

Varazdin Development and Entrepreneurship Agency
in cooperation with
University College of Inspection and Personnel Management in Split
The University of Applied Sciences Baltazar
University North
Faculty of Management University of Warsaw
Faculty of Law, Economics and Social Sciences Sale - Mohammed V University in Rabat



Economic and Social Development

44th International Scientific Conference on Economic and Social Development

Book of Proceedings

Editors:

Mila Nadrljanski, Jasmina Grzinic, Katarzyna Kinga Kowalczyk



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DETERMINANTS OF BANK PROFITABILITY: EVIDENCE FROM THE CZECH BANKS

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ABSTRACT

This paper is focused to construct model to examine the influence of selected determinants of profitability in the Czech banking sector. The goal of composing the simultaneous equation model is to verify and roughly quantify the assumed relationship between profitability in the Czech banking sector and selected determinants (variables) in period 2004–2017, i.e., 481 observations. As a part of the model that was designed, we verified the hypothesis that profitability in the Czech banking sector depends on selected determinants at a 0.05 level of significance. We tested the given data with the goal of verifying the proposed hypotheses on whether profitability (ROA, ROE) in the Czech banking sector is influenced by capital adequacy, balance sheet, taxation rate, the central bank's interest rates and GDP per capita. For verifying the hypotheses, we created a 2–equation model with nine variables. The model is estimation for two stochastically variable. The composed simultaneous equation confirmed influence was also confirmed only for certain determinant. The research question verifies the assumption that the ROE ratio is positively influenced by the inflation rate and the central bank's interest rates. The second equation assesses the mutual ties between ROA ratio and capital adequacy, taxation rate and gross domestic product per capita. The research question verifies the assumption that the ROA ratio is negatively influenced by the taxation rate and GDP per capital. The ROA has the heterogeneous relationship with capital adequacy. All the Czech banks analysed were achieved statistically significant influence of taxation rate on ROA. Using the proposed simultaneous equation model, it is possible to verify and roughly quantify the assumed relationship between the Czech banking sector's profitability and selected determinants.

Keywords: *Czech bank, identifiability, profitability, simultaneous equations*

1. INTRODUCTION

The reasoning behind using a system of simultaneous equations is that it has been used in a similar way in scientific studies by Greene (2003), Chow (1960), Aggarwal, Jacques (2001), and Easton et al. (2002), for example. They used simultaneous equations to construct macroeconomic models, primarily in the areas of employment, national ownership, production, and modeling time series. The goal of this paper is to compose a model that examines the influence of selected determinants of profitability in the Czech banking sector during the years 2004–2017 by using a simultaneous equation model with a structural form and while preserving

the economic interpretation and limitations of the model's individual parameter. Empirical studies dealing with banking sector profitability often express profitability as only one equation containing banking, macroeconomic and regulatory ratio. Analysis of the banking sector's profitability is focused only on constructing basic regression models (scientific studies by Maudos, de Guevara, 2004; Bourke, 1989; Huizinga, 2000; Molyneux, Thornton, 1992; etc.); at the same time, the data set comprises data for individual banks and the size of the sampling frame amounted to hundreds of values. A closer look at the individual determinants influencing the banking sector's profitability determines that it is possible to define mutually independent and analytically dependent equation. This means that profitability should be described using a system of simultaneous and mutually dependent equation. This paper begins with the assumption that profitability in the Czech banking sector will be dependent on capital adequacy, balance sheet total, taxation rate, inflation rate, the Czech National Bank's interest rates and gross domestic product per capita. A two-equation model will be created with nine variables. Data for the established period will be entered into the simultaneous equation model, and analysis will be conducted separately for the individually selected bank. On account of data availability for all the years examined, the following banks were included in the model: Česká Spořitelna (CS), Československá Obchodní Banka (CSOB), Komerční Banka (KB), Raiffeisenbank, UniCredit Bank, Citibank, J&T Banka, LBBW and Sberbank. Bank selection further evolved due to the banking sector's heterogeneity concerning the size of the balance sheet total.

2. LITERATURE REVIEW CHAPTER

Short (1979) and Bourke (1989) published as first studies which attempted to identify some of the major determinants of bank profitability. There is a large literature dealing with determinants that influence the profitability of banks. The literature divides the determinants of bank profitability into internal and external factors to the bank. Studies on the determinants of bank profitability have typically focused on the returns on bank assets (ROA) and return on equity (ROE). More recent studies have expanded the number of determinants considered. Many studies (e.g. Bikker, Hu, 2002; Abreu, Mendes, 2002; Molyneux, Thornton, 1992; Bourke, 1989; Dietrich, Wanzenried, 2014; Djalilov, Piesse, 2016; Short, 1979; Revell, 1979; Bolt et al. 2012; Petria et al., 2015; Lui, Wilson, 2010) have examined the effect of bank profitability on bank-specific characteristics (i.e. capital ratio, operational efficiency, bank size, ownership and concentration) and macroeconomic characteristics (i.e. inflation and GDP). The empirical studies have focused their analyses either on cross-country evidence or on the banking system of individual countries. The studies by Molyneux, Thornton (1992), Demirgüç, Kunt, Huizinga (1999), Abreu, Mendes (2002); Bourke (1989), Djalilov, Piesse (2016) or Petria et al. (2015) investigate a panel data set. Some of these studies investigated bank profitability determinants for European banks (Abreu, Mendes, 2002; Molyneux, Thornton, 1992; Maudos, de Guevara, 2004; Djalilov, Piesse, 2016). Studies by Dietrich and Wanzenried (2011), Athanasoglou et al. (2008), Horváth (2009); Berger (1995) or Lui and Wilson (2010) focus their analyses on single countries. A number of authors have focused profitability analysis on research on the combination of internal and external determinants of bank profitability, such as balance sheet total (Černohorský and Prokop, 2016), capital size (Smirlock, 1985 or Short, 1979), inflation (Revell, 1979), gross domestic product (Bikker, Hu, 2002) etc. Bank size has been traditionally measured according to balance sheet total. The CNB's method also comes out of this assumption; it divides banks into three groups according to balance sheet total: large, medium and small. Bank size and profitability closely relate to a bank's capital adequacy (Short 1979). Large banks tend to rise cheaper, i.e., foreign capital, and therefore appear to be more profitable. For more information about capital adequacy see Černohorský, Šobotníková, Teplý (2011).

The selection of bank profitability determinants is based on the mentioned above studies and data availability. We classify as dependent variables ROA and ROE. We choose as independent variables capital adequacy, balance sheet total, taxation rate, the central bank's interest rates, inflation rate and GDP per capita.

3. METHODOLOGY

The first pioneer of the theory of simultaneous equations was Haavelmo in 1943 (Haavelmo, 1943). Other significant statisticians in this area were Anderson, Rubin and Hurwicz, who primarily dealt with studying the estimate of structural parameter. The first steps in the direction of expanding econometric theory were recorded in the 1960's in the work of Basman (1957), Bergstrom (1962) and Kabe (1963, 1964). In these, the densities of score functions were deduced for the two-stage method of least squares and the ordinary least squares method (LSM) in simple simultaneous equation model. MSR may be explanatory variables and endogenous variable. Differentiation shall be still "predetermined" variable – the explanatory variables uncorrelated on error term into individual equation. Linear SEM (SEM interdependent type) included on n observations in total q endogenous variables y_1, \dots, y_q , next p predetermination variables x_1, \dots, x_p and q error term $\varepsilon_1, \dots, \varepsilon_q$, then:

its structural form are obtainable as (1)

$$Y \cdot \Gamma + X \cdot B = E \quad (1)$$

where

$Y = (y_{ij})$ is $n \times q$ the matrix endogenous variables,
 $\Gamma = (\Gamma_{ij})$ is $q \times q$ regular the matrix structural endogenous parameters,
 $X = (x_{tk})$ is $n \times p$ the matrix predetermination variables,
 $B = (\beta_{kj})$ is $p \times q$ the matrix structural predetermination parameters,
 $E = (\varepsilon_{ij})$ is $n \times q$ the matrix error term structural form,
 $t = 1, \dots, n, i, j = 1, \dots, q$ and $k = 0, \dots, p$.

provided of regularity square matrix structural parameters Γ be the solution of the whole system of structural equations (1) to reach the reduced form (2)

$$Y = X\Pi + F \quad (2)$$

Where

$$\Pi_{p \times q} = -B\Gamma^{-1}, F_{n \times q} = E\Gamma^{-1} \quad (3)$$

The term (2) is expressed as an unlimited reduced form. This form of simultaneous equation can be compatibly estimated by the classic LSM. Due to this, it is necessary to check the so-called identifiability of the structural equation for the reason that different sets of structural SEM parameters can correspond with the same set of statistical data. This fact results in the compatibility of one of the model's reduced form equations with various mutually dependent structural equations that are not possible to differentiate from each other, because they contain the same variables, i.e., the same statistical form. Identification is conducted separately for each equation. The model is identified if all its equations are identified. The condition for identifiability in simultaneous equations corresponds to condition (4):

$$k^{**} \geq g\Delta - 1 \quad (4)$$

where

- $g\Delta$... the total number of endogenous variable in the model (in all equations)
- k^{**} ... the number of predetermination variables excluded in the equation

The following order identified is:

- $k^{**} > g\Delta - 1$, the equation is overidentified,
- $k^{**} = g\Delta - 1$, the equation is exactly identified,
- $k^{**} < g\Delta - 1$, the equation is unidentified.

If the model is not identified, it is not identified with economic theory. More detail on SEM can be found, for example, in Haavelmo (1943) and Basmann (1957).

4. DATA AND MODEL SPECIFICATION

The data was acquired from the Bankscope database. Because of data availability and the development of the Czech banking sector, only nine banks were selected. These banks were the ones for which it was possible to acquire the selected ratios for the entire period of 2004–2017. We tested the given data with the goal of verifying the proposed hypotheses on whether profitability in the Czech banking sector is influenced by capital adequacy, balance sheet, taxation rate, the central bank's interest rates and GDP per capita. For verifying the hypotheses, we created a 2–equation model with nine variables. The selection of variables entering the analysis is based mostly on the works Maudos - de Guevera (2004), Bourke (1989), Huizinga (2000), Molyneux and Thornton (1992). Prior research result describing their interrelations that researchers have not considered functions to be jointly determined and use for example instrument panel regression. This article provides an integrated analysis of the interrelations among ROA - ROE and balance sheet total - capital adequacy - taxation rate - GDP per capital - inflation rate - the central bank's interest rates. It follows from this argument that panel regression cannot be used, but it used simultaneous equations. The simultaneous equations use in the analyses. The simultaneous equations used for analyses, for example, Spitzer (1977), Tuwaijri (2004) and Jacques (1997). Frequently in economic practice, we are not able to adequately determine endogenous variables with one equation, because the behavior of microeconomic and macroeconomic values is able to be satisfactorily explained only by using a set of mutually dependent relationships. This is seen when the endogenous variable and its observation are determined not only by predetermined variables but also by other endogenous variables.

4.1. Estimation Models of Simultaneous Equations

The model is estimation for three stochastically variable. It includes endogenous variables: y_{1t} , y_{2t} and predetermination variables: x_{1t} , x_{2t} , x_{3t} , x_{4t} , x_{5t} , x_{6t} and x_{7t} . We use as endogenous variables: y_{1t} ROE, y_{2t} ROA and predetermination variables x_1 unit vector, x_2 balance sheet total, x_3 capital adequacy, x_4 taxation rate, x_5 Gross domestic product per capita (GDP per capita), x_6 inflation rate, x_7 the central bank's interest rates. The random effects (or error terms) are ε_{jt} for $j = 1, 2, 3$. The forms models:

$$\begin{aligned} y_{1t} &= \beta_{12}y_{2t} + \gamma_{11}x_{1t} + \gamma_{12}x_{2t} + \gamma_{16}x_{6t} + \gamma_{17}x_{7t} + \varepsilon_{1t} \\ y_{2t} &= \gamma_{21}x_{1t} + \gamma_{23}x_{3t} + \gamma_{24}x_{4t} + \gamma_{25}x_{5t} + \varepsilon_{2t} \end{aligned}$$

Identification of the above equations for the models of simultaneous equations:

$$1. \text{ equation} \rightarrow k^{**} = 3, g_{\Delta} = 2 \rightarrow 5 > 2 - 1 \rightarrow \text{overidentified}$$

All equations fulfill the condition of identifiability. The number “g”, the total number of endogenous variables in the model, is 2. The number “k”, the total number predetermination variables in the model, is 7.

5. RESULTS OF THE ESTIMATION OF THE SIMULTANEOUS EQUATIONS FOR THE MODEL OF SELECTED BANKS' PROFITABILITY

The goal of composing the simultaneous equation model is to verify and roughly quantify the assumed relationship between profitability in the Czech banking sector and capital adequacy, balance sheet total, taxation rate, inflation rate, the Czech National Bank's interest rates and gross domestic product per capita in period 2004–2017, i.e., 481 observations. Only 486 data items go into the actual analysis. Data reduction is caused by treatment of the data in order to meet the basic conditions for simultaneous equations. The reason for data reduction was that all input variables verified for assumption of non-stacionarity. All variables showed non-stacionarity (it was verified by Dickey-Fuller test). The variables transferred to the assumption stacionarity using first-difference model. The model of simultaneous equations verified in terms of residual analysis, determination index, and statistical significance of regression parameters. We used Breusch-Pagan test for testing normality of residual. The null hypothesis was not rejected. The residues fulfill the condition of homoscedasticity (p -values were 0.1112 - 0.2135). The index of determination value fluctuated around an average of 65–70%, which points to a higher definite level of correlation. For all equations with an unconfirmed statistical significance, the value of the index of determination remains in single digit percentage. The first equation in the model expresses the ROE ratio's dependence with respect to the values for the ROA ratio, balance sheet totals, inflation rate, and the Czech National Bank's interest rate. The second equation assesses the mutual ties between the ROA ratio and capital adequacy, tax rate, and gross domestic product per capita. The two-stage least squares method was used to resolve the simultaneous econometric model with the two equations that was proposed above. Processing took place using SW GRETL. The model's first equation expresses the dependence of the ROE ratio on the value of the ROA ratio, balance sheet total, inflation rate and the Czech National Bank's interest rate. The second equation assesses the mutual ties between the ROA ratio and capital adequacy, taxation rate and gross domestic product per capita. (See Table 1)

Table following on the next page

Table 1: Parameters of individual simultaneous equations for selected the Czech Bank's - without absolute term (own calculation)

Bank			β	γ			
Large banks	CS	1. equation	13.75410	-0.00002569	0.45896	0.45987	
		2. equation		-0.011256	-0.03256	-2.6879	
	CSOB	1. equation	11.6878	-0.00002568	0.25891	0.6362	
		2. equation		-0.0032569	-0.05689	-3.59787	
	KB	1. equation	7.66515	-0.000000289	0.002099	1.25697	
		2. equation		-0.0011096	-0.06785	-3.56987	
	UniCredit	1. equation	11.256	-1.98756	0.616737	0.35645	
		2. equation		-0.20237	-0.089765	-2.49554	
	Middle banks	J&T Banka	1. equation	4.1256	-0.000002101	0.129302	0.554877
			2. equation		0.15771	-0.05698	-3.72245
		Raiffaisen	1. equation	12.7689	4.37149	0.1598	1.58975
			2. equation		0.0473318	-0.78798	-0.0002569
Sberbank		1. equation	7.5689	2.69887	0.13415	0.265405	
		2. equation		0.03689	-0.2569	-0.00001897	
Small bank	LBBW*	1. equation	1.0526	-0.000001199	0.69875	2.71623	
		2. equation		-0.02569	-0.08975	-0.0002156	
Branches of foreign banks	Citibank	1. equation	15.5876	-0.00000835	0.01258	1.8779	
		2. equation		-0.25648	-0.02569	-0.025698	

Note: *LBBW Bank CZ a. bank exist from 17. 9. 2008. Until the bank was called BAWAG Bank CZ a. (in Czech banking market). Since 1.9. 2008 100% shareholder is the third largest bank Landesbank Baden–Württemberg (LBBW).

The parameters in bold type in above were indicated as statistically significant in terms of testing statistical significance at a level of 0.05. Statistical significance was not confirmed for the other parameters; this is most likely caused by the length of the time series or an inappropriately selected function type, i.e., the selected linear function was not the most appropriate. The equations with statistical significance demonstrated for most parameters showed the value of the index of determination fluctuating at an average of 65–70%, which points to a higher definite level of correlation. For the equations with unconfirmed statistical significance, the index of determination's value remains in single digit percentage.

5.1. Economic Interpretation of the Proposed Model's First Equation

We have verified the first research question using the model that was composed – i.e., that there is statistically significant relationship between the ROE ratio and the group of independent variables not only with the expression of a quantified relationship but also with the verification of statistical significance. The research question verifies the assumption that the ROE ratio is positively influenced by the inflation rate and the central bank's interest rates.

Next the ROE has positive relationship with the ROA ratio. The ROE has the heterogeneous relationship with the balance sheet total ratio (Table 2). LBBW took a conservative approach to maintaining a strong capital base and liquid position in 2010. The bank was forced to make certain difficult decisions concerning managing the loan portfolio – mainly in the sector of corporate banking. This resulted in increasing provision. This accounting measure had significant impact on the bank's profitability and lead to them showing net loss.

Table 2: Summary of economic interpretation of the results of regression parameter model's first equation - for dependent variable ROE (own calculation)

	ROA	Balance sheet total	Inflation rate	The central bank's interest rates
CS	SV/positive	SV/negative	SN/positive	SV/positive
CSOB	SV/positive	SV/negative	SN/positive	SV/positive
KB	SV/positive	SV/positive	SN/positive	SV/positive
UniCredit	SV/positive	SV/negative	SN/positive	SV/positive
J&T Banka	SV/positive	SV/negative	SN/positive	SV/positive
Raiffaisen	SV/positive	SV/positive	SN/positive	SV/positive
Sberbank	SV/positive	SV/positive	SN/positive	SV/positive
LBBW	SV/positive	SV/negative	SN/positive	SV/positive
Citibank	SV/positive	SV/negative	SN/positive	SV/positive

Note: SV ... statistically significant at the level 0.05; SN ... statistically insignificant at the level 0.05; positive ... direct relationship; negative ... inverse relationship

A statistically significant positive influence of balance sheet total on ROE, the same as shown by Smirlock (1985), was confirmed for Raiffeisenbank. J&T Bank achieved the same positive influence, but statistically significant. For CS, a statistically significant negative influence of balance sheet total on the ROE ratio was confirmed. The same influence was achieved for UniCredit. Furthermore, a positive influence was confirmed for inflation rate when a growing value for inflation level supports the growth of the ROE ratio's value. Bourke (1989) and Molyneux - Thornton (1992), for example, came to the same conclusion. There a negative influence only for KB, i.e., a situation where an increasing inflation rate conversely lowers the ROE ratio value. This conclusion is associated with the conclusions of Revella's study (1989), which warns of the fact that the influence of inflation on bank profitability influences the growth of banks' wages and operating cost. The authors accepted the research question for positive influence for ROA and the central bank's interest rate so determinants on ROE.

5.2. Economic Interpretation of the Proposed Model's Second Equation

We have verified the second research question using the model that was composed – i.e., that there is statistically significant relationship between the the ROA and the group of independent variables (capital adequacy, taxation rate and GDP per capita) not only with the expression of a quantified relationship but also with the verification of statistical significance. The research question verifies the assumption that the ROA ratio is negatively influenced (i.e., an inverse relationship) by the taxation rate and GDP per capital. The ROA has the heterogeneous relationship with capital adequacy. All the Czech banks analyzed were achieved statistically significant influence of taxation rate on ROA (Table 3).

Table following on the next page

Table 3: Summary of economic interpretation of the results of regression parameter model's second equation - for dependent variable ROA (own calculation)

	Capital adequacy	Taxation rate	GDP per capital
CS	SN/negative	SV/negative	SV/negative
CSOB	SN/negative	SV/negative	SV/negative
KB	SN/negative	SV/negative	SV/negative
UniCredit	SN/negative	SV/negative	SV/negative
J&T Banka	SV/positive	SV/negative	SV/negative
Raiffaisen	SN/positive	SV/ negative	SN/negative
Sberbank	SN/positive	SV/ negative	SN/negative
LBBW	SN/negative	SV/negative	SN/negative
Citibank	SN/negative	SV/ negative	SN/negative

Note: *SV ... statistically significant at the level 0.05; SN ... statistically insignificant at the level 0.05; positive ... direct relationship; negative ... inverse relationship*

There was an interesting result for CS; here, a statistically significant negative relationship was confirmed – where an increasing taxation rate lowered the ROA ratio. This fact corresponds with the results of the study by Demirgüç–Kunt - Huizinga (1999). The authors accepted the research question for negative influence for taxation rate and GDP per capital so determinants on ROA.

6. CONCLUSIONS

Using the simultaneous equation model, a model was created that explores the influence of selected determinants on bank profitability in the Czech Republic. The simultaneous equation model was composed of two equations. Using the proposed simultaneous equation model, it is possible to verify and roughly quantify the assumed relationship between the Czech banking sector's profitability and capital adequacy, balance sheet total, taxation rate, inflation rate, Czech National Bank interest rates and gross domestic product per capita. Nine banks operating from 2004–2014 in the Czech banking sector were included in the model. The research question verifies the assumption that the ROE ratio is positively influenced by the inflation rate and the central bank's interest rates. Next the ROE has positive relationship with the ROA ratio. The ROE has the heterogeneous relationship with the balance sheet total ratio. The authors accepted the research question for positive influence for ROA and the central bank's interest rate so determinants on ROE. These findings are consistent with economic theory and the conclusions of Smirlock (1995) and Short (1979). The second equation assesses the mutual ties between ROA ratio and capital adequacy, taxation rate and gross domestic product per capita. The research question verifies the assumption that the ROA ratio is negatively influenced (i.e., an inverse relationship) by the taxation rate and GDP per capita. The ROA has the heterogeneous relationship with capital adequacy. All the Czech banks analysed were achieved statistically significant influence of taxation rate on ROA. We can find different impacts between taxation rate and ROA e.g. in conclusions of the authors Demirgüç–Kunt - Huizinga (1999). There are many ways to use the estimated econometric model. Primarily, it is possible to apply it at the macro-level when quantifying and testing economic hypotheses that have been derived from economic theory. The constructed model can be used by banks when predicting their profitability with respect to a change in preset macroeconomic variables. In the proposed model, this means central bank interest rates, GDP, the tax rate, and the rate of inflation. Thanks to the model, which is constructed using three component equations, it is possible to identify the basic determinants of bank profitability and to subsequently influence this profitability using an appropriately chosen tool (i.e., via a monetary authority or agent of fiscal policy).

Employing a time delay, it is possible to observe how the influence of individual bank profitability determinants increases or decreases with respect to the state of the internal and external environments.

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THE DYNAMICS OF MUNICIPALITY CONSOLIDATION - COMPARATIVE ANALYSIS OF SUCCESS AND FAILURE CASES

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ABSTRACT

Despite rationale arguments, consolidation reforms are very difficult to implement due to the deep-rooted attachment to the existing borders. Meanwhile, urban functional areas usually extend beyond the city's administrative boundaries, which raises a need of coordinating effective public service provision between the city and its suburbs. A review of world experience shows that two institutional solutions are usually applied here – intercommunal cooperation or adaptation of administrative borders to the scope of the functional zone. The objective of the paper is to compare the processes of municipal consolidation in two cities: in Princeton (USA) and Lubin (Poland). Princeton is an example of successful administrative consolidation of the city with the surrounding rural commune, while in Lubin, unfortunately, such a project was not implemented. In the conclusion was found that intercommunal cooperation does not provide sustainable solutions and is exposed to cadenza changes of decision-makers. The most effective seems to be the consolidation of individuals, but its success depends on a very well prepared and transparent procedure.

Keywords: *urban functional area, administrative consolidation, public services, intercommunal cooperation*

1. INTRODUCTION

Administrative borders do not usually coincide with the functional impact zone of the cities. Urban functional areas extend beyond the administrative boundaries of the city. This situation has an impact on the organisation of public services. The structure of these services and their quality should be continuous throughout the functional zone. As a result, there is a problem of coordination of effective public service provision between the city and its suburbs. Management in closed administrative boundaries of areas does not correspond to the real needs of the inhabitants and thus interferes with the regularity of the city development process. Therefore, there is a need for solutions that would eliminate these dysfunctions. A review of international experiences shows that two institutional solutions are usually used here - inter-municipal cooperation or the adaptation of administrative borders to the scope of a functional zone. However, the research so far has not provided a clear answer to the question of which method is more effective. The aim of the study is to compare the processes of adaptation of administrative borders to urban functional areas on the example of two cities. One of them is Princeton in New Jersey (USA), which is an example of successful administrative consolidation of the city with the surrounding rural municipality. The second example is the Polish city of Lubin, where inter-communal cooperation was developed and the initiative to consolidate two administrative units has not yet been implemented. The analysis of these two separate cases, although they originate from other continents and countries, should prove the universal regularities that accompany the processes of managing functional zones. Declarative inter-municipal cooperation is able to eliminate many problems and adapt the scope of tasks to the developing functional zones. However, in practice there are few effective and stable examples of such actions. Sub-optimal solutions dominate, and their sustainability is largely based on leaders' personalities rather than institutional solutions. This results in a research hypothesis of this article expressing the conviction that uniform management of the entire functional area