are accounted for – should be used to create reserves to cover possible losses if the domestic currency appreciates.

Andrzej Slawinski devotes the middle, most extensive part of his book to the issue of central banks' stabilisation of inflation (monetary policy) and their care for the stability of the financial system (macroprudential policy). Here, too, we find a discussion of a number of past events, and it serves to show the processes that gradually led to the actions taken by central banks today.

With regard to monetary policy, the gold currency system (from the 1870s to the First World War), in which fixed exchange rates were used, was taken as the starting point. Fixed exchange rates as a means of stabilising inflation also characterised the Bretton Woods system created after the Second World War. From the 1970s onwards, control of money supply growth came to the fore in stabilising inflation (a key change in Bundesbank policy in 1974), and from the 1990s this was replaced by a direct inflation targeting strategy. Finally, the global financial crisis of 2007–2009 prompted central banks to turn to the instrument that quantitative easing programmes had become. The crisis was a consequence of excessive risks taken by

commercial banks, hence the need for central banks to simultaneously incorporate macroprudential policy – the use of supervisory instruments that would allow for the reduction of systemic risk. The approach presented by Andrzej Sławiński allows us to understand contemporary central banking as the result of a process, lasting some 150 years, of providing answers to successive challenges arising in a changing economy. In this light, central banks are institutions capable of transformation, constantly seeking new solutions to emerging problems or crises.

The final sections of the book attempt to reflect on the future of central banks. An important place is occupied here by considerations of the possibility of them issuing electronic money (*CBDC – Central Bank Digital Currency*), which would compete with the proliferating cryptocurrencies. Andrzej Slawinski is inclined to the view that, at the current stage of technological development, the risks associated with the implementation of CBDC could prove to outweigh the opportunities. He predicts that in the scenario when central banks do move in this direction, it will only be in the form of limited-scale pilot programmes.

On the other hand, the book does not leave the slightest doubt that central banks will only be able to find answers to the challenges of the future in truly democratic countries, only where their institutional independence is respected and the political and social norms in place allow them to appoint competent people to their authorities, guided by a sense of responsibility for keeping the economy in balance. Public protection of the independence of central banks is as important as in the case of the courts and the media.

Andrzej Slawinski's book "Central Banking. Evolution and the future" deserves to be recommended to all those who wish to better understand what the European Central Bank, the Federal Reserve in the US, and the National Bank of Poland do. An additional incentive is that it has been written in a reader-friendly manner – even very difficult problems it tries to present as simply as possible.