

## **DOES CONSOLIDATION AFFECT THE NUMBER OF BANK EMPLOYEES – AN EXAMPLE OF POLAND IN 1997–2013**

Sylwester Kozak

Warsaw University of Life Sciences – SGGW

**Abstract.** The paper examines the impact of consolidation of the banking sector on the number of bank employees in Poland in the years 1997–2013. Using the quarterly banking and macroeconomic data and the multivariable regression model, it was proved that banks cut the number of their employees with growing concentration of the banking sector. The process is accelerated with the improvements of the macroeconomic conditions and increasing the level of technology applied in the banking operations. Banks reduced their employment with the growing value of their assets. Additionally, raising competition in the lending and deposit markets force banks to expand their employment.

**Key words:** employment in banks, consolidation, banking sector, Poland

### **INTRODUCTION**

The recent growing consolidation of the banking sector raises questions about the extent of changes in the number of employees. On the one hand, banks opt for a merger expecting to reduce the unit operating cost, what usually is done by reducing the number of employees. On the other hand, the experience presented in the literature indicates that consolidation does not necessarily lead to downsizing of the employment. In addition, the rate of change in the number of employees depends on the size of banks, the level of development of the banking sector and the state of the macroeconomic environment in which they are operating.

The aim of this paper is to present the analysis of changes in the number of employees in the banking sector in Poland in the years 1997–2013 and the relationship between the number of banks' staff and the banking sector concentration, as well as other sectoral and macroeconomic variables. This study fills a gap that exists in the literature on changes in the level of employment in banks resulting from the process of the banking sector consolidation.

---

Corresponding author – Adres do korespondencji: Sylwester Kozak, Faculty of Economic Sciences, Warsaw University of Life Sciences – SGGW, Nowoursynowska 166 , 02-787 Warszawa, Poland, e-mail: sylwester\_kozak@sggw.pl

The remaining part of the paper is structured as follows. The next section presents sources of data and the methodology of the research, followed by the literature review on the changes in the bank employment in the context of the consolidation, presentation of the changes in the banking sector in Poland, and the results of the current research results. The whole analysis is summarized in the conclusions.

## MATERIAL AND METHODS

The study covers developments which took place in the banking sector in Poland in the period 1997–2013. The data on the banking sector come from the National Bank of Poland (NBP) and the Polish Financial Supervision Authority (PFSA). The macroeconomic data come from the Central Statistical Office (GUS).

A multivariate regression model (Ordinary Least Squares Method, OLS) was used to analyze the relationship between the number of bank employees and banking and macroeconomic variables. The calculations were performed with the statistical software STATA version 11.

## CONSOLIDATION AND EMPLOYMENT – THE LITERATURE REVIEW

The consolidation of the banking sector is generally motivated by the need to improve operating efficiency and achieve the economy of scale and the economy of scope. This process is carried out continuously, and the rate of its dynamics depends, among others, on the banking regulations, technological developments, changes in the system of operation of the banking sector. Consolidation is usually associated with a drop in the number of employees. In particular, in Europe the banking sector consolidation was impacted by the regulatory changes implemented by the Second Banking Directive<sup>1</sup>, which established the common pan-European financial system in 1993. In 1994 the common banking area was extended on the EFTA countries<sup>2</sup>. The next stimulus of consolidation came from the establishment the euro zone in 1999. Important examples of the intensive consolidation were banking sectors of Germany, France and the Netherlands. Between 1990 and 1997, the number of banks in these countries fell from, respectively, 4,720, 2,027 and 111, to respectively, 3,578, 1,299 and 90. At the same time, the number of bank employees

---

<sup>1</sup> The Second Banking Directive provided a legal basis for the creation of a single EU banking system, in which each credit institution registered in any Member State has the right to perform banking activities across the EU. Also it allowed banks to sell insurance services; “Second Council Directive 89/646/EEC of 15 December 1989 on the coordination of laws, regulations and administrative provisions relating to the taking up and pursuit of the business of credit institutions and amending Directive 77/780/EEC” [OJ L 386, 30/12/1989, p. 1].

<sup>2</sup> The agreement between the European Union and the European Free Trade Association forming from 1 January 1994 the European Economic Area (EEA) has extended the area of the single banking system to countries of the European Free Trade Association (EFTA), namely Iceland, Liechtenstein and Norway; “Agreement on the European Economic Area of 17 March 1993” [OJ L 1, 03/01/1994, p. 572].

decreased from, respectively, 888, 473 and 126 thousand to, respectively, 751, 427 and 115 thousand [ECB 1999].

Weber [2000] indicates the employment reduction by mergers and acquisitions of banks. Based on the survey conducted by the European Trade Union Federation (UNI-Europa), she states that only due to the mergers conducted in the 1990s the banking sector closed down about 130 thousand jobs. She further notes that mergers often led to increased pressure on the remaining staff, whilst expecting to increase their operational flexibility, and extending the number of working hours.

The reduction in the number of bank employees in the 1990s in Europe is emphasized by the report of the International Labor Organization [ILO 2001]. One of the significant examples was Denmark where, between years 1990 and 1995, the number of bank employees fell from 51 to 43 thousand. Similar changes took place in the Czech Republic, where between years 1994 and 1999 the overall employment in banks fell from 59 to 49 thousand, what contributed to a reduction in the average number of employees per bank from 3,467 to 2,006. This was done, among others, through privatization and takeover of state-owned banks by foreign investors and technological development in the banking operations. Employment restructuring was based largely on the centralization of such operations as cash management, processing checks, and call-center services [ILO 2001, pp. 45–51].

Heiney [2009], analyzing changes in the number of bank employees in the USA in 1992–2004, shows that the abolition of barriers to interstate banking introduced by the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994<sup>3</sup> contributed to the gradual reduction in the number of banks from 11,463 in 1992 to 7,630 in 2004. On the other hand, throughout this period the number of bank employees gradually increased from about 1.5 to 1.8 million. The upward trend in the number of employees resulted, among others, from the development of the branch network organized accordance to the banks' strategy of approaching customers<sup>4</sup>. Heiney also indicates the existence of differences in rates the employment growth in the consolidating banking sector. The largest increases in employment were recorded in the group of the largest banks and moderate in the medium banks, but in the smallest banks the number of employees decreased.

The complexity of nature of the relationship between the number of employees and the banking consolidation is also manifested in the geographical and timing dependence. Amel et al. [2002] argue that these changes depend on the country and the period when the significant consolidation occurs. Additionally, Heiney [2008] shows that these changes depend on the size of merging banks. In Western Europe during the consolidation of 1990–1996, in some countries the increase in the number of bank employees followed the increase in the number of bank branches. However, in subsequent years the number of employees declined, despite an increase in the number of branches [ILO 2001, p. 65]. Such directions in the changes of bank employment resulted from the reorganization of the system of banking operations and the increase the use of outsourcing. Some banking activities were transferred to non-bank financial institutions such as investment companies, brokerage firms, real estate brokerage companies [ILO 2001, p. 72].

---

<sup>3</sup> The Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994 authorized, from June 1995 to take over the banks domiciled in another state than the bank initiating takeover.

<sup>4</sup> Between 1992 and 2004 the number of bank branches increased from 51.6 to 70.3 thousand [Federal Deposit Insurance Corporation website, [www.fdic.gov](http://www.fdic.gov)].

Another factor affecting the level of employment during banks' consolidation is the relationships between bank employees and customers, and the added value stemming from the long-term cooperation between them. In such circumstances, the liquidation of jobs directly serving customers introduces the risk of losing customers and with them a substantial amount of "soft" business information. Therefore, in the course of consolidation, particularly in periods of expansion, these groups of employees were not a subject of restructuring [Amel et al. 2002].

An important aspect of consolidation is the reduction of operating costs, especially the labor costs which account for their largest share. In the 1980s in the USA merging banks used consolidation to reduce costs through the elimination of the highly paid positions and replacing them with low-paid ones [Amel et al. 2002].

### **STRUCTURAL CHANGES OF THE BANKING SECTOR IN POLAND IN 1997–2013**

In the development of the Polish banking sector the period between 1997 and 2013 could be divided into two stages: preparation for Poland's entrance to the EU in 1997–2003, and integration with the single EU banking system 2004–2013.

The first period was distinguished by the privatization of most of state-owned banks, followed by the strong consolidation wave. Several majority foreign investors, who controlled more than one subsidiary in Poland, consolidated their operations within large universal banks, which they already acquired during the privatization process<sup>5</sup>. Such decisions were taken to exploit economy of scale and improve efficiency of the entire banking group operating in Poland.

Consolidation took also place within the group of cooperative banks. In the pre-accession period cooperative banks were required to raise equity to 300 thousand EUR by the end of 2001<sup>6</sup>. Large group of small banks was unable to fulfill this requirement, what resulted in approximately 600 bank mergers [NBP 2006]. As in the case of commercial banks, this consolidation process has not reduced the number of branches and the number of employees. At that time, numerous mergers in the banking sector led to an increase in its concentration (Fig. 1).

However the significant reduction in the number of operating banks was accompanied with the increase in the number of branches and bank employees. Another feature of this period was relatively low GDP growth and the high, albeit declining value of interest rates. After Poland's accession to the EU, development of the banking sector significantly accelerated. Important factors of this process included the strong economic growth, the inflow of the EU aid funds and on the real estate boom. The growing importance of medium-sized banks offering housing loans contributed to a gradual downward trend in the level of the banking sector concentration.

<sup>5</sup> Consolidation carried out within capital groups include: ING Bank Śląski, Citi Bank Handlowy, Bank Zachodni WBK, Bank Millennium (see annual synthesis on the financial situation of banks – the Polish Financial Supervision Authority <http://www.knf.gov.pl/en/index.html>).

<sup>6</sup> The requirement was imposed by the Act of 7 December 2000 on the functioning of cooperative banks, their associations and associated banks (Journal of Laws of 2000 No 119, item 1252).

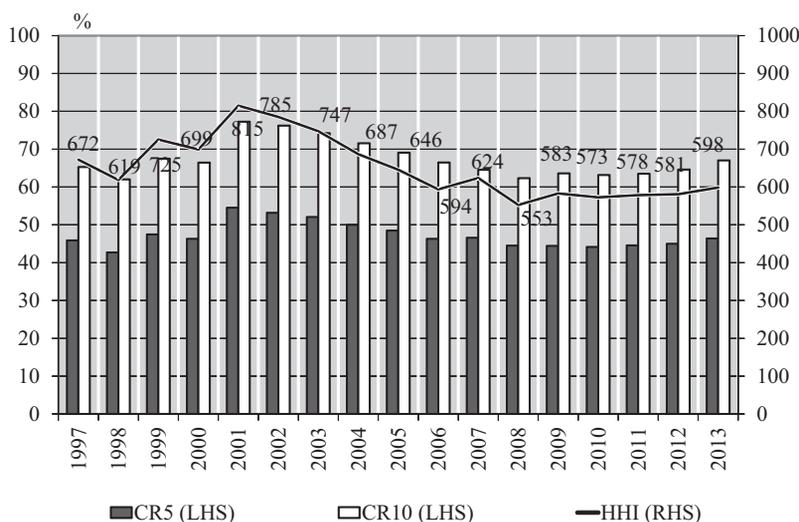


Fig. 1. Concentration of the banking sector in Poland in 1997–2013

Source: Own calculations based on the data from PFSA and NBP.

The outbreak of the financial crisis of 2008 reshaped development strategies of banks. The stagnation in the real estate market and low demand for loans significantly contributed to the reduction of branch networks, as well as the drop in the number of employees. At the same time banks focused their attention on the technological improvements. They increased the number of accounts operated via the Internet and mobile phones. Implementation of such strategies caused reorganization of banks' business models and shifted activities previously performed by employees in branches to the Internet, where customers completed them by themselves [NBP 2012, p. 77].

Additionally, the crisis impacted the demand and the supply sides of the banking business. Large corporations, small and medium sized enterprises (SME) and households refrained from taking loans, while banks restrict their lending policies based on the uncertainty of the further economic developments. The shortage of funds on the interbank market put pressure on competition for the households' deposits. These factors raised labor input to the deposit and lending operations.

## RESULTS

To examine the impact of consolidation and the size of banks on the number of employees the multivariate regression model was applied. The number of employees is a dependent variable and explanatory variables in the model are:

- concentration – represented by the indicators: CR<sub>10</sub> (the share of 10 largest banks in the banking sector assets) and HHI (the sum of squares of banks' shares of in the banking sector assets). The concentration is expected to impact the number of employees

in deferent ways. On the one hand, in a more concentrated sector a small group of large banks could exploit economy of scale and reduce the number of employees: expected negative sign of the variable coefficient (–). On the other hand, the increasing concentration contributes to a reduction in competition and efficiency of banks, raising the number of employees (+);

- assets (natural logarithm) – an increase of size of the banking sector, among others, due to its expansion, requires more employees (+). However, the relationship do not have to be such straightforward when banks dedicate their attention to the Internet banking;
- loan-to-deposits – the ratio of loans to deposits of the non-financial sector represents the structure of funding of the lending operation and the level of financial liquidity. An increase in this ratio reflects banks' expansion in lending, what requires larger labor forces (+);
- rate of branches' number growth (annual) – development of the branch network may differently affect the level of employment in banks. Traditionally, banks provide services through employees at branches, and with the network extension the number of employees should raise (+). However recently, banks follow the strategy of small outlets located in the shopping malls, and gradually replace the large branches. In such circumstances the increase in the number of outlets, does not necessarily raises the number of employees;
- GDP growth (annual rate) – the increasing rate of the economic conditions is usually associated with the technological development enabling banks to replace a large number of labor intensive positions with a lower number of more technologically advanced ones (–). On the other hand, the economic growth raises demand for more complex and higher quality banking services, what mostly requires more employees (+);
- NBP lombard rate – represents the level of interest rates in the banking sector and is expected to raise the number of employees. The level of interest rates generally tend to rise during the expansion of the banking sector, what requires an increase in employment, while during periods of economic downturn the relationship is reverse (+).

Quarterly data were used in the research. In case of the GDP growth a 2-quarter lag was applied, as the macroeconomic impulses impact the banking sector mostly with some delay. Similarly, in case of the NBP lombard rate a 1-quarter lag was applied, as it takes commercial banks approximately one quarter to adapt their interest rates to the interest rates change made by the central bank. The distributions of the variables used in the multivariate regression model are shown in Table 1.

As the Poland's entry into the EU significantly impacted the way of banking sector development, the relationship between the number of workers and the explanatory variables was analyzed in three options, namely for: the entire analyzed period, 1997–2013; 1997–2003 and 2004–2013. Additionally, to double-check the results two sets of calculations were carried out using two measures of the degree of concentration – CR<sub>10</sub> and HHI. The results of calculation are presented in Table 2.

Table 1. Polish banking sector and economy characteristics – descriptive statistics

Specification	Mean value	Standard deviation	Minimum	Maximum
Number of employees (person)	167 676	19 299	149 802	186 955
Asset – natural logarithm (bn PLN)	6.69	0.38	6.13	7.43
HHI (–)	660.21	84.01	541.95	814.76
CR <sub>10</sub> (%)	67.47	4.59	61.37	77.28
Branches growth rate (%)	0.67	6.9	–21.10	31.8
Loans-to-deposits (%)	83.38	16.33	65.83	109.49
GDP growth (%)	104.05	2.12	100.36	107.70
NBP interest rate (%)	11.31	7.54	4.50	27.00

Source: Own calculation based on the data from GUS and NBP.

Table 2. Relationship between the number of bank employees and the banking and macroeconomic variables in Poland in 1997–2013

Specification	1997–2003		1997–2013		2004–2013	
	CR <sub>10</sub>	HHI	CR <sub>10</sub>	HHI	CR <sub>10</sub>	HHI
Assets (logarithm)	–5 347.02 (–1.25)	–4 500.29 (–1.08)	31 600.96 <sup>b</sup> (0.04)	4 403.73 (0.31)	–5 893.59 <sup>a</sup> (–3.22)	–5 833.98 <sup>b</sup> (–2.68)
CR <sub>10</sub>	24.47 (0.17)	–	–538.46 <sup>b</sup> (0.04)	–	–618.14 <sup>a</sup> (–5.35)	–
HHI	–	18.11 (1.67)	–	10.49 (0.58)	–	–29.86 <sup>a</sup> (–3.44)
Loans-to-deposits	904.01 <sup>a</sup> (8.96)	931.59 <sup>a</sup> (9.8)	–1 088.85 (0.12)	–250.52 (–0.61)	763.88 <sup>a</sup> (14.74)	813.96 <sup>a</sup> (13.74)
Branches growth rate	3 486.75 (0.61)	6 209.79 (1.12)	12 6715.80 <sup>a</sup> (4.78)	16 3387.60 <sup>a</sup> (3.92)	–339.21 (–0.22)	–1 280.46 (–0.49)
GDP growth	–954.48 <sup>a</sup> (–3.29)	–702.99 <sup>b</sup> (–2.52)	129.63 (0.75)	–151.08 (–0.33)	–79.21 (–0.74)	–218.51 (–0.50)
NBP interest rate	1 784.63 <sup>a</sup> (9.70)	1 611.77 <sup>a</sup> (8.37)	373.31 (0.21)	761.58 <sup>b</sup> (2.49)	–322.14 (–0.16)	–67.1577 (–0.13)
Constant	205 540.80 <sup>a</sup> (4.61)	162 763.80 <sup>a</sup> (3.92)	57 979.59 (0.55)	149 903.50 (1.42)	186 888.40 <sup>a</sup> (5.56)	171 916.20 <sup>a</sup> (4.27)
Number	66	66	30	30	36	36
F-statistic	88.06	95.5	30.11	25.09	580.42	410.17
R-square	0.90	0.91	0.89	0.87	0.99	0.99

a, b, c – means the degree of significance at the level of 1, 5 and 10% respectively; the number in parentheses represents t-statistic.

Source: Own calculation based on the data from GUS and NBP.

The results of the research indicate that the increase of the value of assets affects the number of the bank employees in different ways. Before Poland's entrance to the EU to grow operations banks had to extend their networks of branches and hire more employees. The system of supply of banking services was more labor intensive in that period of time. On the other hand, the negative sign of the coefficient responsible for banks' assets could be explained with the increasing importance of information and telecommunication technology in the banking operations.

The negative sign of the concentration coefficient indicates that the decrease in concentration, and thus improvement of the conditions for competition, is associated with an increase in employment in banks. The direction of this relationship is valid for both analyzed periods, it means, before and after Poland's accession to the EU. Such relationship could be explained by the fact that the increasing competition forces banks to improve the way of the customer service, what means, among others, much extended range of services, improvement in the service quality or reduction of the time necessary for provision of the service to customers. After 2004, banks experienced raising competition in the markets of housing and consumer loans, and non-financial sector deposits. They were forced to dedicate more staff to perform these services. The achieved results of the concentration – employment relationship were confirmed with application of both concentration indicators –  $CR_{10}$  and HHI.

The positive sign of the loans-to-deposits coefficient indicates that the number of employees increases with the lending expansion of banks. The relationship is particularly relevant in the second part of the analyzed period which covers the real estate boom. The higher amount of granted loans and increasing competition in the housing loans market required an increase in the staff responsible for granting loans, and also for monitoring their repayment schedule and the value of collateral.

The positive impact of the increasing rate of the growth of the branch network on the number of bank employees was particularly noticeable in the period before Poland's accession to the EU. This could be attributed to the difference in the way of the banking sector operation in both analyzed sub-periods. At the turn of the 1990s and 2000s banks served their customers mainly at their locations. Therefore the expansion of the branch network required hiring of additional employees.

The reason why the acceleration in the economic growth results in the reduction of the number of bank employees could be associated with the fact that the higher pace of the economic development usually goes along with the technological development. High technology allows banks gradually automate performance of the banking operations and shift location of their execution from branches to households and enterprises. Important channels of this transmission became the Internet and the mobile telecommunication. Since 2008 this process in the Polish banking sector has gained much attention for individuals and the SME sector.

The positive relationship between the number of employees and the level of interest rates in the banking sector particularly manifested itself in the first analyzed period. This may be associated with low economic growth, higher credit risk of businesses and the need to apply higher risk premiums. At the same time the low technological development of banks and greater labor intensity of the banking operations required higher number of employees.

## CONCLUSIONS

The results of the research prove that the consolidation of banks significantly impacts the number of bank employees. Banks raise the number of their staff when the level of the sector concentration falls and the competition in the banking sector increases. This relationship is especially noticeable in the period 2004–2013, when banks were forced to compete in the lending and deposit markets and to increase the employment to satisfy customers.

The negative impact of the growing value of banks' assets on the number of banking employees confirmed the tendency of reducing banking staff with the growing consolidation. Especially after the EU accession growing banks equipped with high technology devices cut the number of their staff.

Additionally, consolidation impacts conditions for the banking competition. The raising competition in the lending market forces banks to increase the number of employees and improve the quality of the banking services.

## REFERENCES

- Amel D., Barnes C., Panetta F., Salleo C., 2002. Consolidation and efficiency in the financial sector: a review of the international evidence. Banca d'Italia, Roma.
- ECB, 1999. Possible effects of EMU on the EU banking systems in the medium to long term. European Central Bank, Frankfurt, Occasional Paper – February.
- Heiney J., 2008. Consolidation, asset size, distribution, and employment in the U.S. banking industry. *Journal of Business & Economics Research* 6, 1, 75–78.
- Heiney J., 2009. The effect of consolidation on employees in the U.S. banking industry. *Journal of Business & Economics Research* 7, 3, 7–11.
- ILO, 2001. The employment impact of mergers and acquisitions in the banking and financial services sector. International Labour Organization, Geneva, Report for discussion at the Tripartite Meeting on the Employment Impact of Mergers and Acquisitions in the Banking and Financial Services Sector, Sectoral Activities Program TMBF/2001.
- NBP, 2006. Cooperative banks in Poland. Narodowy Bank Polski – Banking Supervision Committee, Warszawa [in Polish].
- NBP, 2012. Financial System Development in Poland in 2011. Narodowy Bank Polski, Warszawa [in Polish].
- Report on the condition of banks. Editions of 2000–2003. Narodowy Bank Polski, Warszawa.
- Weber T., 2000. The impact of mergers and acquisitions on employees in the financial services sector. In *The Impact of Mergers and Acquisitions in the Banking and Insurance Sector*. [electronic resource] <http://library.fes.de/pdf-files/netzquelle/01546.pdf>.

## CZY KONSOLIDACJA WPŁYWA NA LICZBĘ PRACOWNIKÓW W BANKACH – PRZYPADEK POLSKI W LATACH 1997–2013

**Streszczenie.** Opracowanie analizuje wpływ konsolidacji sektora bankowego na liczbę pracowników banków w Polsce w latach 1997–2013. Stosując kwartalne dane bankowe i makroekonomiczne oraz model regresji liniowej z wieloma zmiennymi objaśniającymi,

wykazano, że banki zmniejszają poziom swojego zatrudnienia wraz ze wzrostem koncentracji sektora bankowego. Proces ten intensyfikuje się wraz z poprawą sytuacji makroekonomicznej i poziomem technologicznym stosowanym w działalności operacyjnej banków. Wzrost wartości aktywów banków wpływa na zmniejszenie liczby zatrudnionych pracowników. Ponadto podnosząca się konkurencja na rynku kredytów i depozytów wymusza na bankach wzrost zatrudnienia.

**Słowa kluczowe:** zatrudnienie w bankach, konsolidacja, sektor bankowy, Polska

Accepted for print – Zaakceptowano do druku: 24.04.2014