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Narrow Banking from the Perspective of Risk

Abstract: The aim of this article is to identify risks arising from the attempt to stabilise the banking system with the use of narrow banking, which in practice means imposing restrictions on various types of assets held by banks and on handling current deposits. To this end, the following will be discussed: the nature and concepts of narrow banking and the risks of narrow banking. The research hypothesis is as follows: narrow banking is an effective concept to use to secure the stability of the financial system. The principal risk connected with the implementation of the concept of narrow banking results from: the cost of deposit insurance, partial loss of banks' efficiency, mismatching of structures of assets and liabilities of the bank (resulting in GAP), as well as the size and structure of loans for the non-financial sector. As a result of the conducted analysis, 6 indirect risks were identified, each for the assumed risk level: low, medium and high.

Keywords: narrow banking, risk, transaction security, moral hazard, deposit insurance

JEL: G12, G21, G29

1. Introduction

The recent financial crisis of 2008 has clearly shown how quality of financial assets is important in the stability of the global financial system. Public deposit insurance creates moral hazard for banks which can thus finance risky assets, using insured deposits, poorly monitored by depositors. As a result, the banking system may be more vulnerable to crises of insolvency (empirically this thesis is confirmed by such scholars as: Anginer, Demirgüç-Kunt, Zhu, 2013; Lambert, Noth, Schuwer, 2013; Lé, 2013).

One of the basic functions of the banking system is the transaction safety of its participants: financial and non-financial entities. It manifests itself in security operations they carry out. Therefore, for this function to be fulfilled, deposits used for transactional purposes by these entities should be risk-free (Gorton, Pennacchi, 1990; Berger, Herring, Szegö, 1995; Albinowski, 2015: 464).

Currently, in banking, innovations that would increase the security of transactions, and thereby lead to strengthening the stability of the system, are sought out. The following matters stand in the way of this process: the above-mentioned toxic assets, moral hazard, universality of banks (although isolated cases of “separation” of banks, where the credit function is separated from the function of deposit, occur), and the process of consolidation of the sector.

According to the banking theory, there are two commonly known alternatives which aim to ensure the smooth functioning of the payment system. These are: public deposit insurance (Demirgüç-Kunt, Kane, Laeven, 2014) and the system of narrow banking – NB. The re-polonisation of banks, currently considered to be an important innovation and a change of current approach to, among others, deposits and loans, also starts to play an important role in this process for the Polish banking system.

The revival of the concept of NB should interest the advocates of innovation and change in the financial sector. It is also important due to the negative effects of the existing deposit insurance. The primary objective of a return to narrow banking is to ensure the stability of the payment system without also incurring the cost of deposit insurance, which can be achieved by identifying the risks that accompany this process, and subsequently – to try to mitigate them.

The aim of the article is to identify the risks arising from the attempt to stabilise the payment system using NB, which in practice means imposing restrictions on the types of assets held by banks and on handling current deposits.

2. The nature and concepts of narrow banking – literature review

A narrow bank is a financial institution which invests in assets with zero (or minimal) degree of risk of decline in market value, and thus is able to meet its obligations to depositors, regardless of all (or almost all) events in the financial markets. Thus, a narrow bank is a financial institution that issues demandable liabilities and invests in assets that have little or no nominal interest rate and credit risk.

The following financial intermediaries are examples of narrow banks (Pennacchi, 2012: 2):

1. 100% Reserve Bank (RB): Assets are high-powered money in the form of currency or central bank reserves. Liabilities are noninterest-bearing, demandable deposits issued in an amount equal to or less than the reserves.
2. Treasury Money Market Mutual Fund (TMMMMF): Assets are Treasury bills or short-term investments collateralised by Treasury bills (i.e. repurchase agreements). Liabilities are demandable equity shares having a proportional claim on the assets.
3. Prime Money Market Mutual Fund (PMMMMF): Assets are Treasury bills and short-term Federal agency securities, short-term bank certificates of deposits, bankers' acceptances, highly rated commercial paper, and repurchase agreements backed by low-risk collateral. Liabilities are demandable equity shares having a proportional claim on the assets.
4. Collateralised Demand Deposit Bank (CDDDB): Assets include low-credit- and interest-rate-risk money market instruments. Liabilities are demandable deposits that have a secured claim on the money market instruments and are issued in an amount equal to or less than the money market instruments.
5. Utility Bank (UB): Similar to a CDDDB but collateral can include retail loans to consumers and small businesses in addition to money market instruments.

In the above-presented sequence of examples, asset portfolios are increasingly less restrictive in terms of their credit- and interest-rate risks. Another difference in these examples is the composition of liabilities. Such a liability structure limits the bank's assets to cash and marketable securities for which a net asset value (NAV) could be readily computed to buy and redeem equity shares. An alternative liability structure (CDDDB and UB) is to issue both demandable deposits and nonredeemable equity capital. Under this structure, the bank is permitted to set the interest rate on deposits, as opposed to having it determined by the returns on the bank's assets, as in the case of the all-equity narrow bank. G. Gorton and G. Pennacchi (1993) note that the freedom to set deposit rates allows banks to ex-

ercise greater market power and also to invest in some nonmarketable assets because a NAV is not required to redeem deposits.

The author of the phrase “narrow bank” is R. Litan (1987), who proposed “the separation of distinct funds, investing only in safe assets and handling deposits on demand, from financial holdings” (Albinowski, 2015: 465). NB defined this way is characterised by the following features: the lack of loans from the deposits; extremely high liquidity; extremely high security of assets; lower interest rates paid to depositors; a regulatory framework with a higher level of control, limited investment operations, and a high degree of institutional transparency.

The first references of NB date back to 1929. The economic crisis of 1929 was a good basis for the implementation of far-reaching vision of repairing the financial system with the use of NB. The study addressed to US President Franklin Delano Roosevelt called “Chicago Plan” marked the beginning of institutional control of banking. It was then that the system of state supervision and bank deposit guarantee was created (Phillips, Roselli, 2011; Cipiur, 2014).

Some modern public banks already constituted examples of “narrow banks”. They were formed as a response to the inability of the market to organise a stable payment system (Roberds, Velde, 2014). Among the public banks which maintained the full equivalency of their obligations in standard money were such entities as Banco di Rialto in Venice or Wisselbank in Amsterdam. In turn, the public debt secured the obligations of the Venetian Banco del Giro and Viennese Staatbank. Among contemporary examples of “narrow banks” are money market funds investing in short-term debt securities issued by central banks and accountable governments.

“The system that existed in New York in the years 1838–1863 was also an example of narrow banks. Banks operating under the *Free Banking Act* of 1838 produced their own banknotes which were fully paid in state bonds (King, 1983). Following the insolvency of some states in the early years after the implementation of the system, assets permitted as collateral bonds were limited to the state of New York and the federal government. This system was characterised by lower losses for depositors” (Carlson, 2013; Albinowski, 2015: 465).

Against the background of these concepts, after the years, NB emerges again in the “new edition” – see Table 1. In 1991, one of the first proposals was formulated by Lowell Bryan McKinsey & Co. (Bryan, 1991). This proposal establishes the creation of a financial holding company that performs and takes over the function of narrow banking. In practice, safe assets are deposited in the bank, while the subsidiary of the bank (holding company) may hold a wide range of some of the credit services, such as e.g.: mortgages. The subsidiary of the bank in this case is committed to credit service, simultaneously diversifying the risk. The bank, meanwhile, is supposed to ensure the safety of deposits.

Parallel to Lowell Bryan McKinsey & Co.’s concept, also in 1991, Professor James Percie of the University of California, Berkeley (Percie, 1991) “put forward

a proposal to separate monetary and financial functions for the individual institutions. Monetary and payment functions had to be supported by banks or monetary companies investing in central bank money and treasury debt securities, but also in corporate bonds with a high credit rating; while financial functions were to be taken over by financial services companies (intermediaries) – and in particular, purchases of short-term and marketable securities. The stability of such an institution would be ensured by the appropriate capital basis and public insurance deposits, covering all its liabilities. The monetary company could collaborate with the credit company, i.e. share the operational costs of the joint staff, office space, etc. Thanks to that, the benefits from providing various financial services by one organisation would be preserved. To ensure the financial independence of the monetary company (and thus its safety), any financial transactions between it and the related entities would be prohibited. Moreover, the monetary company would not incur disproportionately large operational costs resulting from the joint functioning of financial intermediaries. The central bank (or other supervisory institution) would be entitled to liquidation of the monetary company which chronically makes losses” (Albinowski, 2015: 473–474).

Table 1. Classification of individual NB solutions

Permit/Authorisation	The authorisation to hold short-term safe assets	The authorisation to hold short- and long-term safe assets
It is forbidden to conduct lending activities	Percie (1991)	Litan (1987)
Lending activities permitted	n.a.	Bryan (1991)

Source: own elaboration based on Kobayakawa, Nakamura, 2000: 109

In 2012, the concept of NB was also revisited by Jaromir Benes and Michael Kumhof, the economists affiliated with the IMF; in the study titled *The Chicago Plan Revisited* (Benes, Kumhof, 2012: 17–20; Cipiur, 2014), the authors remind that the obligation to demonstrate full security of bank deposits would deprive the banks of the function of monetary creation. NB in this concept would mean, therefore, that the only remaining issuer of currency would be the state, and each loan would have to be covered in real capital. Another important consequence is the complete disappearance of panic assaults on banks, as they would not be able to pay back the savings. The most important, however, is the predicted decrease of public and private indebtedness. In this version of the concept of NB, banks would not be completely cut off from credit activities. They would be able to conduct such activities, but they would be allowed to spend only the initial capital, profits from the deposits (payment processing, revenue from credit cards, etc.), funds borrowed at interest from the government or from the market, e.g.: from investors willing to bear above-standard risk for the financing of loans and credits. Governments,

being the only entities authorised to issue currency, would not have problems with a lack of money. The effect of bringing the cost to zero and obtaining money from loans (bonds) by the government would be a total reduction of public debt. Banks would have to borrow from the government to achieve full coverage of deposits in the only acceptable currency – money issued by the state. Governments would have a positive balance in relations with the banking sector and could buy up private debts (*buy-back*), which would also reduce the debt of the private sector.

Prof. John H. Cochrane of the University of Chicago Booth School of Business became the advocate for another variety of NB. In the study titled *Toward a run-free financial system* (Cochrane, 2014: 6–10), he also stresses that it is possible to eliminate *runs* on banks and banking crises in natural economic cycles. The practical solution allowing to achieve this would consist in deposits on demand, money market funds investing in assets of the lowest risk and one-day debt (*overnight*) being secured solely and entirely with short-term treasury and fed. bonds. The proposal of Prof. Cochrane therefore excludes banks from a large part of the loan and credit activities, leaving them the accumulation of deposits, maintenance of payments and intermediation in financial transactions.

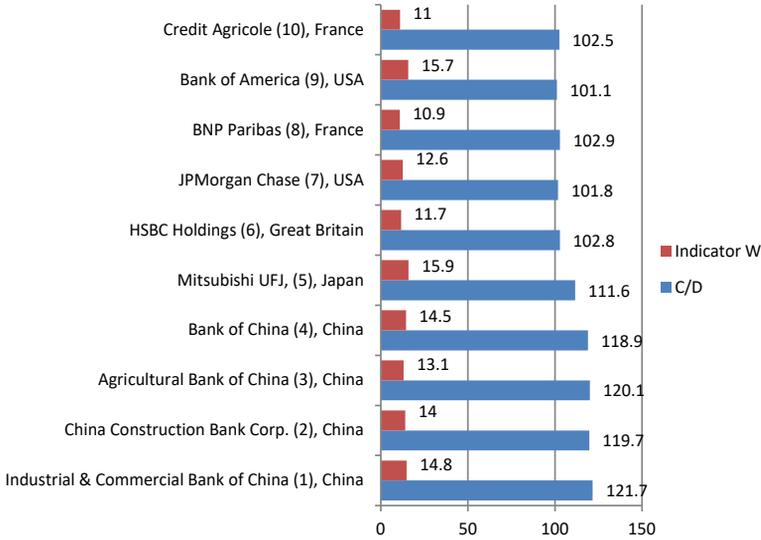
3. The risks of narrow banking

The current “Renaissance” of the concept of NB is a consequence of the search for and introduction of innovations and developments in the financial sector – especially because of the negative effects of the existing deposit insurance (Kay, 2009: 95). The merger of Alior Bank and BPH SA Bank (effected on 4.11.16; completion of the operational merger: 31.03.17) as part of the re-polonisation of banks in Poland is an example of the practical application of this concept in Poland (in the form of one of its varieties proposed in 1991 in the proposals formulated by Lowell Bryan McKinsey & Co.). Due to this merger, a subsidiary of BPH SA bank was established for the sole purpose of offering loan (in particular mortgage) services. Meanwhile, Alior Bank will handle the remaining products, mainly security deposits. This is the first example of the NB application, but also of the consent to the NB project in Poland.

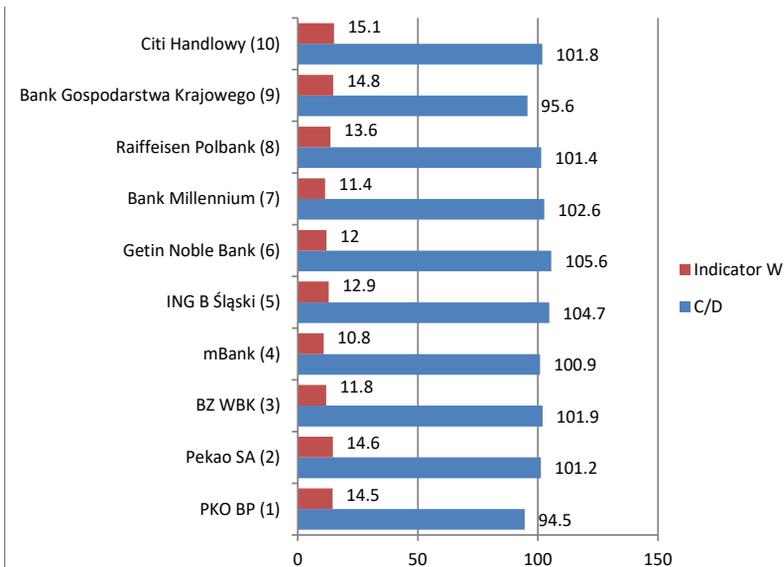
Before the financial crisis of 2008, nobody paid attention to whether a bank had more deposits or loans, since access to money through the interbank market was not hindered. The recent crisis has radically changed this view, as deposits became the basis for the construction of lending activities. (Pennacchi, 2010; Wagner, 2010: 373–386). Therefore, in the wake of the potential risk of “toxic assets” (a financial asset whose value has fallen significantly and for which there is no longer a functioning market), close attention should be paid to the quality of deposits (Kacperczyk, Schnabl, 2011). Since the beginning of the crisis in 2008, banks in Europe (USD 7578.6 billion), Asia (USD 18486 billion) and North America (USD 15857.6 billion),

due to their toxic assets and misguided loans, lost a total of USD 41.9 trillion (Figure 2). As of 2015, on the scale of the TOP 10 in Poland and in the world, the total value of the write-downs of toxic assets amounted to USD 21.3 billion – Table 2.

(A)



(B)



Explanation: C/D – ratio of loans to deposits; Indicator W – capital adequacy ratio; () – Position in the ranking

Figure 1. The readiness of the 10 largest banks in the world (A) and in Poland (B) to grant loans. As of December 2016 (%)

Source: calculations and own elaboration based on data from reports of the NBP Report for 2016 and the ECB Report for 2016.

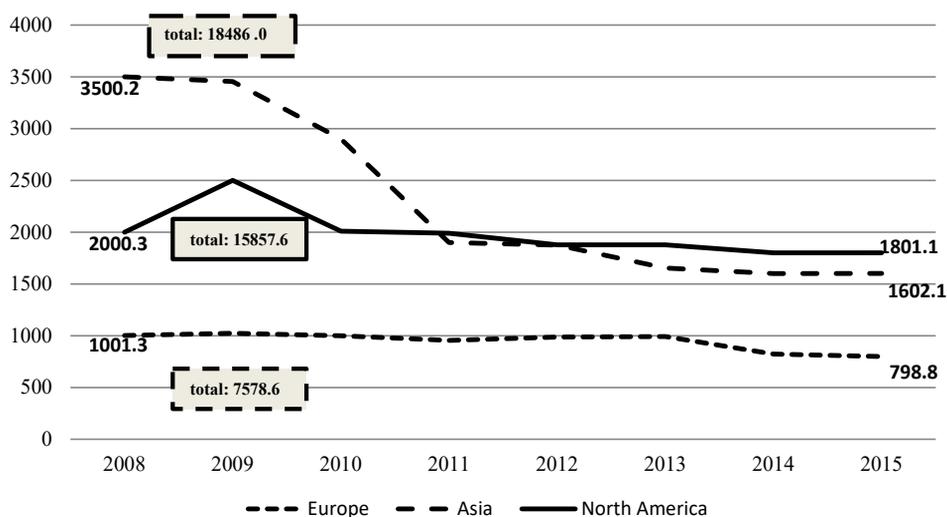


Figure 2. Toxic assets and lost loans in banks in Europe, Asia and North America in 2008–2015, in billion USD

Source: calculations and own elaboration based on data from reports: Eurostat, 2016; OECD, 2016

Table 2. Toxicity of assets of the 10 largest banks in Poland and in the world in 2015 as of 12.2015¹ in billion USD

Poland	Write-downs of toxic assets	World	Write-downs of toxic assets
PKO Bank Polski (1)	0.5	Industrial & Commercial Bank of China (1) China	2.7
Pekao SA (2)	0.3	China Construction Bank Corp. (2) China	1.9
Bank Zachodni WBK (3)	0.9	Agricultural Bank of China (3) China	2.0
mBank (4)	0.2	Bank of China (4) China	2.2
ING Bank Śląski (5)	0.2	Mitsubishi UFJ (5) Japan	1.0
Getin Noble Bank (6)	0.3	HSBC Holdings (6) Great Britain	1.4
Bank Millennium (7)	0.2	JP Morgan Chase (7) USA	2.0
Raiffeisen Polbank (8)	0.1	BNP Paribas (8) France	1.6
Bank Gospodarstwa Krajowego (9)	0.1	Bank of America (9) USA	1.1
Citi Handlowy (10)	0.6	Credit Agricole (10) France	1.2
Total Poland	3.4	Total world	17.9

Source: Annual Report for 2015 for individual banks; The World Bank Annual Report 2017.

1 No data for 2016 due to incomplete balance in banks.

Total loans of the Polish banking sector with foreign branches increased by 5.6% y/y to PLN 994.89 billion at the end of December 2016, while deposits increased during this period by 11% y/y to PLN 969.63 billion, according to data from the Financial Supervision Commission (KNF Report 2016). Figure 1B, presenting the ratio of loans to deposits and the solvency ratio, shows that potentially the following banks have the greatest scope for growth in lending over the next quarters of 2017 years: Bank Gospodarstwa Krajowego and PKO BP. These banks have a high capital adequacy ratio and a good ratio of loans to deposits. Other Polish banks, with a varying capital adequacy ratio, are focused on lending, which means a high commitment to their deposits. The following banks show the biggest commitment: Getin Noble Bank: 105.6%, ING Bank Śląski: 104.7%, and Millennium Bank: 102.6%. Other banks from the Polish TOP “10” group oscillate between 101.9% BZ WBK to 100.9% mBank.

This trend is confirmed by the world’s biggest banks – Figure 1A. Chinese banks show the largest exposure of loans to deposits. And so in the case of: Industrial & Commercial Bank of China, this ratio stands at: 121.7%, Agricultural Bank of China: 120.1%, and China Construction Bank Corp.: 119.7%. In the case of other major banks in the world, this indicator fluctuates between 118.9% (Bank of China) and 101.1% (Bank of America).

The concept of NB entails both benefits and costs. If it is to be adopted on a larger scale in the financial system (in Poland or globally), it should first be carefully examined in terms of the size of the risk of implementation, and, therefore, such measures should be taken: (1) analysis of the structural risk resulting from the systematisation of this concept (Figures 3, 4, 5, 6) and (2) analysis of the risk resulting from the features of this solution (Figure 4). In the case of (1), it refers to the following risk levels:

1. **Low:** means eliminating (or significantly reducing) risky assets financed with short-term debt by banks.

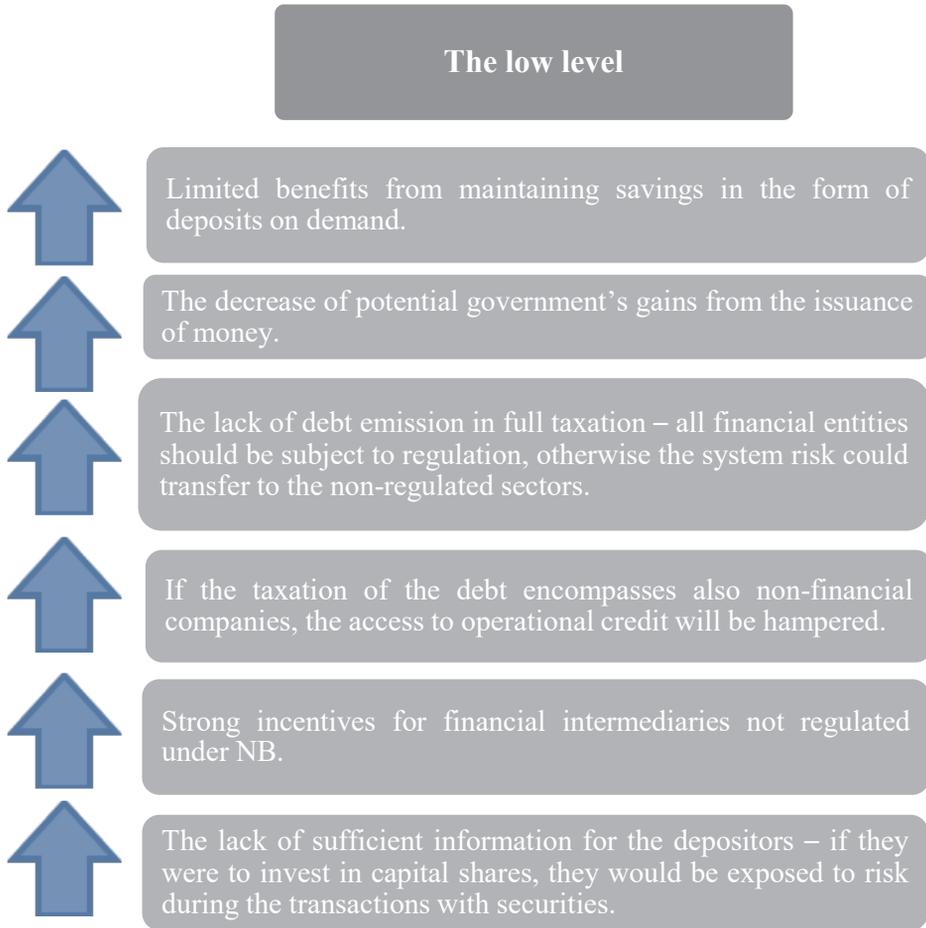


Figure 3. List of the indirect risks for the low level in the concept of NB

Source: own elaboration

2. **Medium:** means that the insured deposits cannot be used to finance risky assets (excluding bonds with the highest rating); financing of lending activities with uninsured deposits on demand is acceptable.

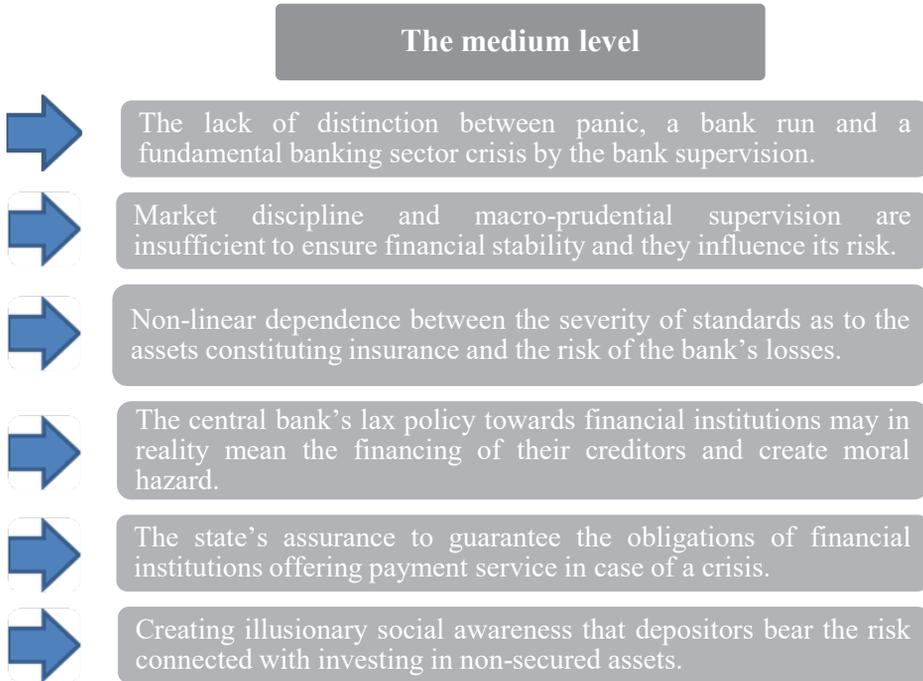


Figure 4. List of the indirect risks for the medium level in the concept of NB

Source: own elaboration

3. **High:** means full endorsement of funding of risky assets (including illiquid loans) from insured deposits on demand.

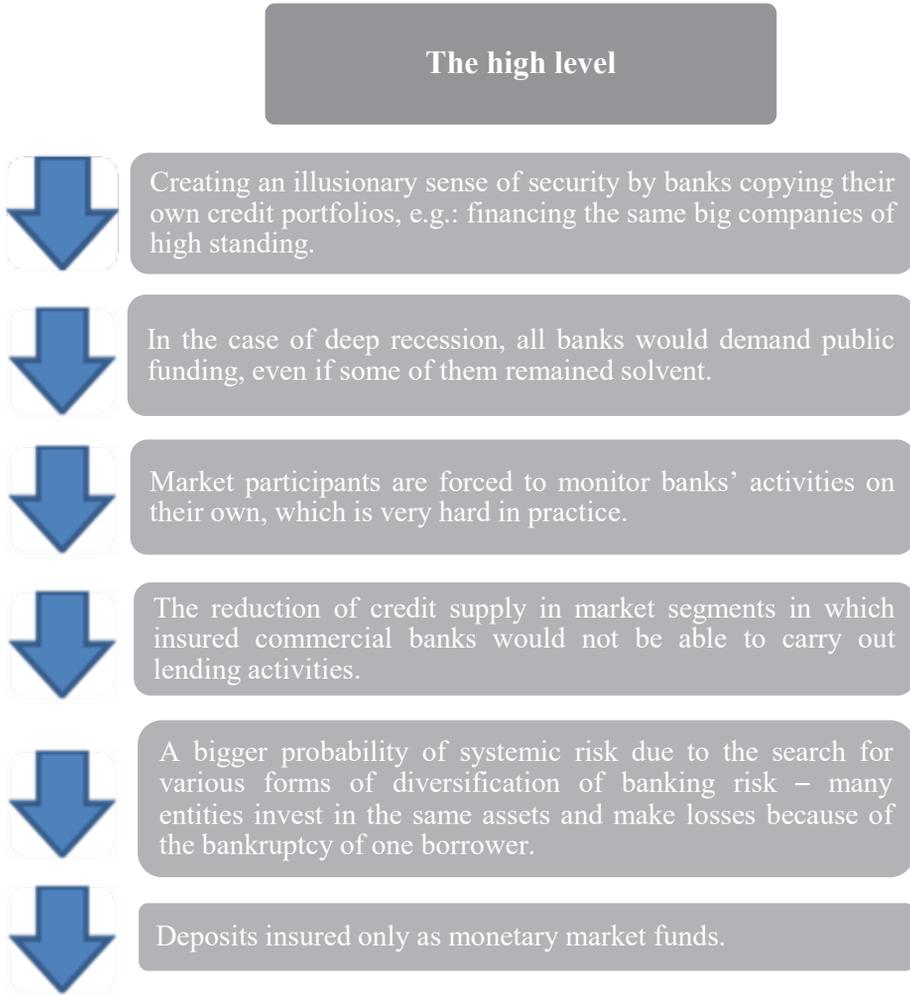


Figure 5. List of the indirect risks for the high level in the concept of NB

Source: own elaboration

Tables 3 and 4 illustrate the comparison of presented levels of risk.

Table 3. Distribution of risk for each of the levels in the concept of NB

Type of assets		Limiting the use of loans in uninsured deposits on demand	
		Yes	No
Funding of risky assets from insured deposits	Yes	–	High risk
	No	Low risk	Medium risk

Source: own elaboration

Table 4. Risk of lack of proper application of the NB investment assets

Investment assets of the narrow bank	Risk
Central bank money	No liquid valuation of the share in investment funds. No possibility of eliminating debt contracts from the financial sector.
Treasury debt securities	There are no restrictions on short-term financing. Bank run.
Short-term treasury debt securities	Low net benefits of halting a run on cash resulting from the uncertainty of funding. Insurance of deposits in banks.
Government and corporate debt securities with a high rating	Lack of liquidity support from the central bank
Uninsured certificates of deposit issued by banks and other debt securities with a high rating	Certificates of deposit issued by banks are due on demand

Source: own elaboration

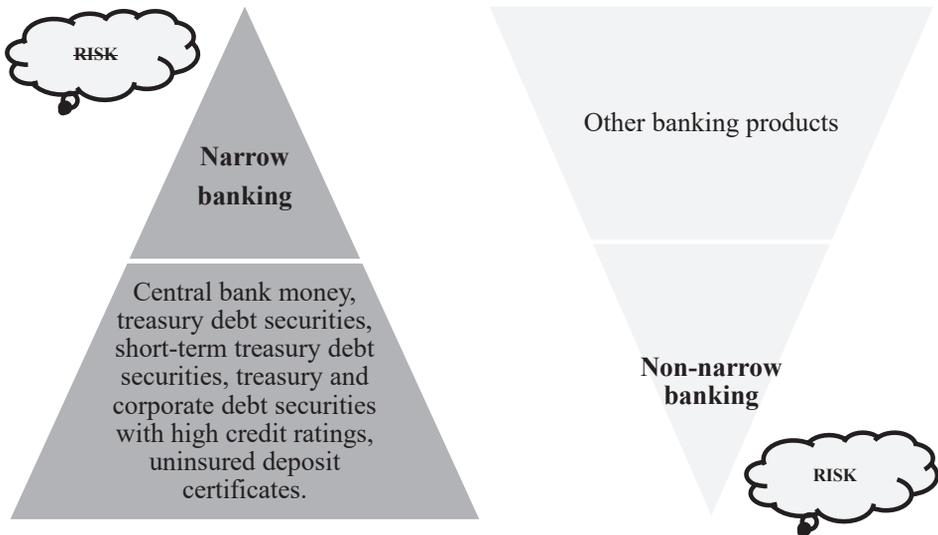


Figure 6. Distribution of systematisation of NB and non-NB products

Source: own elaboration

In the analysis of the implementation of the NB concept – in addition to the discussion of risk of systematisation of this concept – also the specificity of the risk resulting from the features of this solution (2) (Figures 7 and 8) needs to be taken into account – as mentioned earlier.

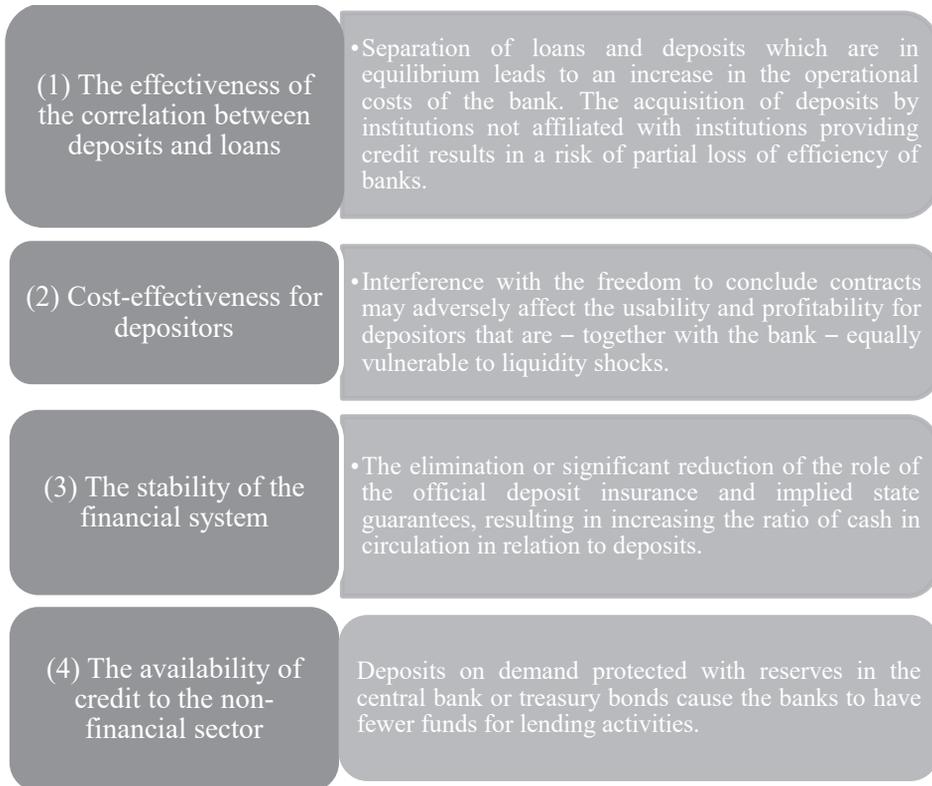


Figure 7. Distribution of risk due to the characteristics of NB

Source: own elaboration based on Albinowski, 2015: 466–470

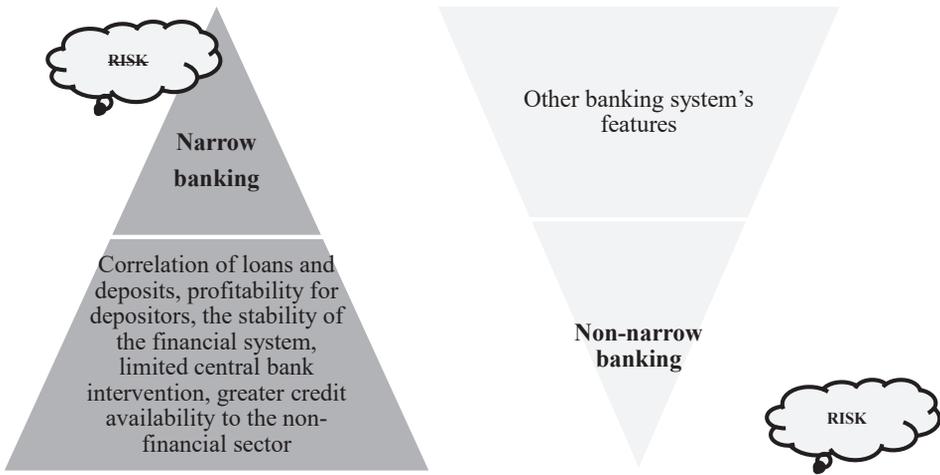


Figure 8. Distribution of systematisation of NB and non-NB features

Source: own elaboration

In particular, the following issues should be analysed: (1) the effectiveness of the correlation between deposits and loans, (2) cost-effectiveness for depositors, (3) the stability of the financial system, and (4) the availability of credit to the non-financial sector. In the available literature, these characteristics are also analysed by Albinowski (2015: 466–470).

The implementation of the narrow banking concept is determined by three levels of stringency and risk:

1. Level 1: Elimination of bank financing of risky assets through short-term debt.
2. Level 2: Financing of credit operations from uninsured on-demand deposits.
3. Level 3: Financing of risky assets from insured deposits on demand.

Analyses of the types of risk associated with the implementation of the narrow banking concept focus on the following twelve issues:

- A. The bank earns excess returns by investing in loans and securities whose returns incorporate systematic risk premia but its cost of funding fails to reflect these risk premia.
- B. The loan commitments, especially back-up lines of credit for asset-backed commercial paper that funded off-balance-sheet structured investment vehicles.
- C. The loans would be made by finance companies that issue commercial paper, that is, debt similar to a bank's uninsured certificate of deposit. Transaction services would be provided by narrow banks. In the narrow-banking system, each finance company (lender) issues uninsured commercial paper that is purchased by many different MMMFs, and the government insures MMMF shares rather than the commercial paper of finance companies.

- D. Each commercial paper (or uninsured certificate of deposit) is less risky than the underlying assets (loans) of a bank or a finance company lender. Secondly, each MMMF does not hold just one commercial paper issue, but a diversified portfolio of them, which further reduces the risk of the MMMFs' assets.
- E. Government guarantees of banks' certificates of deposit are analogous to put options on each of banks' assets, with exercise prices equal to the payment promised to depositors.
- F. If government insurance is restricted to narrow banks, non-narrow bank financial firms have less incentive to become large and complex because their growth cannot be subsidised by government-insured deposits.
- G. In the above-presented sequence of examples (Financing of credit operations from uninsured on-demand deposits), asset portfolios are increasingly less restrictive in terms of their credit- and interest-rate risks. Another difference in these examples is the composition of liabilities. Some narrow banks issue only equity shares. Such a liability structure limits the bank's assets to cash and marketable securities for which a net asset value (NAV) could be readily computed to buy and redeem equity shares. An alternative liability structure (CDDDB and UB) is to issue both demandable deposits and nonredeemable equity capital. Under this structure, the bank is permitted to set the interest rate on deposits, as opposed to having it determined by the returns on the bank's assets, as in the case of the all-equity narrow bank.
- H. The structural mismatches of assets and liabilities of the bank result from preferences of the managing entities. Interference with the freedom to conclude contracts may therefore adversely affect the usefulness of depositors.
- I. If there is synergy between deposit-taking and lending, then the separation of these two activities may lead to higher operating costs of commercial banks. The stability of a narrow-banking financial system may be jeopardised by the elimination or significant reduction of the role of official deposit insurance and implied state guarantees.
- J. The narrow banking is often criticised for a negative impact on the volume of credit for the non-financial sector. If demand deposits had to be backed up by central bank reserves or government bonds, banks would have fewer funds for credit activity.

The adaptation of the narrow banking concept requires further research. There is a need for research that considers the optimal design of a financial system when the government regulator is limited in its ability to assess risk. According to G. Pennacchi: "If models hope to yield useful policy implications, they should account for imperfections in risk-based capital standards and/or risk-based deposit insurance premia that create regulatory subsidies and misallocations of capital. Compared to firms that are government-supported and -regulated, uninsured firms face market discipline that is likely to reduce moral hazard and its distortions.

Research needs to better identify those financial services where government support would produce a net social benefit. Services such as maturity transformation and liquidity insurance may not deserve costly government guarantees. Finally, should further research support the general concept of narrow banking, there are still open questions regarding the specific features of these banks. In particular, how narrow should be these banks' assets and should their liabilities be deposits or equity shares (at fixed or floating NAVs) are questions that need better answers" (Pennacchi, 2012: 31).

4. Conclusions

The main finding of the analysis performed is the confirmation of the research hypothesis that: narrow banking is an effective concept to use to secure the stability of the financial system. Regardless of undoubted risks and criticism evoked by NB, one has to remember that this is currently one of the few concepts that can be used in order to secure the stability of the financial system. The recent financial crisis of 2008 has forced the central banks to adopt solutions that would stabilise the banking system. For this to happen, in the case of "narrow banking", the mitigation of possible risks should be considered, thereby minimising the costs of its adaptation to the banking system (Figure 9). The risk associated with the implementation of the concept of NB concerns two main elements: the structure resulting from the systematisation of the concept and its characteristics. The principal risk associated with the implementation of the concept of NB results from: the cost of deposit insurance, partial loss of efficiency of banks, mismatching of structures of assets and liabilities of the bank (resulting in GAP), as well as the size and structure of loans to the non-financial sector.

As a result of the conducted analysis, 6 indirect risks were identified, each for the assumed risk level: low, medium and high. Full mitigation of the identified risk levels will significantly improve the effectiveness of the NB concept in order to stabilise the global financial system.

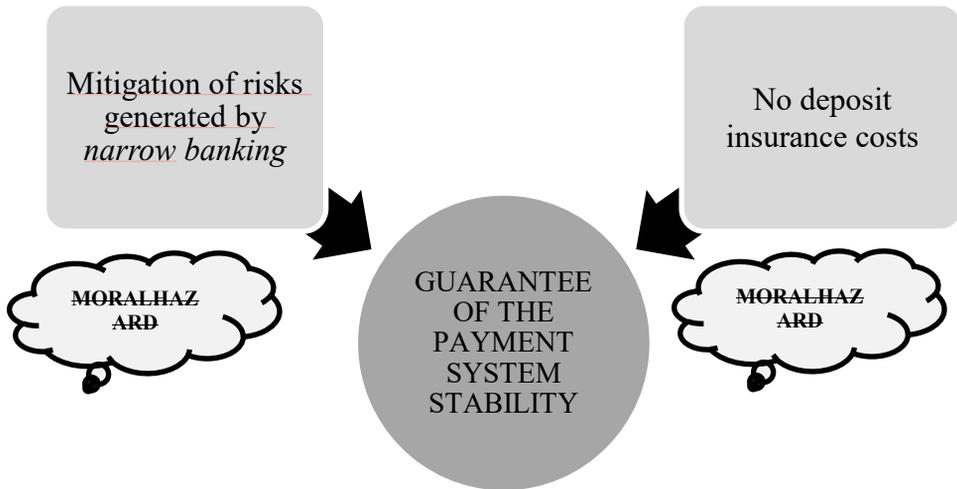


Figure 9. Adaptation of the concept of NB to the banking system

Source: own elaboration

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Narrow banking. Perspektywa ryzyka

Streszczenie: Celem artykułu jest identyfikacja ryzyka wynikającego z próby stabilizacji systemu bankowego z zastosowaniem *narrow banking*, co w praktyce przekłada się na nałożenie restrykcji na różne rodzaje aktywów utrzymywanych przez banki i obsługujących depozyty bieżące. W tym celu zostały omówione następujące kwestie: istota i koncepcje „wąskiej bankowości” oraz wynikające z niej ryzyko. Postawiona hipoteza badawcza jest następująca: *narrow banking* to skuteczna koncepcja wykorzystywana do zabezpieczenia stabilności systemu finansowego. Zasadnicze ryzyko implementacji koncepcji „wąskiej bankowości” wypływa z: kosztów ubezpieczenia depozytów, częściowej utraty efektywności banków, niedopasowania struktur aktywów i pasywów banku (powstania luki GAP) oraz wielkości i struktury kredytów dla sektora niefinansowego. W wyniku przeprowadzonej analizy zidentyfikowano po sześć ryzyk pośrednich dla przyjętego poziomu ryzyka: niskiego, średniego i wysokiego.

Słowa kluczowe: „wąska bankowość”, ryzyko, bezpieczeństwo transakcji, pokusa nadużycia, publiczne ubezpieczenie depozytów

JEL: G12, G21, G29

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