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THE RATIONALIZATION FOR BANK BRANCHES: ITALY VS. POLAND

RACJONALIZACJA W BRANŻACH BANKOWYCH: WŁOCHY KONTRA POLSKA

DOI: 10.15611/pn.2017.482.22

JEL Classification: G17, G21

Summary: Banks have undergone an extensive expansion process in their distribution network. Today, Italy is considered an over-branched country. In Poland on the other hand, we have seen the development of a banking network in a period of economic transformation. All operators have been forced to begin a process of rationalization in their distribution networks. Poland vs. Italy may be a good example of a comparison of the changes taking place in the area of the optimization of the distribution networks of the mature banking market in Italy with the constantly growing banking market in Poland. The aim of this work was to observe on-going processes and to analyse it. On the one hand, there was a focus on the evolutionary point of view causing changes in the optimization network. On the other hand, attention was paid to the identification of the determinants affecting the percentage of persons holding a bank account in Poland, Italy, and in 27 countries of the European Union.

Keywords: bank branches, rationalization, market structure.

Streszczenie: Banki przeszły znaczący proces rozbudowy sieci dystrybucyjnej. Dzisiaj Włochy są uważane za kraj o nadmiernej ilości placówek bankowych. W Polsce, z drugiej strony, widzieliśmy rozwój sieci bankowej w okresie transformacji gospodarczej. Wszyscy operatorzy bankowi zostali zmuszeni do rozpoczęcia procesu racjonalizacji w sieciach dystrybucyjnych. Polska vs Włochy mogą stanowić dobry przykład porównania zmian zachodzących w obszarze optymalizacji sieci dystrybucyjnych dojrzałego rynku bankowego we Włoszech ze stale rozwijającym się rynkiem bankowym w Polsce. Celem pracy jest obserwacja ciągłych procesów i ich analiza. Z jednej strony skoncentrowano się na ewolucyjnym punkcie widzenia, powodując zmiany w sieci optymalizacji. Z drugiej strony zwrócono uwagę na identyfikację czynników wpływających na odsetek osób posiadających rachunek bankowy w Polsce, we Włoszech i w 27 krajach Unii Europejskiej.

Słowa kluczowe: banki, racjonalizacja, struktura rynkowa.

1. Introduction

In commercial activities, geographical proximity to customers is a fundamental element in the success of a business. In the banking sector, widespread presence is an element extensively studied by the scientific literature on relationship banking. The advent of the Internet banking circuit has not reduced the importance of the distribution network. Even with the rapid growth of digital banking, the brick-and-mortar branch is still alive.

The financial crisis of 2008 considerably reduced the profit margins of intermediation. It also imposed the need to reflect the costs related to a widespread distribution structure on bank managers. The high-cost infrastructure of physical banking locations is leading to declining effectiveness for branches. The increase in the number of branches has slowed down in favour of logical rationalization. This phenomenon appeared at different times and with varying intensity in all countries of the globe affected by the financial crisis. The speed and intensity of the rationalization phenomenon depend on the history of the nation's financial system on the one hand, and on the other hand, on the severity of the crisis and the subsequent recovery of the financial system's profitability.

As pointed out by Borroni and Rossi [2014], reducing or streamlining their branch presence may not be in the best interest of a bank or its customers. The slimming strategy can be risky: the reduction of branches appears to be a weakening element of the relationship between the bank and customers. In fact, branches remain an important contact point, playing an essential role in product sales and relationship building for customers in the financial sector. The intangible nature of the banking product approaches refers better to the concept of distribution, rather than of production [Baravelli et al. 1982]. Therefore, the employees responsible for customer relations decisively influence the intrinsic and/or perceived quality of the service [Munari 1995].

Moreover, many benefits arise from geographical proximity. As pointed out by Berger and colleagues, geographical proximity to the borrowing firm gives the bank greater access to 'soft' information and makes it more able to influence the firm's decisions [Berger et al. 2005]. A more exclusive lender-borrower relationship increases the bargaining power of the bank [Diamond 1984; James 1987; Lummer, McConnel 1989; Boot, Thakor 2000; Boot 2000].

Despite the increase in speed and intensity with which the intermediaries change their distribution structure, there seems to be an equal amount of interest in the scientific literature. In fact, the academic literature has devoted much effort to the evaluation of the efficiency of bank branches [e.g. Berger et al. 1997]. Some efforts have been made to assess the profitability of this specific economic area [Huysentruyt et al. 2013].

In recent years, the average number of bank branches per capita has fallen significantly across the European Union, but the situation varies from one Member

State to another. According to P. Wruuck [Deutsche Bank 2017], an expert at Deutsche Bank Research, the number of branches in EU countries varies and depends on many factors such as the maturity of the financial market, the popularity of banking products, as well as the potential increase in sales, profitability, and competition. Issues such as population density, degree of urbanization, average income earned by customers or even purchasing habits, also play an important role. These factors, along with progressive digitization, are the basis for the development of a banking distribution network, which explains the considerable, but diminishing, differences between various European regions [Deutsche Bank 2017].

Joe Sullivan [2015], CEO of Market Insights proves that available technology (e.g. iPhone, iPad, etc.) and disruption via such innovations as Apple Pay, Lending Club, Square or Balance Financial (Walgreens) reflect a shift in the collective consumer mindset that takes geography out of the picture and moves banking into a mostly digital space. The branch is (or should be) a part of a modified hub and spoke concept, where multiple branches in a market are interdependent on each other and have complimentary strategic areas of focus, with the function of the branch often being more interaction rather than transaction. Financial institutions are being forced to make strategic choices to either maintain branch locations, close them or have them transformed [Sullivan 2015].

Similar conclusions are included in a study report by Capgemini Consulting, which states that “the future of bank branches” is “coordinating physical with digital” [de Roys et al. 2013, p. 1]. Digital tools are driving this transformation of branches. Bank branches are being reinvented to focus on strong relationships with customers. The traditional banking network that had homogenous, full-service branches catering to customers across the segments is no longer sustainable [de Roys et al. 2013].

The risk of such dynamics is a messy slimming process of bank branches, just like a mirror image of the preceding years of hypertrophic growth. From these considerations comes an interest in analysing the events of recent years regarding the choices of the distribution network of financial intermediaries in Italy and Poland.

Poland vs. Italy can be a good example of a comparison of the changes occurring in the area of optimizing the distribution network. There is a contrast between the mature banking market in Italy and the constantly growing banking market in Poland. The aim of this work is to observe the on-going processes and analyse them. On the one hand, we focus on the evolutionary point of view that causes changes in the optimization network in these two markets, while on the other hand, we pay attention to identifying the determinants affecting the percentage of persons holding bank account(s) in Poland and Italy, as well as in 28 countries of the European Union. We study the dynamics of development in the bank network which led to the current market distribution structure and the number of bank accounts.

Following the aims of this study, in the first part we present an extensive comparison of the evolutionary dynamics of the banking system in Italy and Poland. This comparison attempts to point out how the rationalization of the banking network

is an on-going process and is not a result of seeking cost savings of the bank in these countries. Most likely, the process appears to be a response to extraordinary economic events, technological changes or consumer behaviours.

In the second part of this work, the following hypothesis is put forward: in specific European countries, bank-account penetration is dependent on the number of bank branches.

This original study is based on the data from the Bank of Italy and the Central Bank of the Republic of Poland, reports concerning the situation of banks of the Polish Financial Supervision Authority and The Polish Bank Association.

2. Bank branches: historical analysis

2.1. Italy

The 1893 Banking Law was established by the Bank of Italy. In supervision activity, the Bank of Italy adopted the *Structure – Conduct – Performance* paradigm (SCP). The aim of the Bank of Italy was the realization of “a generally optimal sizing of the network and a gradual increase in the level of competition in local markets and the bankability of the territory” [Bank of Italy 2016].

In the 1980s, the Bank began the transition from structural type of supervision (which used the powers of authorization to shape the structure of the system) to prudential supervision, based principally on general rules of conduct. In 1990 three fundamental laws were passed: one concerning commercial banks and groups, one with regards to the securities business, and one concerned with safeguarding competition. The first one established a level playing field for bank operators, specifying the joint stock company as the general model for banking business, laid a basis for the privatization of banks, and regulated credit groups. The second one regulated securities intermediaries and stock markets. The third law introduced antitrust principles and instruments [Cotula et al. 2003].

In 1990 the abandonment of structural supervision eliminated the artificial protections produced by the previous regulatory framework, and consequently set the playing field for fair geographical competition among bank operators.

Since 1970, the number of branches has roughly tripled. This increase has mainly been concentrated in the last 25 years, since the adoption of prudential supervision, which simplified the process of opening of bank branches (Figure 1). Consistent with Borroni and Rossi [2014], the rapid growth in the number of branches after the liberalization, denotes a race towards the start of branches, without a real cost-benefit analysis of the geographic distribution structure [Basile, Ruozi 1990] or search for a real optimization of the existing network [Baldini 1990].

So, in accordance to Borroni and Rossi [2014], 1990 is a turning point in the history of Italian banking. The evolution can be separated into two periods. In the first phase (from World War II to March 1990), the growth in the number of branches

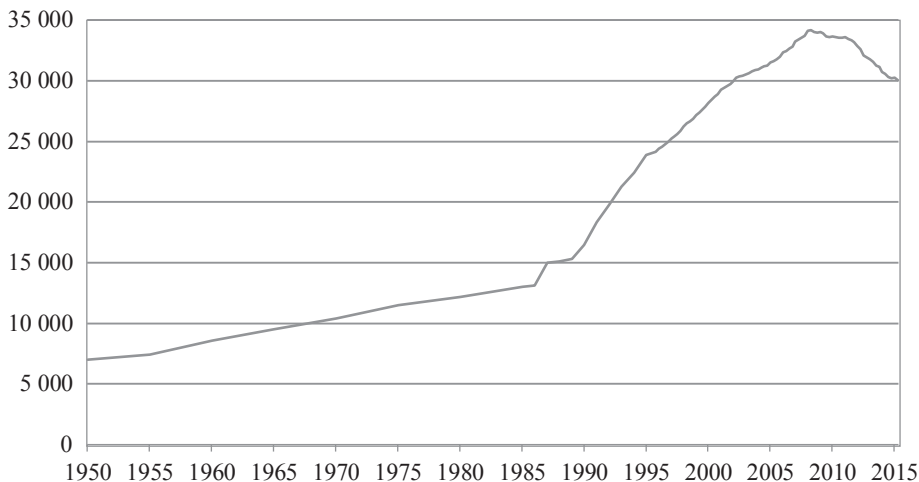


Fig. 1. Number of bank branches in Italy between December 1950 and March 2016

Source: own study based on [Bank of Italy 2016].

happened under a strict regulatory regime governed by the Bank of Italy. The Supervisory Authority held the ultimate power to allow or deny the establishment of new bank branches. Only in 1978 did the legislator attenuate the discretion of the authority by the identification of objective criteria called “Piano Sportelli” [Vozzella et al. 2013]. The branch plan constitutes a theoretical model in which banks can draw inspiration for evaluating the attractiveness of new settlements. This is consistent with the provisions of the first banks EEC Directive [First Council Directive 77/780/EEC of 12 December 1977].

In March 1990, the second phase began. The structure of the banking system has changed owing to two chief factors. The first one was the liberalization of branch openings and the increase in mergers and acquisitions. There was a massive growth in bank branches. In just 25 years, the number of bank branches more than doubled from about 15,000 to more than 34,000 in 2009. For a comprehensive historical analysis, please refer to Borroni and Rossi [2014].

At the same time, a similar phenomenon was witnessed throughout Europe. In this period, it is most likely that bank managers adopted the growth in the number of banking institution branches as the main instrument in the acquisition of the market share. The opening of new branches was seen as the only means of increasing it: the network development process seemed, therefore, to follow a timely logic of territorial colonization rather than a careful assessment of the real potential of the area [Basile, Ruozi 1990].

It is likely that the banks opened branches in order to create barriers to entry for other operators. As stated by Kim and Vale [2001], banks act strategically in their branching decisions, taking into consideration the future response from rival banks.

Moreover, the bank-specific branch-network does not confer externality on other banks. As a result, the branch network affects only the market share, but not the market size.

The branch phenomenon occurs at the same time as deep structural changes in the banking system. The Law of 30 July 1990 [Gazzetta Ufficiale del 6 agosto 1990, n. 182] dictating norms aimed at restructuring the entire banking system indirectly, thus opening itself to integration processes. The transformation takes place technically by the means of withdrawing operation of publicly-funded credit institutions and transferring their assets and liabilities to newly-established companies.

In 1993, new banking law (*Decreto legislativo 1 settembre 1993*) [Bank of Italy 1993] concluded a long legislative process that can be attributed to the implementation of the European Directives. Banking reforms of the 1990s deeply changed the previous order. Systemic stability is pursued through research and respect for competition as an efficiency factor for intermediaries, while privatizations reduce the presence of public hands in the financial structure. The reform of the early 1990s resulted in a general reorganization in the banking sector. In the context of the financial market expansion, this led to the liberalization of the intermediary operating forms, with the adoption of the universal bank model, the privatization of the major banks and, last but not least, support for the size growth of the companies by aggregating existing organisms.

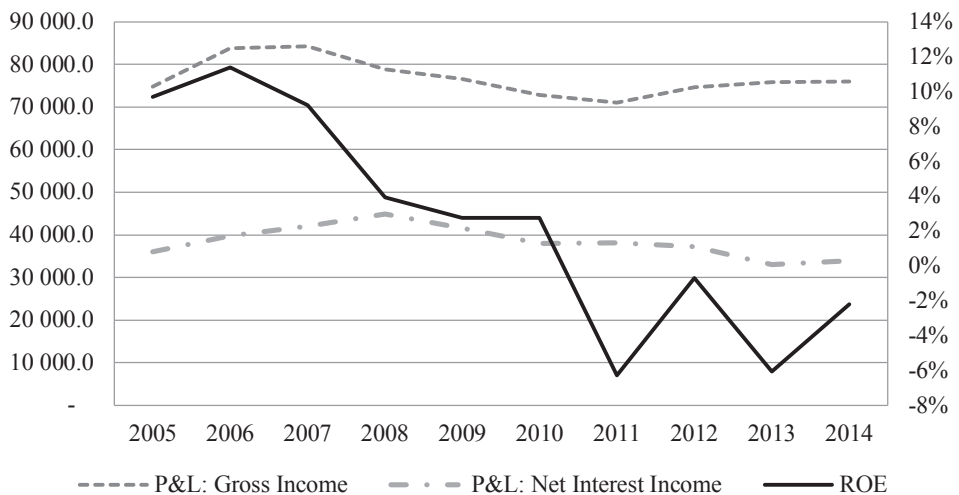


Fig. 2. The Italian banking sector: ROE level, Gross Income, Net Interest Income (2005-2014)

Source: own study based on [Bank of Italy 2016].

The 2008 financial crisis has severely impacted the banking sector. Due the very low interest rate environment, margins have been squeezed for several years. Banks have felt unrelenting pressure to cut expenses, while branch closures represent

a natural target. 2008 was the last year in which the number of bank branches in Italy grew. The start of the financial crisis triggered a severe and protracted economic crisis in Italy. From mid-2009, a slow process characterized by a reduction in the number of bank branches began.

2.2. Poland

In the post-war years, Narodowy Bank Polski (the National Bank of Poland, NBP) played a dominant role in the Polish banking sector. Banking sector reform in the 80s introduced a two-level banking system with a change in the status and scope of the activities of the NBP. The new banking law introduced in 1989 allowed the establishment of commercial banking and liberalized the policy towards private banks set up by domestic and foreign entities. In 1988, it was decided to exclude deposit and credit activities from the NBP and to set up new commercial banks with the use of over 430 operational branches of the NBP (in 1987 Powszechna Kasa Oszczędności was separated from the structure of the NBP). Newly set up banks (there were nine of them) started operating on the 1st of February 1989, constituting a core of commercial banking [Baka 1997]. At the end of 1993, Polski Bank Inwestycyjny was separated from the NBP, and took over predominantly personal cash deposits stored in the NBP. These changes enabled the further development of commercial banking and of a network through the agency of foreign capital inflow (mainly from Italy, Germany, The Netherlands and Spain), which together with the capital introduced into the Polish banking market verified solutions in the scope of products and services, as well as technology. Together with the development of cooperative banking, which originates from the Polish tradition, the number of bank facilities in Poland at the end of 2015 amounted to 14,496, operated by 38 commercial banks, 561 cooperative banks, and 26 branches of credit institutions (Figure 3).

Limited access to the network of banking services, and a relatively low demand for financial and banking services in the period of the Polish centrally planned economy also had an impact on the low index of the use of banking services. The systematic transformation that was initiated in 1989 introduced the principles of a free market economy. Economic development and a systematic increase in the demand for capital and modern solutions in the scope of banking and finance among individual and corporate clients caused a dynamic increase in the network of bank facilities visible from the mid-90s. In order to fill the gap in access to financial services, banks opened their own customer service points, as well as agencies. They were established by private entities pursuant to franchise or civil law agreements (as of 1995 all banking facilities have been included in statistics, not only banks' own facilities).

The distribution network was continuously developed in the Polish banking sector until 2012, with a period of impairment in the years 2000-2004 related to consolidation processes. In the following years, along with an observed generational



Note: based on mentioned literature and the multiple reports on the situation of banks of the Polish Financial Supervision Authority.

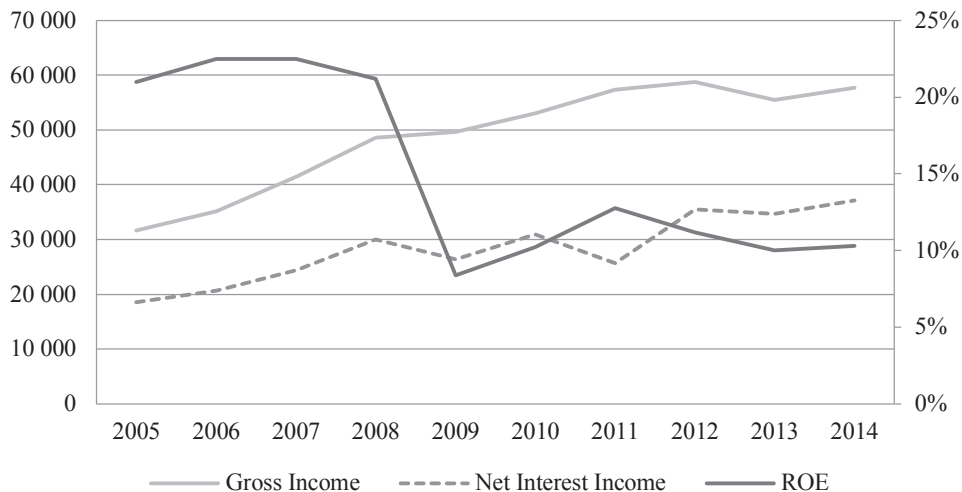
Fig. 3. Number of bank branches in Poland between December 1945 and 2015

Source: own study based on [Jeziński, Leszczyńska 2006; KNF 2015].

change (a generation of the so-called *digital natives* entered into adulthood), the development of technology and further processes of consolidation occurred. The number of bank facilities decreased, to the benefit of the mobile channels of contact with the client and the digital distribution of banking products and services. Also, the economic factor is significant, as present branch chains can constitute over 50% of the banking administrative costs. This affects the cost-income ratio (C/I), which is currently under pressure from historically low interest rates [Gawinecki 2015].

The decrease in traditional bank branches in Poland, which is observable since 2013, does not correspond to the starting point of the decrease in branches in Italy. There, the number of branches had already been decreasing since 2008; however, it correlates with a significant decrease in branches in Europe, where 4,500 branches were closed in 2013, three times more than in previous years [Kearney 2014].

The financial situation of the Polish banking sector as of the beginning of systemic transformation was good. In the analysed period, the revenues of the sector systematically increased from 2005, and were correlated with the dynamic development of the Polish economy. However, net interest income increased with fluctuation, its amplitude amounting to 5% (Figure 4). The decrease in the net interest margin was predominantly influenced by the decreases in interest rates and the fact that interest rates on assets were being adjusted to changes in the market interest rates faster than the interest rates on liabilities [NBP 2015].



Note: based on multiple reports on the situation of banks of the Polish Financial Supervision Authority for years 2005-2015.

Fig. 4. Polish banking sector: ROE level, Gross Income, Net Interest Income (2005-2014)

Source: own study based on [KNB 2006-2007; KNF 2008-2015].

In 2009, the ROE index levelled off at a relatively high level within the threshold of 19% to 24%. The drastic decrease in the profitability of basic funds to the level of 8.37% in 2009 is predominantly attributable to the decrease in the gross profit share in the banking activity result, and then, to the decrease in the profitability of risk-weighted assets. The main reason for the decrease in the gross profit share in allocating the bank activity result comprised of the worsening of the credit portfolio quality and a related increase in the costs of credit risk materialisation. This situation has been related to the results of the global financial crisis, which weakened Polish economy, as well. Since this period, the ROE index has not returned to its value from before 2008.

3. Branch rationalization: time to prune

3.1. Italy

At first, the banks would not significantly reduce the number of branches. Then, starting in 2012, the rationalization became more consistent (Figure 5).

At this point, it would be interesting to see if the size of the bank influenced the choice of the distribution structure. In Figure 4, we report the number of branches divided by the size of the bank, as defined by the Bank of Italy. Unfortunately, these data appear difficult to read, in consideration of the current aggregation phenomena

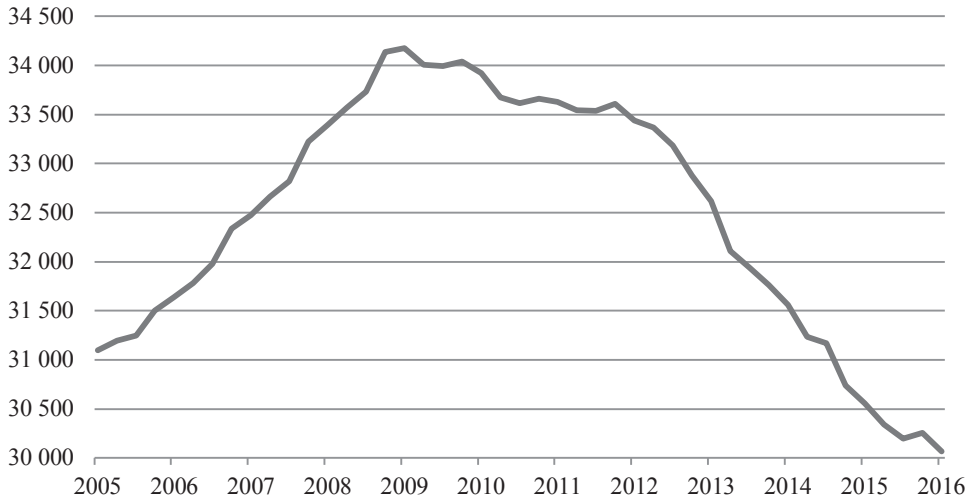


Fig. 5. Number of bank branches in Italy between January 2005 and March 2016

Source: own study based on [Bank of Italy 2016].

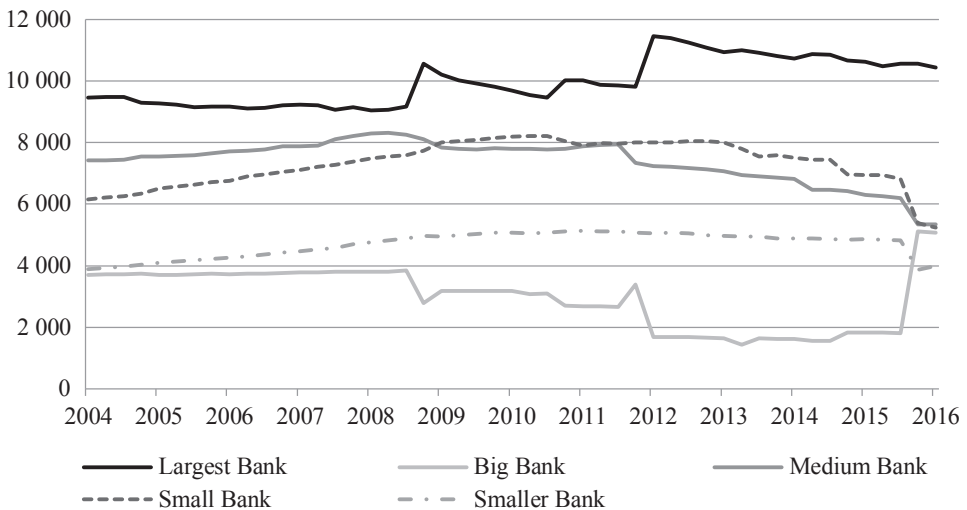


Fig. 6. Italy: number of branches by bank size

Source: own study based on [Bank of Italy 2016].

present in Italy. Mergers and acquisitions affect the classification of the bank in terms of size. It is also necessary to consider the provisions of the antitrust authority. This explains the anomalous behaviour of large banks.

The decrease in the number of branches does not seem to be a result of the different economic development offered by various geographic regions in Italy. The breakdown by geographical area (Figure 7) shows the regions of northern Italy (right axis) as more appealing. In fact, in these areas about two-thirds of the country's bank branches is located. The analysed dynamics shows an upward parallel. So, over the past eight years, surprisingly, the location choices of Italian banks were not affected by the economic potential of the region.

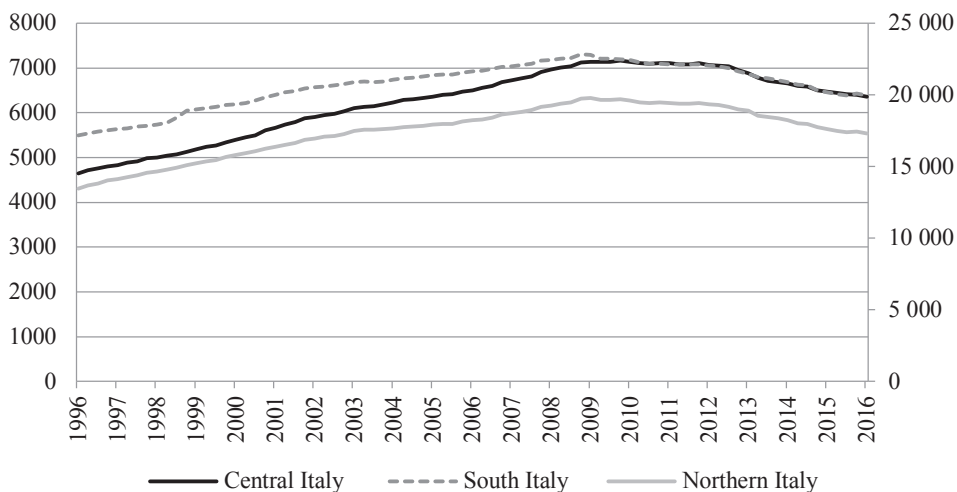


Fig. 7. Italy: number of branches by geographical location

Source: own study based on [Bank of Italy 2016].

In the legal category, the banks show different behaviour. The legal form is a coarser classification than the single-dimensional one adopted by Bank of Italy. However, it can better grasp the dynamics which took place in Italy in the last 20 years (Figure 6). The data indicate that the contraction in the number of bank branches is mainly due to the choices made by commercial banks (right axis). Smaller local banks show a slowdown in growth, but appear immune to the general reduction process present since 2009. The cooperative banking behaviour is hard to read because of the already mentioned acquisition and merger consequences of the recent reform of financial regulation.

The crisis of 2008 caused a reduction process. After seven years, and after the reduction of about 10% of the branches, it would be reasonable to expect consequential reduced costs in the income statements of banks. Unfortunately, the slimming diet does not seem to have taken effect in the main balance sheet items relating to the costs (Figure 9). Most likely, the managerial choice with regards to the reduction of bank branches to reduce the operating costs is no longer effective in the modern world of financial intermediaries [Szczerbowski 2014].

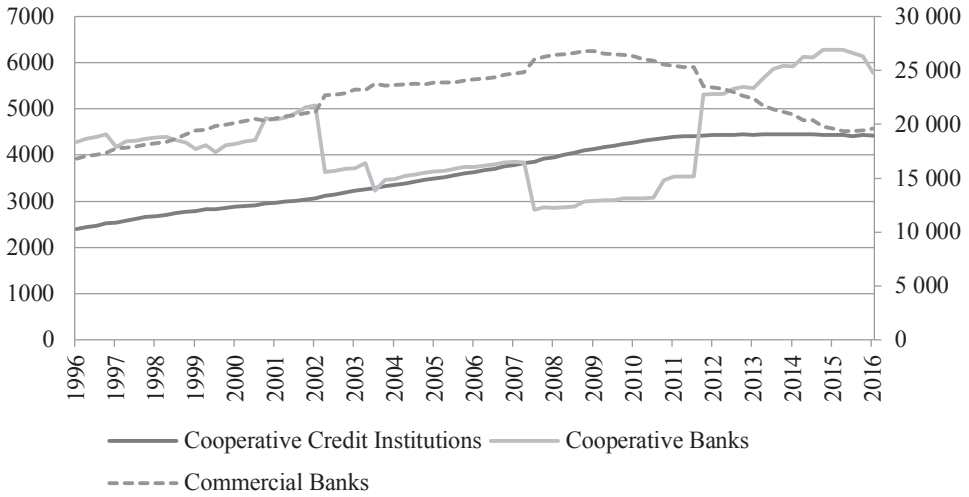


Fig. 8. Italy: number of branches by type of bank

Source: own study based on [Bank of Italy 2016].

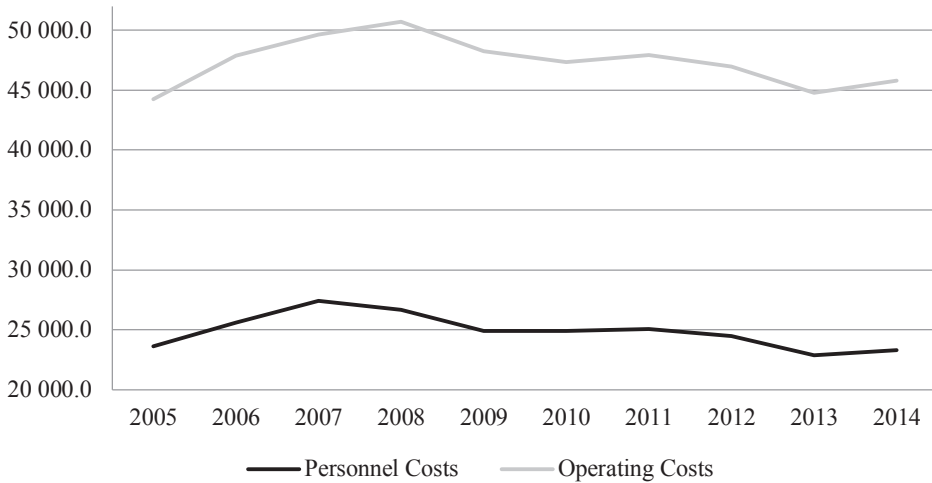


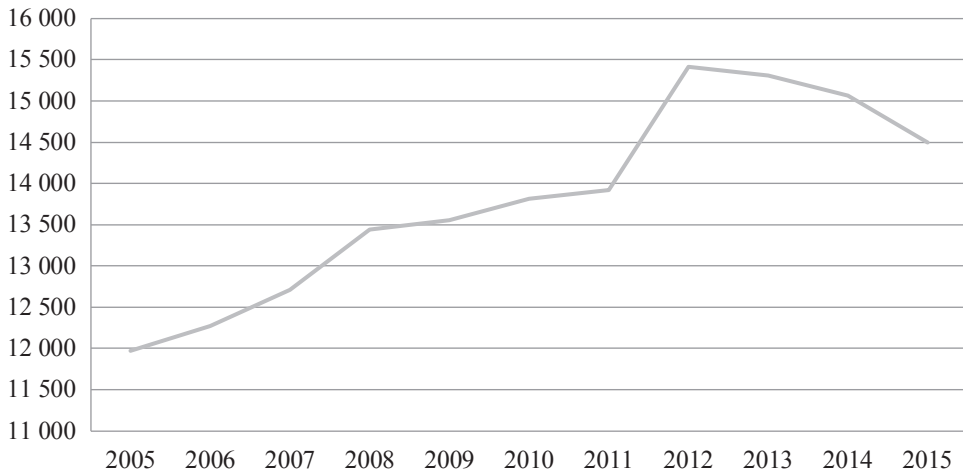
Fig. 9. Italy: personnel costs and operating costs of banks

Source: own study based on [Bank of Italy 2016].

3.2. Poland

Despite the aforementioned changes in the Polish financial market, banking products and services have been distributed mostly in a traditional manner, through the

agency of a bricks-and-mortar chain of banking and intermediary facilities. New sales, especially in retail banks, are generated by branches, and constitute between 70 and 90% of them. However, the frequency of customer visits and the number of operations conducted at facilities has been decreasing [Gawinecki 2015]. Consumer behaviours and habits determine banking activities with regards to communication channels and distribution networks, which translates into an increase or a decrease in the banks' own branches.



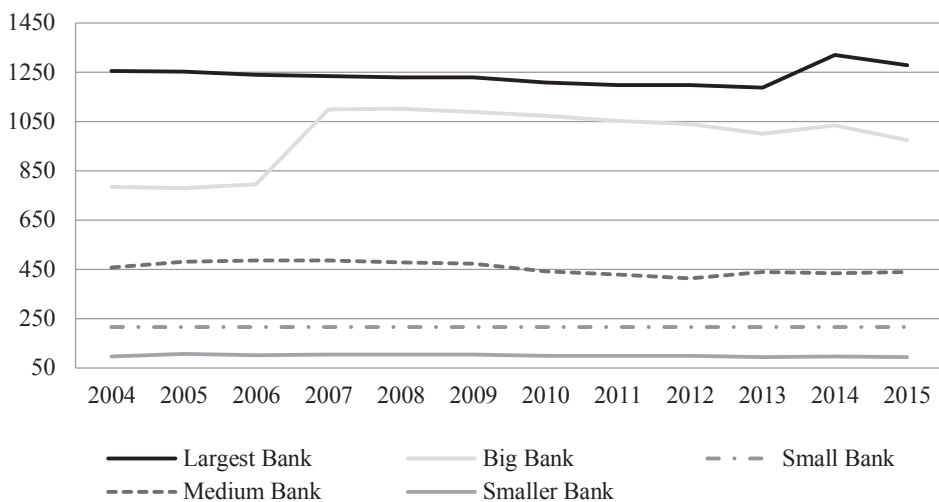
Note: based on multiple reports on the situation of banks of the Polish Financial Supervision Authority for years 2005-2015.

Fig. 10. Poland: the number of bank branches between 2005-2015

Source: own study based on [KNB 2006-2007] and [KNF 2008-2015].

In the analysed period between 2005 and 2015, the number of bank's own facilities in Poland increased by 2,521; i.e. by 21%. However, since 2012 we have observed a decrease by 916 facilities i.e. by 6% (Figure 10). Undoubtedly, the reduction in the number of facilities is influenced by mergers and acquisitions. In this period, we witnessed four large mergers: Nordea Bank with PKO Bank Polski, Meritum Bank with Alior, Santander with BZ WBK, and Bank BGŻ with BNP Paribas. These processes alone influenced a reduction of approximately 300 bank facilities. Another factor in downsizing the bank network is the automation of contacts with clients. Transferring banking activities, e.g. checking balances, making transfers, taking loans and establishing deposits by an Internet access to the account does not require visiting a branch, and saves, both the clients' and the banks', time and money. Such a model of contacts with banks has been accepted by clients, and banks have been developing their applications by adding other products and services.

As the data shows, strong concentration in the Polish banking sector (at the end of 2015 – 48.8% of assets in the sector were held by 5 largest banks and the increasing processes of consolidation result in banks of various sizes adopting other strategies with regards to the network of their own facilities. In the largest and second largest banks the number of branches has been decreasing, whereas, in medium and small banks it has been increasing or it has levelled off (Figure 11). The presented market trends seem to be rational, as we have been observing a decrease in the facilities of big banks, which have been taking over smaller banks and optimizing the network of branches. In medium and small banks, which are frequently taken over, the network of facilities has remained unchanged or has been growing in order to increase their sales attractiveness.



Note: study based on the data from banks' Management Board Statements.

Fig. 11. Poland: the number of branches by size¹

Source: own study based on [NBP 2015].

It should also be noted that large banks are more willing to close down the facilities of intermediaries with whom they have been cooperating, rather than their own facilities. In the analysed period, from 2005, the largest Polish bank (PKO Bank Polski) closed down 1,862 facilities. However, it additionally set up 21 of its own facilities, and thus, at the end of 2015 it had 2,119 facilities, including 1,277 of its own branches.

¹ The size of the bank was established on the grounds of the amount of assets as of 2015, and the following was assumed: a very large bank – PKO Bank Polski, a large bank – PeKaO S.A., a medium bank – Bank BPH, small banks – Millennium Bank and BOŚ Bank.

The geographical location of bank facilities in the territory of Poland depends on the industrialisation of a given region, its economic attractiveness, and population density. Southern voivodeships (Silesia, Lower Silesia, Lesser Poland) are dominant, where both indexes are explicitly better than in the rest of the country. Therefore, the network of bank branches in this territory is explicitly larger. It is four times bigger than in the Northern regions and twice as big as in the voivodeships of Central Poland. The development of the network depending on the geographical region in the analysed period presents weak dynamics of establishing networks in central and northern regions, and increased dynamics in the southern region (Figure 12).

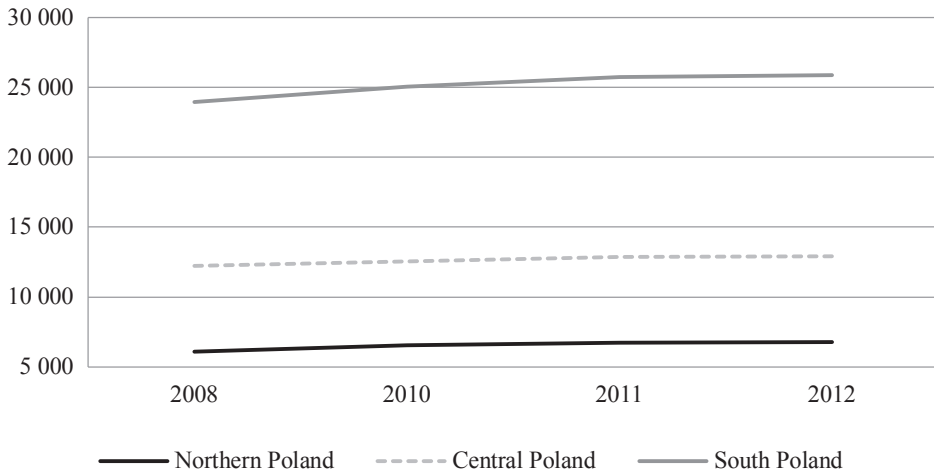


Fig. 12. Poland: the number of branches by geographical location²

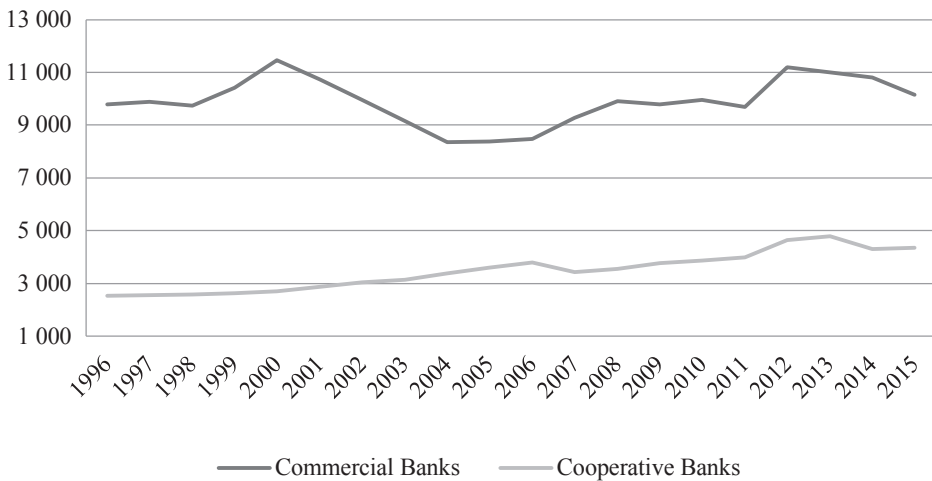
Source: own study based on [NBP 2013].

In the age of digitalisation and intense competition, the listed factors should not play a significant role in the decisions concerning the establishment of a bricks-and-mortar network of facilities any longer. With an increasingly higher index of banking services being used and electronic access to banking products and services, economic attractiveness and population density constitute factors supporting the decisions, whereas a key factor should be a strategy regarding the development of products and services, as well as the quality and effectiveness of bank employees.

Other dynamics of network development are presented by banks depending on the form of ownership. The last twenty years have seen a slow, yet continuous

² The following voivodeships were classified to particular parts of Poland: Northern Poland: West Pomerania, Pomerania, Kuyavia-Pomerania, Warmia-Masury, Podlaskie; Central Poland: Lubusz, Greater Poland, Łódź, Masovia, Lublin; Southern Poland: Lower Silesia, Opole, Lesser Poland, Silesia, Podkarpackie, Świętokrzyskie.

increase in the number of branches of cooperative banks and a significant fluctuation in the number of facilities in commercial banks (Figure 13). Differences can result from the fact that commercial banks, in the process of mergers and acquisitions, more and more frequently optimize their network (closing down, merging branches in the same towns and cities). Whereas cooperative banks in the same processes maintain facilities, frequently situated separately in small towns and open new ones.



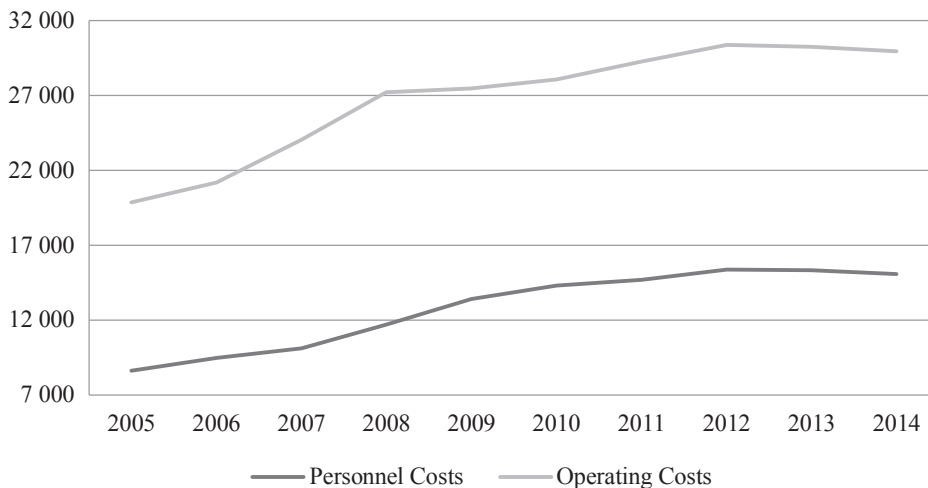
Note: based on mentioned literature and the multiple reports on the situation of banks of the Polish Financial Supervision Authority.

Fig. 13. Poland: the number of branches by type of bank

Source: own study based on [KNB 2006-2007] and [KNF 2008-2015].

In the analysed period, particular banks undertook actions aimed at increasing effectiveness in order to optimise employment and the sales network, and to decrease operational costs. These processes were strengthened with mergers and acquisitions, continuous development of electronic access channels to banking services, and the global financial crisis. Nevertheless, as a result, from 2005 to 2015 the entire sector experienced an increase in employment of 17.9 thousand, i.e. by 11.7%. This had an impact on personnel costs, which increased by 74.6%, and operational costs, which increased by 50.7% (Figure 14). The reasons for such a high increase in personnel costs can be found not only in the increase in employment, but also in the above average increase in remunerations in the financial sector together with the bonuses due to results (in the same period, the average remuneration in Poland increased by 63.8%).

The observed continuous need for a traditional model of banking in the digital era of technology and communication imposes on the banks the necessity to establish a new operational model, considering not so much the rationalisation of



Note: based on mentioned literature and the multiple reports on the situation of banks of the Polish Financial Supervision Authority.

Fig. 14. Poland: personnel costs and operating costs of banks (million PLN)

Source: own study based on [KNB 2006-2007] and [KNF 2008-2015].

the distribution network, but its optimisation and the development of alternative communication channels with clients. A strategy that is coherent for the development of the sector is not the same for a single bank, as it will depend on its number of facilities or adopted direction of development. While adjusting the distribution network to their sales strategies, banks functioning in Poland should consider the threat originating from the competition in providing alternative banking services by institutions from the financial market (e.g. investment funds, loan funds) and the non-financial market (telecommunication companies, retail networks). The aforementioned threats and a shift from the importance of communication with the client to remote distribution channels imposes the necessity for change in the hitherto binding model of the functioning of a bank facility. The new model should consider various types of branches providing a limited, specialised or full range of financial and banking services correlated with the economic geography of the country. Such changes would force a further closing down of all types of bank branches in the Polish banking sector.

4. Italy, Poland and the EU: How different are they really?

The collected data reveal interesting results. The number of branches in the financial systems of the two countries is affected by national legislation. The choices of banks are due to the same behaviour. As soon as possible, credit institutions increase their number of bank branches. This phenomenon appears not to be influenced by the type

of bank. The differences between Italy and Poland in this area are exclusively due to the reasons that led the regulator to limit the number of branches.

The two countries also appear to be similar at the level of profitability. Both in Poland and in Italy, the financial crisis has significantly impacted on the ROE of banks. However, it is clear that in Poland the banks have managed to maintain a significantly higher level of profitability than that of Italian banks.

Both countries experienced a decrease in branches in the aftermath of the crisis, but in Italy the reduction is more consistent. In terms of operational costs, major differences emerge. In Italy, the cost reduction is proportional to the branch rationalization. In Poland, the rationalization has taken place with less force, and the operating costs of banks have not seen a corresponding reduction.

Geographically, both Poland and Italy are characterized by specific economic zones with characteristics that distinguish them clearly. In parallel with the economic performance of these regions, they are different. Nevertheless, the dynamic expansion and reduction of bank branches do not seem to be affected by geographic region. Banks do not differentiate their regional distribution policies with the economic conditions, so as not to discriminate against the possibility of growing.

Table 1. Bank-account penetration in different countries

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Austria	97.4	97.5	97.6	97.7	97.9	98	98.9	99.3	99.3	99.4	99.4
Germany	98	98.5	98.5	98.8	98.9	99.2	99.5	99.3	99.1	99.1	99.2
France	97.5	96.9	97.8	97.9	98.2	98.5	98.6	98.7	98.6	98.7	98.7
Netherlands	98.9	99	99.4	99.1	99.4	99.2	99	98.9	98.3	98	98
Sweden	94.5	94.7	94.9	95.1	95.3	95.3	95.4	96.4	96.8	96.9	96.9
Denmark	90.8	92	92.8	93.1	93.3	95.1	95.3	95.5	95.8	96.1	96.3
Portugal	75.5	77.3	78.4	80	82.9	85.1	86.9	88.7	91.2	93.7	96.1
Spain	88	87.7	87	87	87.5	89.5	90.6	92.1	92.8	92.6	92.8
UK	93.5	94.2	94.9	94.2	93.9	93.4	92.9	92.3	91.7	91.1	90.5
Czech Republic	70.8	75.1	78.2	82.3	85.2	85.5	85.5	85.8	86.4	88	89.2
Hungary	68	69.9	71.9	73.8	75	79.9	81.2	82.9	84.1	85	86.7
Italy	74.9	74.6	75	76.2	77.6	79.2	79.6	81.6	82.1	82.9	83.1
Greece	85.7	86.4	86.3	86.3	86.3	86.3	86.7	87.5	85.6	84.4	82.2
Poland	55.5	57.5	60.9	65.1	68.9	71.2	71.6	72.6	74.9	78.8	81
Romania	30.6	31.7	33.1	34.8	36.8	39.2	41.9	45.1	46.3	46.8	47.7

Source: own study based on [ZBP 2014].

At this point it may be useful to adopt a European perspective. In the following tables, the data of bank branches in Poland and Italy are reported, along with those of other European countries (Table 1). The data concerning Bank-account penetration

show, in the last survey, that Poland and Italy have an almost similar level, slightly lower than that of other Western European countries: 81 and 83.1, respectively. The way in which Poland got to these levels is different: in 10 years, the country has recovered the gap accumulated in previous years, and now stands at levels equal to Italy, Czech Republic, Hungary and Greece.

Identification of determinants affecting the percentage of persons holding bank account(s) was carried out using data at the level of the national economies of Poland and Italy, as well as an average sample of 28 countries of the European Union in 2003-2013. The explanatory variable is the penetration ratio, calculated as the percentage of persons in the society holding at least one bank account. The verification of this consisted of a regression analysis:

$$Ap_{i,t} = \alpha + \theta Ap_{i,t-1} + \sum_j \beta x_{it} + \eta_i + \gamma_t + \varepsilon_{it}$$

For $i=1, \dots, N$ countries and $t=2, \dots, T$ years, where Ap (Account penetration) is the population holding an accounts(s) per 100 residents, β is a matrix of regression parameters, x is the explanatory variables vector, η is unobservable constant factor characteristic for the country, γ is unobservable constant factors for individual periods, ε is an error expression. θ is *Account penetration*.

Table 2. Variables and data sources in the model

Variables	Symbol	Explanation
Penetration ratio	AccountPen	population holding an account(s) per 100 residents
Trust index	Trustindex	index of the social trust
EBCcontrol variables	Noatm_pop	number of ATMs per 1 mln residents
	Bankbranch	number of bank branches per 100 000 residents
Eurostat control variables	Urban	urbanization rate (in %)
	Secondary	percentage of persons with secondary education (% of population)
WDI Control variables (World Development Indicators)	GNI	national income per capital according to PPP
	Cons	consumption expenditure (% GDP)
	Interest	interest rate of loans

Source: own study.

The selected estimation method was the Generalized Method of Moments (GMM) of the dynamic cross-sectional time-series sample conducted simultaneously on levels and on the first differences.

Instrumental variables in all regressions were endogenous instrumental variables of the Generalized Method of Moments (GMM), i.e. in case of equation first differences – differences of explanatory variables and the second lag level of explanatory variables. In the case of equivalent levels, these were lagged as first differences of explanatory variables.

Table 3. Results of estimates for each model

	Poland	Italy	EU
AccountPen	0.870***	0.874***	0.970***
	(28.34)	(27.39)	(42.31)
Trustindex	0.452***	0.372 *	0.612***
	(2.87)	(2.42)	(6.23)
Noatm_pop	0.00298	-0.00315	0.00278
	(0.81)	(-0.48)	(0.42)
Cons	0.121	-0.363	0.211
	(1.36)	(-1.44)	(2.21)
Urban	0.521	0.614**	0.721
	(3.22)	(2.70)	(2.14)
Secondary	-0.132	-0.120*	-0.102
	(-1.16)	(-2.17)	(-2.34)
Bankbranch	0.181	0.171	0.122
	(1.71)	(1.34)	(2.10)
Interest	0.0687	0.0561	0.0321
	(0.28)	(0.23)	(0.18)
GNI	0.000786**	0.000652**	0.000321**
	(3.42)	(2.89)	(2.50)
Constant	-37.23***	-25.48	-22.73***
	(-4.22)	(-2.79)	(-4.97)
Number of observations	80	80	270
Ar (2)	0.33	0.37	0.28
Sargan	0.22	0.18	0.32

Note: values in brackets show standard error, symbols * indicates significance at the level of 10%, ** significance at the level of 5%, *** significance at the level of 1%; “AR (2)” shows threshold value of Arellano-Bond’s statistical test to the presence of autocorrelation of the second order; the threshold value of Sargan’s statistical test refers to the correctness of instruments.

Source: own study.

The starting point for the estimation of models was the observation that the penetration ratio remains relatively constant over time. For this reason, the lagged variable of $\theta Account\ penetration_{i,t-1}$ was used in the study, which turned out to be most statistically significant and resistant to adding other variables in the study. It corresponds with the relation resulting from population habits. Also, the trust impact turned out to be very statistically significant. These two variables practically described the entire variation of the explanatory variable. Their influence was not only statistically significant, but also large in terms of the economic size and

resistance to adding remaining variables to the model. It referred both to Poland and Italy, as well as to the entire European Union.

In addition, in Poland the number of branches per 100,000 residents has a greater significance than in Italy. However, in Italy to a large degree the urbanization has an influence, which is related to the migration of the population to urban centres. “Differences in character” factor has an influence on the penetration ratio, a variable determined as the consumption expenditure. Its effect for Poland is directly proportional, for Italy inversely proportional. As expected, in the inversely proportional form there is an influence on the penetration ratio of the variable relating to the percentage of the population with secondary education, which was confirmed with regards to Poland and Italy. It was also confirmed within the EU as a whole. However, the following variables were insignificant:

- national income per capital (GNI) – Poland had a large impact relating to the following entities;
- interest rates of loans;
- number of ATMs per 1 million residents.

The correctness of the discussed models was subjected to diagnostic tests. Problems with autocorrelation of the second order were shown in none of the cases with Arellano-Bond’s test. During the diagnostic tests using Sargan’s statistics, problems with the selection of the instrumental GMM variables were not observed.

5. Conclusion

In this paper, we analysed the data concerning the choice of opening and closing new bank branches. The comparison between Poland and Italy, unexpectedly, has many similarities despite their very different economic histories.

The first similarity appears in the behaviour of intermediaries in increasing the size of the branch network as soon as the rules allow. This upward trend may be motivated by two complementary reasons: first, the previous regulation tended to undervalue the network of bank branches; second, the managerial choice of the increase in branches allows banks to gain market share at the expense of other operators.

The effort to gain competitive positions through the network of branches has led, in Italy and in Poland, to an increase in operating and personnel costs. The reduced efficiency of banks became evident with the financial crisis.

Consequently, the banks began a process of rationalization of the branches to reduce costs. The reduction in branches in Italy has had a greater impact than that observed in Poland. Even more pronounced is the reduction of people employed in the financial system. In Italy, the largest impact of the reduction process was motivated by an exuberant growth between 1990 and 2008. In Poland, whilst observing a slowdown in the growth of the branch network, we have not seen as strong a cut in resources, as in Italy.

The Europe-based analysis it is useful to identify the customer behaviour in the tendency to set up a bank account. Our hypothesis was not confirmed. The size of the banking network does not affect the tendency to open accounts. In this case, social factors, such as confidence in the banking system or habits, have more of an effect.

The similarities found between Poland and Italy suggest a similar pattern of behaviour of the banks. Future research may focus on the study of variables that drive the choices of banks, and on the other hand, on the search for an assessment model of the attractiveness of regions in which to open a new bank branch.

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