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### ANALYSIS OF THE PERFORMANCE OF PRIVATE, STATE AND COOPERATIVE BANKS IN GERMANY

### АНАЛІЗ ЕФЕКТИВНОСТІ ПРИВАТНИХ, ДЕРЖАВНИХ ТА КООПЕРАТИВНИХ БАНКІВ НІМЕЧЧИНИ

**ANNOTATION**

This article analyses and compares the performance of private (commercial), state (saving) and cooperative banks in Germany for 2014-2018 years, using interest margin, return on equity, return on assets and ratio of costs and revenues as indicators of economic efficiency. The study shows that the highest percentage of interest margin is maintained by cooperative and savings banks (however, this indicator has been decreasing in both categories in recent years). The return on equity of cooperative and savings banks is also the highest among all categories of German banks. Savings banks showed good profitability for the 2018 financial year. Cooperative institutions also demonstrated the best return on assets among all categories of banks for the 2018 fiscal year. In terms of the ratio of costs and revenues, savings and cooperative banks were the most efficient.

**Key words:** banking system, economic efficiency, market share, interest margin, return on assets, costs and revenues.

**АНОТАЦІЯ**

У цій статті проаналізовано та порівняно ефективність роботи приватних (комерційних), державних (ощадних) та кооперативних банків Німеччини за 2014–2018 роки, використовуючи процентну маржу, рентабельність власного капіталу, рентабельність активів та співвідношення витрат і доходів як показників економічної ефективності. Дослідження показало, що комерційні банки займають найбільшу частку обсягу бізнесу в банківському секторі і складають 38,8%. Державний банківський сектор складає 28,1% від загальної суми активів банків та кооперативні банки складають 13%. Найвищу відсоткову маржу підтримують кооперативні та ощадні банки (однак цей показник за останні роки зменшується в обох категоріях). Процентна маржа комерційних банків станом

на 2018 рік становила 1,02%, що є найвищим показником за період дослідження. Найнижчий показник зафіксовано Landesbanken – 0,66% (найнижчий показник за весь період). Рентабельність власного капіталу кооперативних та ощадних банків також є найвищою серед усіх категорій німецьких банків. Ощадні банки за фінансовий рік 2018 показали хорошу прибутковість (7,25% до оподаткування та 4,82% після). Кооперативні установи показали найкращу прибутковість капіталу серед усіх категорій банків за 2018 фінансовий рік (8,2% до оподаткування та 5,51% після). Ощадні та кооперативні банки також продемонстрували найбільшу віддачу від акціонерного капіталу. Рентабельність кооперативних банків станом на 2018 рік становила 0,7%. Рентабельність ощадних банків станом на 2018 рік становила 0,65%. За співвідношенням витрат і доходів у вузькому визначенні найбільш ефективними виявились ощадні та кооперативні банки (69,9% та 67,4% відповідно). Найбільшу ефективність показали найбільші банки та Landesbanken (88,9% та 86,2%). Ефективність регіональних банків також зросла порівняно з 2017 роком і склала 70,7% у 2018 році. За широким визначенням, також спостерігається незначне покращення ефективності комерційних банків. Ефективність ощадних та кооперативних банків, а також Landesbanken, навпаки, погіршилася порівняно з 2017 р. Це можна пояснити зниженням прибутковості від торгових та інших операцій.

**Ключові слова:** банківська система, економічна ефективність, частка ринку, процентна маржа, рентабельність активів, витрати і доходи.

**АННОТАЦІЯ**

В данной статье анализируется и сравнивается эффективность частных (коммерческих), государственных (сберегательных) и кооперативных банков Германии за 2014-2018 годы

с использованием процентной маржи, рентабельности собственного капитала, рентабельности активов и соотношения затрат и доходов в качестве показателей экономической эффективности. Исследование показало, что наибольший процент процентной маржи сохраняется у кооперативных и сберегательных банков (однако в последние годы этот показатель снижается в обеих категориях). Доходность собственного капитала кооперативных и сберегательных банков также является самой высокой среди всех категорий немецких банков. Сберегательные банки за 2018 финансовый год показали хорошую рентабельность. Кооперативные учреждения показали лучшую рентабельность активов среди всех категорий банков за 2018 финансовый год. По соотношению затрат и доходов наиболее эффективными оказались также сберегательные и кооперативные банки.

**Ключевые слова:** банковская система, экономическая эффективность, доля рынка, процентная маржа, рентабельность активов, затраты и доходы.

**Problem statement.** The growth of financial globalization since the 1990s has led to significant changes in the banking systems of many countries around the world. In both developed and developing countries, the share of foreign banks has increased remarkably while the share of state-owned banks has decreased. The global financial crisis of 2008-2009 has raised controversy over the ownership structure of the banking sector and its implications for financial intermediation once again. Some researchers have argued that the presence of foreign investors in the economies of both developed and developing countries greatly influenced the spread of the crisis. At the same time, countries in which state-owned banks play a significant role have been able to recover faster from the effects of the crisis.

The main argument in favour of the existence of state-owned banks is that they can promote the development of particular sectors or regions that would not be served by private banks. They perform functions which are not performed by private banks: they provide financing for projects that benefit the rest of the economy as well as counter-cyclical lending (the weaker the economy, the more substantial lending). But state banks, due to the apparent participation of the state in their management, most often follow the instructions of the government. As a result, government involvement in the banking system can weaken financial discipline by allowing the public sector to gain access to funding that they will not receive from other sources. Some economists and politicians argue that state ownership of banks is necessary to stimulate financial development and economic growth. Others state the opposite and suggest that state ownership of banks stifles financial development and inhibits economic growth.

**Analysis of recent research and publications.** G. Nabi et al. (2019) measured and compared the performance of state-owned commercial banks, conventional private commercial banks, and Islamic commercial banks operating in Bangladesh during 2009–2014 using data envelopment analysis (DEA). They use a sample

of 19 commercial banks, including four state-owned banks, ten conventional private commercial banks, and five Islamic commercial banks. The article shows that the average technical efficiency indicators of state banks, ordinary private banks and Islamic banks are 0.8592, 0.9419 and 0.9569, respectively. This means that state-owned banks are the most inefficient – 14.08%, followed by conventional private commercial banks (5.81%) and Islamic banks (4.42%) [1].

A. Waleed et al. (2015) compared financial indicators of state-owned commercial banks and private banks in Pakistan. The analysis of financial ratios was used to assess the effectiveness of banks. In this study, financial data from public and private banks in Pakistan between 2011 and 2014 was used to classify public and private banks based on bank size and financial ratios such as liquidity and profitability [2].

**The purpose of the article** is to investigate the profitability and performance of relevant categories of banks (private, state and cooperative) and compare which category of banks is more financially stable and efficient.

**Results.** Germany is the country with the maximum number of credit institutions in the Euro Area (1,536 as of 2019) [3]. The number of banks in Germany has fallen sharply by 52% since 1995. Consolidation for the achievement of economies of scale has been carried out mainly within the existing core business lines. In most cases of the saving banks and cooperative sectors (as opposed to mergers in the private sector), consolidation was the result of stress rather than active business considerations. In recent years, the pressure for further consolidation has originated from low interest rates and banking regulations, such as Basel III which has significantly raised banks capital requirements. German banks fear that real estate and corporate finance may be particularly agitated and could severely limit banks' lending capacity. However, against the background of low interest rates and generally extremely favourable financing conditions, lending to companies and the self-employed increased by 5% in 2018 to 934 billion euros [4]. In the context of Germany's transition to energy and new EU action plan "financing for sustainable growth", banks have launched many sustainable finance initiatives in recent years.

Extremely low and partially negative interest rates currently reduce banks profit opportunities and increase the risk of distortions and price bubbles. For Eurozone banks, the negative deposit rate of the European Central Bank (ECB) acts as a special tax with a monthly tax income of about 500 million euros. In order to limit the side effects of a negative deposit rate, the Association of German Banks has proposed that commercial banks to be exempted from excess liquidity held by the ECB.

The German banking system consists of three main elements: private commercial banks, public

sector banks and cooperative banks, which differ in their legal form and ownership structure. Private commercial banks represent the largest segment of assets, accounting for 40% of the total assets of the banking system. Private banks play a key role in the German export economy, accounting for 88% of German exports and supporting almost three-quarters of the external network of the German banking industry.

The most important private commercial banks are those with large branch networks. For many years, this group consisted of three banks: Deutsche Bank, Dresdner Bank and Commerzbank. In 2000, an attempt to merge Deutsche Bank and Dresdner Bank failed, and in the following years, the situation for Dresdner Banks steadily worsened. Shortly before the onset of the global financial crisis in 2007, Commerzbank, which was traditionally ranked third among major banks, acquired Dresdner Bank, which is traditionally ranked second [5]. As it turned out, this acquisition was a too heavy burden for Commerzbank, which had to be rescued by the German government during the global financial crisis. As of 2019, the German government owns 15% of Commerzbank shares [9].

Commercial banks account for the largest share of business volume in the banking sector and make up 38.8% (of which large banks make up 20.2%, and regional banks and other commercial banks – 18.6%) (figure 1). Cooperative banks account for 13.0% of the total market, while “other credit institutions” account for 20.1% (of which special purpose banks account for 16.9%, and mortgage banks –3.2%).

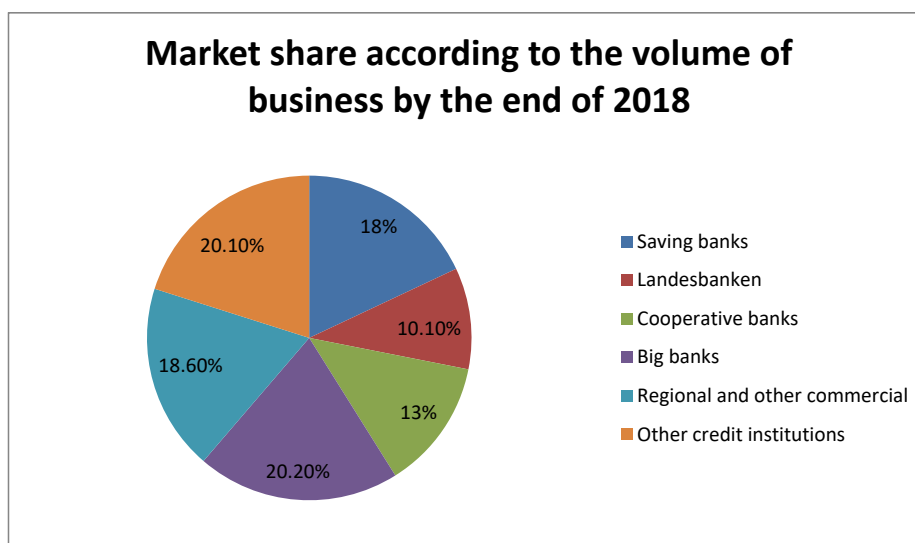
The state banking sector includes the savings banks Landesbanken and DekaBank, which act as the Central asset managers of the financial group of savings banks, accounting for 28.1% of the total assets of the banks. As of 2018, there were 385 savings banks, but in 2019 their number

decreased to 379 [8]. They are typically organized as public law corporations with local governments as their guarantors/owners. Their business is limited to the territory controlled by their local state owners. Apart from this regional focus, their business doesn't differ from that of private commercial banks. As a result of the so-called regional principle, savings banks do not compete with each other [4].

In 2018, the first privatization of the German Landesbank took place: on November 28, 2018, HSH Nordbank AG (now renamed Hamburg Commercial Bank AG) was taken over by a consortium of private financial investors (acquisition of 94.9% of the shares) [6]. HSH Nordbank AG has been an extraordinary member of the Association of German banks since 1 January 2018. The change of ownership also entails the Bank leaving the institutional protection scheme to become a member of the Deposit Protection Fund of German private banks. This transition will be completed on January 1, 2022. The solution found for this Bank could serve as a model for future transitions from other Deposit protection systems to the Deposit Protection Fund.

This reduction clearly reflects the resizing process that Landesbanken has carried out in line with its strategy, drastically reducing its loan replacement business and closing down business segments that are no longer part of their core business. The 2017 financial year was a turning point for Landesbanken – the volume of their business increased for the first time since 2007. This development also kept up in the 2018 fiscal year. Landesbanken is now focusing the efforts on improving and expanding its business model with large as well as small and medium-sized enterprises [7].

The cooperative sector consists of 875 cooperative banks (Volks – und Raiffeisenbanken) and



**Figure 1. Market share according to the volume of business by the end of 2018**

Source: Compiled by the authors based on [7]

one Central Cooperative Bank (DZ Bank AG) [4]. It accounts for 50% of institutions by number and 13% of total market share. Cooperative banks are owned by their members, who are usually their depositors and borrowers. By virtue of their legal form, cooperative banks have a mandate to support their members, who represent about half of their clients. However, cooperative banks also provide banking services to the general public. As savings banks, cooperative banks have a regional focus and are subject to a regional principle.

According to table 1, as of 2018, the most of shares are owned by commercial banks (large banks – 2,293.271 million shares, regional and other commercial – 962.520 million shares). Savings banks own a total of 1,267.726 million shares, and Landesbanken – 803.978 million. The minimum number of shares belongs to cooperative banks – 911.384 million shares.

In 2018, German banks reported 18.9 billion euros in profit before tax. Tax payments were 6.8 billion euros, and profit for the financial year after taxes – 12.2 billion euros. Thus, the profit for the 2018 financial year drastically decreased by 31.2% (before tax) and 39.2% (after tax) compared to the previous year [10]. None of the categories of banks was able to compare their profits with the results of the 2017 financial year.

Large banks, in particular, marked a significant decline in profit for the pre-tax financial year in the reporting year – from 1.7 billion euros to 1.1 billion euros. The profit of regional and other commercial banks decreased by 1.5 billion euros to 2.2 billion euros. Before taxation, Landesbanken even reported a loss of 1.0 billion euros for the financial year. Savings banks and credit unions showed the best results in the reporting year. Their pre-tax profit for the financial year was 8.3 billion euros and 6.3 billion euros, respectively. This means that the indicators for primary institutions also dropped compared to the previous year (by 1.6 billion euros and 0.9 billion euros, respectively).

Figure 2 below shows the profitability of relevant categories of German banks. It can be calculated by dividing net interest income by total assets [12]. One can note that the highest percentage of interest margin is maintained by cooperative and savings banks (however, this indicator has been decreasing in both categories in recent years). The percentage margin of commercial banks as of 2018 was 1.02%, which is the highest indicator for the period under consideration. The lowest indicator was recorded by Landesbanken – 0.66% (the lowest indicator for the entire period).

Table 1

Total number of shares by categories of banks for 2014-2018 (in millions)

Categories of banks	2014	2015	2016	2017	2018
Commercial banks:	3,532.938	3,678.042	3,580.912	3,532.639	3,351.857
Big banks	2,647.559	2,736.876	2,575.072	2,400.315	2,293.271
Regional and other commercial	833.806	884.457	942.665	1,048.189	962.520
Landesbanken	1,139.438	1,087.623	975.957	940.293	803.978
Saving banks	1,110.362	1,130.688	1,154.475	1,179.915	1,267.726
Cooperative banks	771.932	798.178	832.181	868.255	911.384

Source: Compiled by the authors based on [10]

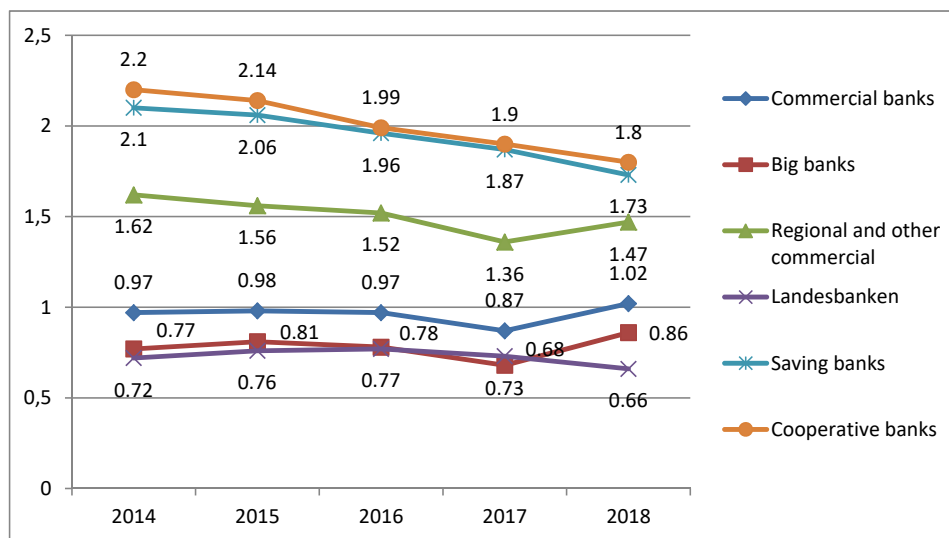


Figure 2. Interest margin of relevant categories of banks for 2014-2018

Source: Compiled by the authors based on [10]



Return on equity, calculated as the ratio of profit for the financial year to balance sheet capital, provides information about the rate of return on equity used. Since the profit for the fiscal year 2018 was enormously lower than the profit recorded in the previous year (and at the same time, the equity of credit institutions was much larger than in the previous year), the return on equity before tax also decreased markedly. One of the reasons for the decline in return on equity was that banking institutions had strengthened their equity base in previous years [10]. The availability of a good share capital base allows organizations to make the most of profitable investment opportunities that arise in a short time and can have a positive impact on their future profit potential. This also usually improves the financing conditions. In addition, if there is a reliable shareholder base, German credit institutions can prevent the financial risk of unexpected losses. Given the challenging situation with profitability, the above is very important, especially if the economy takes a turn for the worse.

According to table 2, the return on equity of commercial banks in 2016–2018 is decreasing that indicates a decline in the profitability of this category of banks (from 4.51% before tax (3.2% – after)) in 2016 to 2.07 (1.54) in 2018. The above was affected by a significant decline in the return on equity of major banks (1.24% before tax (1.14% after)) in 2018, which is much lower than in 2016 (3.45% before tax and 2.5% after). The return on equity of regional and other commercial banks fell from 3.45% (2.5% after tax) to 1.24% (1.14 after tax).

Savings banks showed good profitability (7.25% before tax and 4.82% after) for the 2018 financial year, but Landesbanken suffered losses (-2.45% before tax and -3.89% after), that is the worst indicator for the entire period under study (in 2017, the return on capital was 1.85% (0.98% after tax). Cooperative institutions showed the best return on equity among all categories of banks for the 2018 financial year (8.2% before tax and 5.51% after).

Analyzing table 3, it should be noted that savings and cooperative banks demonstrated the highest return on assets. The profitability of cooperative banks as of 2018 was 0.7% that is lower than in 2016 and 2017 (0.93% and 0.84%, respectively), but it is the highest among all categories of banks under discussion. The yield of savings banks as of 2018 was 0.65% (there was also a decrease in this indicator in the period 2016–2018).

Landesbanken showed the worst profitability. In the period 2014-2015 as well as in 2017, there was a return on assets, but the Bank suffered losses in 2016 and 2018 (-0.06% in 2016, and -0.13% in 2018). Besides, large banks showed one of the lowest indicators of return on assets–0.05%, which is less than the indicator of 2016 – 2017 (0.12%) but better than the indicator of 2015 (0.01%). Return on assets of regional and other commercial banks as of 2018 was 0.23%, which is also lower than in 2016-2017. In general, the profitability of commercial banks was 0.11%.

The ratio of costs and revenues is an indicator of economic efficiency of institutions. In a narrow

Table 2

Return on equity of relevant categories of banks for 2014–2018

Categories of banks	2014	2015	2016	2017	2018
Commercial banks:	4.80 (3.51)	3.54 (2.18)	4.51 (3.20)	3.95 (2.79)	2.07 (1.54)
Big banks	4.33 (3.16)	3.01 (1.81)	3.45 (2.50)	2.88 (2.30)	1.24 (1.14)
Regional and other commercial	5.22 (3.89)	4.22 (2.71)	6.30 (4.45)	5.31 (3.33)	3.30 (1.90)
Landesbanken	- 0.63 (- 1.50)	3.27 (1.89)	- 1.01 (- 1.95)	1.85 (0.98)	- 2.45 (- 3.89)
Saving banks	9.94 (6.72)	9.68 (6.54)	10.42 (7.42)	9.44 (6.72)	7.25 (4.82)
Cooperative banks	12.22 (8.59)	10.74 (7.36)	11.54 (8.39)	10.11 (7.05)	8.20 (5.51)

Note: Profit or loss for the financial year before tax (in brackets: after tax) as a % of equity.

Source: Compiled by the authors based on [10]

Table 3

Return on assets of relevant categories of banks for 2014–2018

Categories of banks	2014	2015	2016	2017	2018
Commercial banks:	0.19	0.14	0.19	0.18	0.11
Big banks	0.14	0.01	0.12	0.12	0.05
Regional and other commercial	0.31	0.25	0.37	0.32	0.23
Landesbanken	0.03	0.17	-0.06	0.1	-0.13
Saving banks	0.78	0.79	0.89	0.84	0.65
Cooperative banks	0.9	0.84	0.93	0.84	0.7

Note: Profit or loss for the financial year before tax as a % of equity.

Source: Compiled by the authors based on [10]

Table 4

**General administrative expenses in relation to gross profit and operating income for 2014–2018**

Categories of banks	2014	2015	2016	2017	2018
Commercial banks:	74.4 (73.4)	76.4 (75.6)	79.9 (74.3)	86.1 (79.4)	82.0 (79.3)
Big banks	77.6 (78.1)	79.9 (82.9)	85.2 (81.4)	95.3 (88.7)	88.9 (87.9)
Regional and other commercial	69.7 (66.9)	70.3 (64.6)	71.6 (64.2)	74.2 (67.8)	70.7 (66.1)
Landesbanken	71.5 (70.9)	74.7 (69.1)	73.1 (63.6)	83.0 (72.5)	86.2 (76.5)
Saving banks	67.0 (68.3)	68.3 (68.9)	67.8 (67.8)	67.5 (67.1)	69.9 (68.2)
Cooperative banks	66.4 (65.9)	67.0 (66.6)	68.2 (66.6)	67.1 (65.7)	67.4 (66.2)

Note: Administrative expenses in relation to gross profit (in brackets: operating income).

Source: Compiled by the authors based on [11]

sense, it is the ratio of administrative expenses to gross profit (the sum of net interest income and net commission income) and, as broadly defined, to operating income (the amount of net interest income, net commission income, trading portfolio result and other operating results). The lower this ratio, the more revenue remains after deducting administrative costs and the more profitable the company is [12].

According to table 4, in a narrow definition, savings and cooperative banks showed the highest efficiency (69.9% and 67.4%, respectively). However, in comparison with 2017, there was a slight decrease in terms of efficiency. The worst performance was shown by large banks and Landesbanken (88.9% and 86.2%) along with the improved performance of large banks compared to 2017. And the performance of Landesbanken was deteriorating over the entire period under study (except 2016). The efficiency of regional banks also improved in comparison with 2017 and amounted to 70.7% in 2018. In general, there was an intensification of the efficiency of commercial banks during 2017 – 2018. It was due to a growth in gross profit and a nominal decrease in administrative expenses.

According to the broad definition, there was also a slight improvement in the performance of commercial banks. The performance of savings and cooperative banks, as well as Landesbanken, on the contrary, deteriorated compared to 2017. The beforementioned can be explained by lower returns from trading and other operations.

**Conclusions.** Systematizing the results obtained, we can draw the following conclusions:

The maximum interest margin is held by cooperative and savings banks. The interest margin of commercial banks as of 2018 was 1.02% that is the highest indicator for the period under study. The lowest figure was recorded by Landesbanken – 0.66% (the lowest figure for the whole period).

The return on equity of cooperative and savings banks is also the highest among all categories of German banks. Savings banks showed good profitability (7.25% before tax and 4.82% after) for the 2018 financial year. Cooperative institutions demonstrated the best return on equity

among all categories of banks for the fiscal year 2018 (8.2% before tax and 5.51% after). Savings and cooperative banks also had the highest return on assets. The profitability of cooperative banks as of 2018 was 0.7%. The profitability of savings banks as of 2018 amounted to 0.65%. Return on assets of regional and other commercial banks as of 2018 amounted to 0.23%. In general, the profitability of commercial banks was 0.11%.

In terms of the ratio of costs and revenues in the narrow definition, savings and cooperative banks were the most efficient (69.9% and 67.4% respectively). The largest banks and Landesbanken (88.9% and 86.2%) showed the worst efficiency. The performance of regional banks also increased compared to 2017 and amounted to 70.7% in 2018. According to the broad definition, there was a slight improvement of the efficiency of commercial banks. The efficiency of savings and cooperative banks, as well as Landesbanken, on the contrary, deteriorated compared to 2017. This can be explained by lower profitability from trading and other operations.

Thus, one can note that savings (state) and cooperative banks are more efficient than commercial (large and regional banks).

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