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COST EFFICIENCY AND SHAREHOLDER STRUCTURE IN CENTRAL EUROPEAN BANKS OVER THE PAST TWO DECADES

Joanna RACHUBA

University of Szczecin, Institute of Economics and Finance; joanna.rachuba@usz.edu.pl,
ORCID: 0000-0001-6975-6760

Purpose: Cost efficiency constitutes an important part of management processes, influencing many areas of bank activity. The level of cost in relation to income might affect bank profitability, quality of customer services, credit risk problems or bank probability of failure. Many empirical analyses have been conducted to verify how efficiently bank operates over the last years. As shareholders appear to play a crucial role in bank cost practices, some research addresses the ownership structure and its association with bank cost efficiency. This article aims to review the literature on cost efficiency and shareholder structure. Specifically, it seeks to organise and summarise studies that examine the importance of bank owners in cost management. This approach enables us to specify the research problem, which is to examine cost efficiency and shareholder structure in the relatively understudied Central European region over a long-term period of more than two decades.
Design/methodology/approach: To achieve the objective of this paper, relevant literature has been reviewed and standard methods of descriptive statistics have been applied. The analysed literature primarily consists of empirical studies, with particular emphasis on cost management practices and bank shareholder structure. In terms of quantitative aspects of this research, it has been studied how cost efficiency fluctuates in the long-term horizon of the past two decades for Central European banks depending on their ownership type.
Findings: The literature review highlights the difference in cost efficiency between banks depending on their shareholder structure. It also outlines theoretical aspects of those differences. Empirical research findings on cost efficiency and ownership type remain inconclusive, leaving the cost-shareholder relationship unclear. Using hand-collected data for 11 Central European countries we find that shareholder structure and cost efficiency seem to be closely related. Foreign banks consistently exhibit higher efficiency than their domestic private counterparts, while state-owned banks display persistent inefficiencies.
Originality/value: This paper provides a comprehensive overview of cost efficiency in banks in terms of their shareholder structure, incorporating both theoretical and empirical perspectives. By summarising empirical studies on this topic, it organises key findings related to the research area. It also provides evidence on cost efficiency and shareholder structure for little studied Central European banks. Therefore, it serves as a valuable reference for bank owners as well as policymakers and regulators in terms of long-term cost management.
Keywords: corporate governance, cost efficiency, shareholder structure.
Category of the paper: Research paper.

1. Introduction

Over the last years, there have been two increasingly explored strands in banking empirical research. One strand investigates cost efficiency, whereas a second relates to shareholder structure in banks. Authors provide theoretical and empirical evidence on many areas related to cost management decisions, analysing both bank-level and macroeconomic determinants of bank efficiency. From the perspective of bank functioning, cost efficiency has been identified as a significant indicator of future non-performing loans and problem banks (Berger, de Young, 1997). In contrast, for a sample of European banks, inefficient financial institutions appear to hold more capital and take on less risk (Altunbas et al., 2007). Additionally, it has been observed that the higher level of costs reduces bank profitability (Davis et al., 2021; Dietrich, Wanzenried, 2014). Other studies relate to banking sector environment. Authors argue that efficiency is recognized as a significant determinant of competitive behaviour among banks. The lack of competition between banks enables inefficient banks to persist and therefore leads to instability of the banking sector as a whole (Moussawi, Mansour, 2022). Furthermore, Fries and Taci (2005) show that banking sector reforms and liberalization in the transition countries are significantly associated with a decrease in bank cost efficiency.

The next area of analysis addresses shareholder structure in banks. It has been a widely studied topic in banking literature during recent years. Authors very often examine how shareholder structure affects bank profitability (Claessens, Van Horen, 2012; Iannotta et al., 2007; La Porta et al., 2002), the likelihood of failure (Angkinand, Wihlborg, 2010; Dong et al., 2014; Lassoued et al., 2016; Yeyati, Micco, 2007) and loan growth (Cull, Peria, 2013; De Haas, Van Lelyveld, 2010; Fungáčová et al., 2013). There is also broad empirical literature studying the link between foreign-owned banks and credit risk (Chen et al., 2017; Dong et al., 2014; Shaban, James, 2018; Škrabić Perić et al., 2018) as well as relationship between state ownership and credit risk (Berger et al., 2005; Cornett et al., 2010; De Nicolò, Loukoianova, 2007; Zhu, Yang, 2016).

A separate area of research is devoted to bank ownership and its association with cost efficiency. The major shareholder is supposed to affects how efficiently bank operates. The existing literature provides theoretical and empirical insights into differences between foreign and state-owned banks, as they often pursue distinct objectives and are oriented towards different goals (Berger et al., 2005). There are some studies showing that shareholder structure and cost efficiency seem to be related (Berger et al., 2005; Fries, Taci, 2005; Lin et al., 2016; Moussawi, Mansour, 2022). Not many of them consider the cost to income ratio as a proxy for efficiency (Boubakri et al., 2020; Khan et al., 2020; Shaban, James, 2018). Therefore, this study links both of these areas of interests, namely bank ownership and cost management.

We contribute to the existing research in several important ways. First, we analyse less commonly studies Central European banks using hand-collected dataset on shareholder structure. Second, we account for long-time period of over two past decades. This enables us to observe trends and identify emerging patterns in a changing macroeconomic environment. Third, we focus on cost to income ratio being often neglected in the shareholder structure type of studies.

2. A literature review on cost efficiency and shareholder structure

There are some theories showing that shareholder structure may shape both the behavioural and institutional mechanisms underlying cost management in banks. Drawing on agency theory, property rights theory and the resource-based view, ownership configuration influences managerial incentives, decision-making autonomy and resource allocation efficiency, which in turn may determine bank cost behaviour. For instance, foreign banks often operate under stricter governance and accountability frameworks, which reduces agency costs and develops cost monitoring practices. Conversely, state-owned banks are being politically connected and subjected to sometimes conflicting goals. This dilutes profit incentives and leads to persistent inefficiencies. At the same time, domestic private banks, while more focused on profits, may still face structural constraints such as limited access to advanced technologies or weaker regulatory oversight, also affecting cost outcomes.

These theoretical linkages highlight that shareholder structure serves as both a governance mechanism and a determinant of strategic behaviour affecting cost structures. From a conceptual standpoint, ownership influences efficiency through three interrelated channels, which are: managerial discipline, access to organizational capabilities and technological resources, exposure to institutional and regulatory constraints. We assume that these pathways provide a framework for interpreting the observed empirical findings in cost efficiency across different bank types.

Empirical studies on shareholder structure and efficiency typically examine differences between foreign banks and domestic banks as well as state-owned banks and private banks (Berger et al., 2005). Banks with foreign ownership may benefit from stronger access to capital markets, advanced technologies and the ability to serve multinational clients. However, these banks face disadvantages such as managing at a distance, adapting to multiple regulatory environments and limited access to local information. Empirical evidence from developed countries generally finds foreign banks less efficient than domestic banks, except in some cases for U.S. banks abroad (DeYoung, Nolle, 1996; Berger et al., 2000). Conversely, in developing countries, foreign banks operate often more efficient than domestic banks (Claessens et al., 2001; Bonin et al., 2005). According to authors, that observed efficiency may reflect parent-

bank support, discretionary cost and revenue booking or tax considerations (Berger et al., 2005). Further research suggests that foreign entry and following reductions in restrictions enhance competition in developing banking systems (Claessens, Laeven, 2004).

Studies of the effects of state ownership on efficiency emphasise different objectives of state-owned banks, which are often aimed at directed lending or pursuing objectives such as developing specific industries and regions. The loan portfolio of state-owned banks is not designed to maximize profits and might be allocated for political advantage (Sapienza, 2004). In addition, these banks generally operate with government subsidies (Berger et al., 2005).

In banking, existing research focusing on ownership structure and cost efficiency explores the relationship between shareholder type and cost management (Moussawi, Mansour, 2022), privatization and cost efficiency rank (Berger et al., 2005), a link between changes in bank ownership on cost efficiency (Lin et al., 2016), banking reforms in sector with different ownership structure (Fries, Taci, 2005) or entry of foreign banks and its association with cost efficiency (Poghosyan, Poghosyan, 2010; Havrylchyk, 2006). These studies provide valuable insight into shareholder – bank costs link, but do not use cost to income ratio as a proxy for cost efficiency.

The authors analyse the association between competition, cost efficiency, and bank stability, considering the ownership structure of banks. As competition is positively related to both the cost efficiency and stability of the banks, the shareholder type affects relationships between competition and banking stability. Private banks lead to a positive, while public or foreign banks to a negative relationship between competition and banking stability (Moussawi, Mansour, 2022).

A study on bank privatization shows that state-owned banks undergoing this process had particularly poor performance beforehand measured, among others, by cost efficiency rank. Additionally, researchers confirm that banks with state ownership on average exhibit poorer long-term performance than domestically banks or foreign banks. The results also suggest that foreign banks may behave less efficiently than domestic banks (Berger et al., 2005). Lin et al. (2016) using a stochastic frontier approach find that foreign ownership enhances cost efficiency, particularly in financially liberalized countries. After the financial crisis, government ownership improves bank costs managing, while domestic private shareholder is linked to lower efficiency in countries with higher financial freedom. Further, Fries and Taci (2005) analysing banks in Eastern European countries show that a high share of foreign-owned banks in banking systems improves cost efficiency. Early stages of banking reforms are associated with cost reductions, while costs increase at more advanced stages. Private banks exhibit higher efficiency than state-owned banks, with foreign banks being most efficient and domestically owned ones the least. Finally, it has been found that the mode of foreign entry matters. Foreign Greenfield banks exhibit superior cost efficiency in comparison with foreign and domestic banks (Poghosyan, Poghosyan, 2010; Havrylchyk, 2006).

A distinct avenue of research investigates cost efficiency measured by cost to income ratio and shareholder structure (Boubakri et al., 2020; Khan et al., 2020; Shaban, James, 2018). Foreign banks have been recognised to outperform both private banks and state-owned banks in terms of efficiency confirmed by lower cost to income ratio. This association shows that foreign banks are more effective in controlling overhead costs relative to income. At the same time, banks with state ownership display cost inefficiency. These results diverge when examining the total costs to total revenues. Authors provide evidence on relatively lower efficiency of foreign banks compared to private banks and better managing of costs by state-owned banks than private banks (Shaban, James, 2018). In contrast, Khan et al. (2020) find that state ownership exhibits slightly lower cost inefficiency than private banks, with no significant evidence regarding foreign banks. Similarly, Boubakri et al. (2020) report that state ownership in newly privatized banks negatively affects efficiency. These findings suggest that the relationship between shareholder structure and bank efficiency varies, with foreign banks presenting mixed results in cost management and state ownership often associated with cost inefficiencies.

Topics of cost efficiency measured by the cost to income ratio and shareholder type in Central European banks considered collectively have not gathered a significant attention by academic researchers. Authors study banks operating in 16 countries from the Middle East and North Africa (MENA) region (Moussawi, Mansour, 2022) or in the worldwide context from 45 countries (Boubakri et al., 2020). Others provide single-country analysis, for countries such as Argentina (Berger et al., 2005) or Indonesia (Shaban, James, 2018). The research sample also includes Islamic and conventional banks (Khan et al., 2020). The time horizon in existing bank efficiency literature is quite short and includes years of 2005-2012 (Shaban, James, 2018), 2010-2017 (Khan et al., 2020) or finishes relatively earlier even if covers long-time period, such as for years 1999-2018 (Moussawi, Mansour, 2022) or 2000-2017 (Boubakri et al., 2020). Thus, we employ a cross-country dataset of 11 Central European countries for the period 2002-2022 to verify trends in cost to income ratio and accounting for shareholder structure.

3. Data and methodology

Our sample consists of banks from 11 Central European countries, all of which are members of European Union[*]. We have used several blocks of data. The financial data, namely bank cost efficiency reflected in the cost to income (C/I) ratio, is taken from the Bureau van Dijk's Bankscope (2002-2014) and Orbis (2015-2022) databases. The shareholder structure data is hand-collected using annual reports or other bank sources. We analyse primary shareholders of

[*] Countries in our sample are Bulgaria, Croatia, Czechia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia.

banks distinguishing between domestic private banks, state-owned and foreign banks. We use a long time period (2002-2022), accounting for periods of growth and crises. Our initial sample includes 322 banks with the resulting final sample of 4111 bank-year observations restricted by C/I ratio availability. Table 1 presents our sample, showing the number of bank-year observations analysed in each country and table 2 provides an overview of the number of bank-year observations across years.

Table 1.
Number of observations by countries

Country	Number of observations
Bulgaria	410
Croatia	580
Czech Republic	403
Estonia	143
Hungary	491
Latvia	333
Lithuania	164
Poland	579
Romania	441
Slovakia	266
Slovenia	301
Total	**4111**

Source: own elaboration.

Table 1 shows the distribution of the 4111 observations across the 11 Central European countries under study. The highest number of observations is visible in Croatia (580) and Poland (579), which together account for a significant proportion of the sample. These are followed by countries that also contributes notably to the dataset, namely Hungary (491), Romania (441), Bulgaria (410) and the Czech Republic (403). Latvia (333), Slovenia (301) and Slovakia (266) exhibit relatively lower number of observations. The smallest contribution to the sample is made by banking sectors in Lithuania (164) and Estonia (143). To sum up, the data structure shows that the sample is not evenly distributed across countries. The majority of observations is concentrated in Croatia, Poland, Hungary and Romania, which jointly comprise more than half of the dataset.

Table 2.
Number of observations by years

Year	Number of observations
2002	149
2003	154
2004	181
2005	210
2006	204
2007	200
2008	211
2009	225
2010	226
2011	227

Cont. table 2.

2012	221
2013	222
2014	225
2015	215
2016	205
2017	198
2018	182
2019	173
2020	171
2021	165
2022	147
Total	**4111**

Source: own elaboration.

Table 2 illustrates how the dataset fluctuates across the period 2002-2022. The number of observations increases gradually from 149 in 2002 to a peak of 227 in 2011. After 2011, the figures remain relatively stable, varying between 198 and 225 observations annually until 2016. A downward trend begins in 2017 when the number of observations starts decreasing from 198 in 2017 to 147 in 2022 reaching the lowest point in the sample period. The data distribution suggests a concentration of observations in the years between 2009 and 2015, followed by a gradual decline in the most recent years.

In our analysis of bank cost efficiency, we use the cost to income (C/I) ratio. In line with the banking empirical literature, this is a common indicator reflecting cost management practices (Boubakri et al., 2020; Goddard et al., 2013; Pasiouras, Kosmidou, 2007; Shaban, James, 2018; Trujillo-Ponce, 2013). It reflects the efficiency of the bank management regarding expenses relative to the revenues it generates. Higher ratios indicate lower efficiency (Pasiouras, Kosmidu, 2007). Consequently, C/I ratio allows to assess how efficiently bank operates.

We use standard methods of descriptive statistics to illustrate the cost management behaviour of Central European banks during the last decades. This allows us to introduce a complex view on cost efficiency trends in the long-term. We have winsorised the financial data using 1/99 percentiles to minimise the effect of outliers. Table 3 provides summary statistics for the cost to income ratio, based on 4111 bank-year observations from banks in 11 Central European countries during the period 2002-2022.

Table 3.
Summary statistics of the cost to income ratio

Variable	Mean	Standard deviation	Min	Max
Cost to income ratio	71.82	37.46	22.15	290.75

Source: own elaboration.

Table 3 represents that a mean value of the C/I ratio equals 71.82% with a standard deviation of 37.46%. This indicates substantial variation in terms of cost efficiency across the sample. The minimum observed value is 22.15%, while the maximum reaches 290.75% even after procedure of winsorizing applied. These variations might suggest notable heterogeneity in cost

efficiency across banks. While the average C/I ratio suggests a moderate level of cost efficiency, the wide range shows that the research sample includes both highly efficient banks and relatively inefficient banks. In turn, this may reflect differences in country-specific factors.

To verify whether there are significant variations in the cost efficiency between countries, we present the average values of C/I ratio for each of analysed country for the years 2002-2022 (Figure 1).

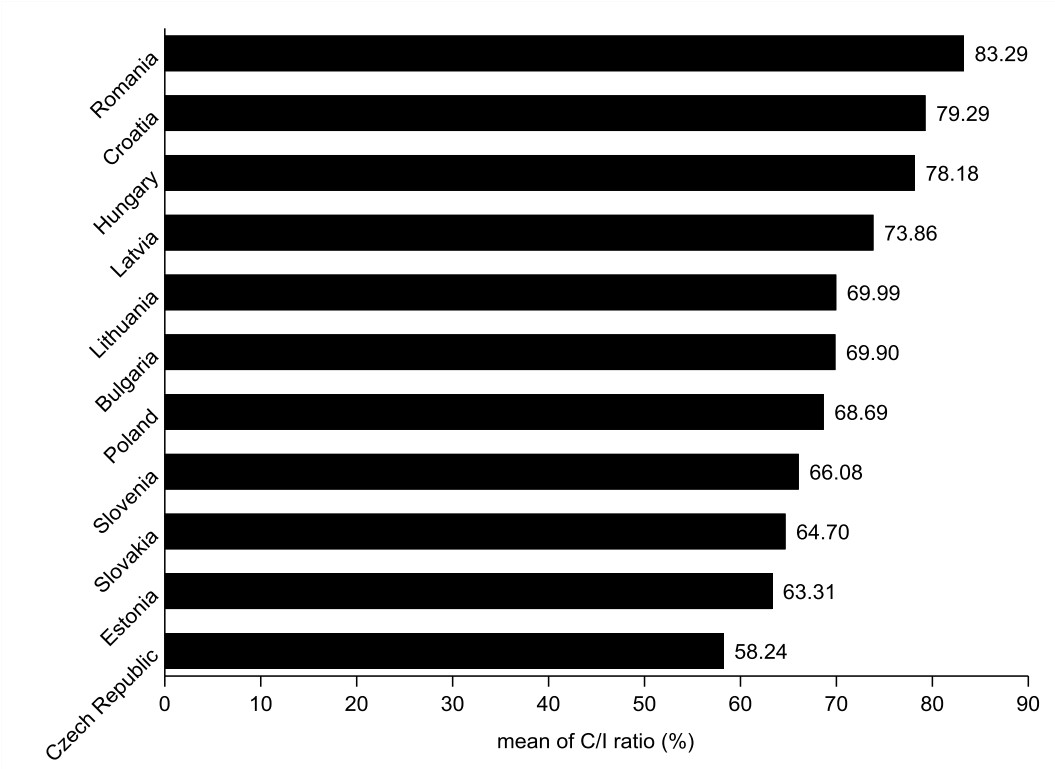

Figure 1. The average cost to income by countries.

Source: own elaboration.

Figure 1 illustrates significant differences in cost efficiency among countries. Romanian banks have the highest average C/I ratio at 83.29%, followed by Croatian banks (79.29%) and Hungarian ones (78.18%). This indicates relatively low cost efficiency in these banking sectors. In contrast, the Czech Republic shows the lowest average C/I ratio at 58.24%, suggesting the highest level of cost efficiency in analysed countries. Other countries, such as Latvia (73.86%), Lithuania (69.99%), Bulgaria (69.90%), Poland (68.69%), Slovenia (66.08%), Slovakia (64.70%) and Estonia (63.31%), are placed on intermediate positions. As noted, figure 1 highlights significant heterogeneity in cost management practices across banks in the region, with a clear distinction around 25 percentage points (Romania 83.29% versus Czech Republic 58.24%) between the most and least cost-efficient banking sectors.

Taking into account that our database covers long time period over the past two decades, we check how cost efficiency has been fluctuating in banks before and after periods of crises or economic growth. Figure 2 illustrates the average values of C/I ratio during the period 2002-2022 jointly for all analysed countries.

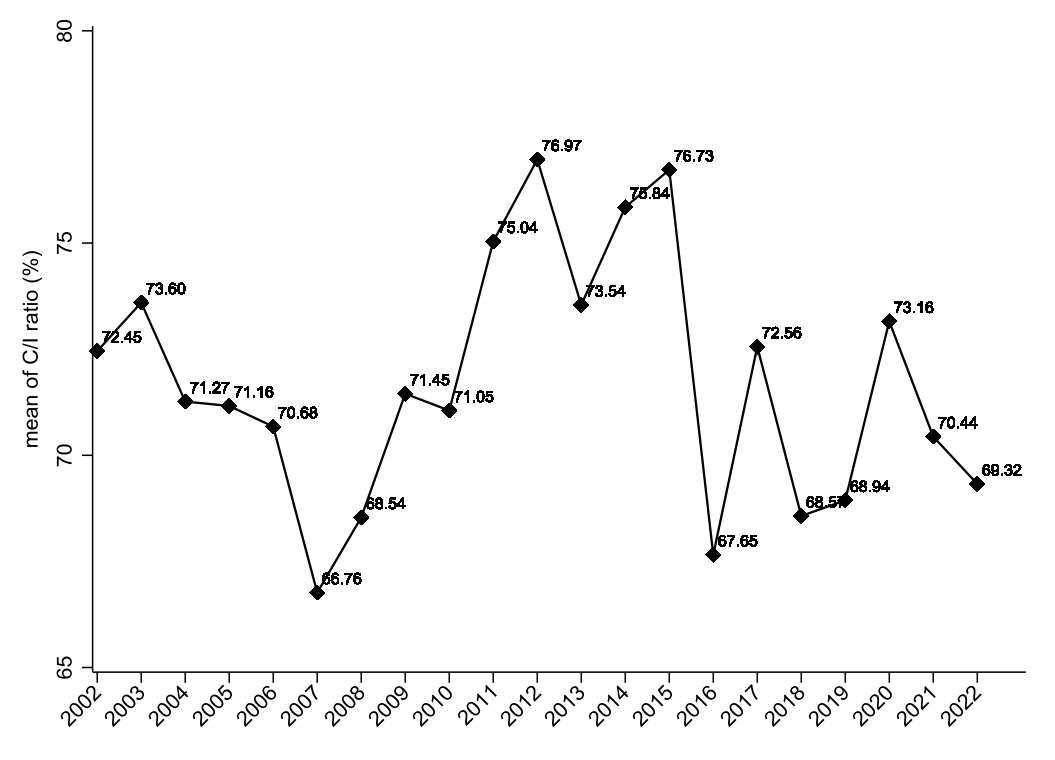

Figure 2. The average cost to income by years.

Source: own elaboration.

Figure 2 shows that the average level of efficiency in given years exhibits substantial fluctuations between 2002 and 2022. The C/I ratio starts at 72.45% in 2002, peaks at 73.60% in 2003 and then gradually decreases to 70.68% in 2006, followed by a sharp drop to 68.76% in 2007. After this event, cost efficiency begins to steadily increase and reaches the highest point of 76.97% in 2012, fluctuating relatively high until 2015 (76.73%). However, a significant decline occurs in 2016, when the C/I ratio falls to the value of 67.05%. In the subsequent years, the C/I ratio shows a short-term volatility, rising to 72.56% in 2017, decreasing again in 2018-2019 (around 68%) and then growing up to 73.16% in 2020 before declining to 69.32% in 2022. These results highlight fluctuations in the average C/I ratio. There are periods of growth and abrupt decreases, what may suggest the influence of external factors rather than a steady trend.

As we observe notable variations in cost efficiency across countries and years, the next part of the analysis accounts for shareholder structure, which may affect cost management practices between banks. Owners may pursue different objectives and exert pressure on statutory bodies to align decisions with their preferred direction, thereby influencing how efficiently banks operate. Regarding ownership type, we classify banks in our sample into three categories: foreign banks, state-owned banks and domestic private banks. We analyse primary shareholders using hand-collected information from annual reports or other bank documents. The definitions of the respective shareholder types are presented in table 4.

Table 4.
Definitions of variables related to shareholder types

Variable	Definition
Foreign bank	Binary variable equals 1 when the main shareholder is a bank domiciled abroad and has minimum 40% share in capital, and 0 otherwise.
State-owned bank	Binary variable equals 1 when the main shareholder is the state (both central and local governments, state agencies and state-owned enterprises) and has minimum 10% share in capital, and 0 otherwise.
Domestic private bank	Binary variable equals 1 when the main shareholder is neither a bank domiciled abroad nor the state.

Source: own elaboration.

Following the shareholder types presented in Table 4, we check how the cost efficiency fluctuates in banks determined by their ownership structure. We present obtained findings in the section Results below.

4. Results and policy implications

At the beginning of the analysis, we verify whether there exist any differences in average cost efficiency across ownership groups. We present the breakdown of our sample by shareholder types and report the mean level of cost to income ratio for the entire period 2002-2022, distinguishing between foreign banks, state-owned banks and domestic private banks (Table 5). We consider only those bank-year observations for which we have complete data available on both, cost efficiency and shareholder structure.

Table 5.
Average cost to income ratio by shareholder type

Shareholder type		Mean of C/I ratio (%)	Number of observations
Foreign bank	Yes	67.45	1960
	No	74.16	1622
	Total	70.49	3582
State-owned bank	Yes	70.65	256
	No	70.33	3326
	Total	70.49	3582
Domestic private bank	Yes	74.82	1366
	No	67.82	2216
	Total	70.49	3582

Source: own elaboration.

Table 5 shows that the overall average C/I ratio in the sample amounts to 70.49%. A comparison between foreign and non-foreign banks provides evidence on higher cost efficiency among foreign banks (67.45%) than banks without major foreign shareholder (74.16%). State ownership does not appear to be associated with significant differences in efficiency, as state-owned banks exhibit an average C/I ratio of 70.65%, similarly to the 70.33% recorded for non-state-owned counterparts. A more visible divergence emerges for domestic

private banks. This group shows a higher average C/I ratio of 74.82% in comparison with 67.82% for banks without major domestic private shareholder, suggesting that privately owned domestic banks operate with comparatively weaker cost efficiency than their peers. Summing up, these descriptive results by ownership type highlight shareholder structure as a potential determinant of cost efficiency between banks.

Considering the differences observed between ownership types and cost efficiency, we provide a more detailed breakdown of the average cost to income ratio for foreign banks, state-owned banks and domestic private banks for each year separately (Table 6). In addition, we account for the number of bank-year observations in order to capture potential changes that may influence the composition of our data.

To accompany this dataset, we present trends and comparisons over time regarding cost efficiency for all shareholder types (figure 3). We believe this provides more comprehensive view on yearly changes in cost to income ratio grouping by ownership structure.

Table 6.
Average cost to income ratio by shareholder type and year

Year	Shareholder structure					
	Foreign banks		State-owned banks		Domestic private banks	
	Mean of C/I ratio (%)	Number of observations	Mean of C/I ratio (%)	Number of observations	Mean of C/I ratio (%)	Number of observations
2002	71.38	44	76.86	9	72.26	40
2003	67.35	50	74.95	8	76.52	43
2004	70.43	70	66.55	11	71.36	49
2005	68.08	85	66.15	12	68.13	57
2006	66.17	94	67.30	12	72.82	53
2007	66.57	103	61.09	11	61.42	49
2008	63.35	110	69.88	10	68.80	56
2009	67.73	120	73.30	12	75.98	61
2010	64.22	117	97.46	12	72.21	70
2011	70.22	118	67.06	12	79.45	76
2012	73.38	119	68.19	12	79.07	78
2013	70.68	118	84.48	16	74.51	76
2014	70.21	114	84.44	18	78.91	79
2015	71.81	111	65.88	16	80.47	77
2016	63.71	104	65.88	14	71.13	78
2017	67.61	98	63.21	14	79.70	77
2018	64.16	90	65.92	12	73.16	72
2019	63.04	83	60.18	13	76.38	69
2020	68.05	77	72.14	11	77.84	72
2021	66.85	73	64.84	11	75.13	71
2022	57.78	62	61.52	10	75.74	63
Total	67.45	1960	70.65	256	67.29	1366

Source: own elaboration.

The long-term analysis of C/I ratio from 2002 to 2022 reveals marked disparities in cost efficiency across different bank ownership structures. Foreign banks consistently maintain the highest efficiency with a mean C/I ratio of 67.45% across 1,960 observations. Those banks show relatively stable ratios, ranging between 63% and 73%, with a notable improvement to 57.78% in 2022. The superior efficiency of foreign banks may suggest the influence of more

rigorous governance frameworks and advanced operational practices, stable cost managing as well as resilience to external shocks under varying market conditions. Conversely, state-owned banks, with only 256 observations, demonstrate both higher average ratios (70.65%) and considerable fluctuations in cost management, observed in the dramatic spike to 97.46% in 2010. This may reflect both, the institutional inefficiencies as well as macroeconomic stress during the global financial crisis. Domestic private banks (on average 67.29% across 1366 observations) show a sustained upward trend in C/I ratio from 2010, peaking at 80.47% in 2015, indicating persistent cost pressures.

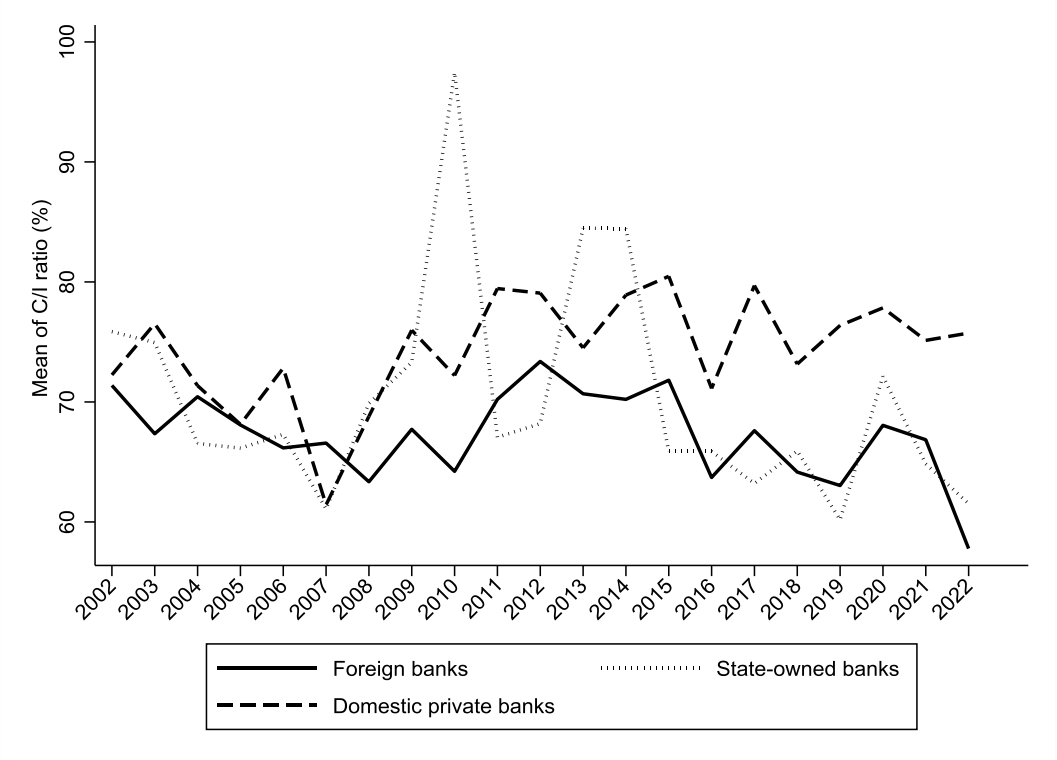

Figure 3. The average cost to income by shareholder types.

Source: own elaboration.

These temporal patterns regarding cost efficiency suggest that ownership structure significantly mediates efficiency outcomes but does not fully account for cost management policies. Thus, the observed differences in cost efficiency have important policy implications. Foreign banks may benefit from stronger governance, cost-income monitoring and operational practices, whereas state-owned and domestic private banks are potentially more susceptible to policy-driven and market-induced inefficiencies. This suggests that state-owned banks and domestic private banks may require targeted interventions. State-owned banks, in particular, would benefit from comprehensive reforms that focus on optimizing cost management processes, administrative structures and enhancing internal accountability mechanisms. In the similar vein, domestic private banks could improve efficiency through the adoption of advanced cost analysis tools and programs aimed at strengthening managerial expertise, as well as performance-based evaluation systems.

In addition, regulatory frameworks and external economic conditions seem to interact with cost efficiency. Consequently, regulators may consider implementing efficiency-focused benchmarking and incentive structures to align institutional efficiency with sector-wide objectives. Efficiency evaluations, transparency in cost-related disclosures and the inclusion of efficiency metrics within prudential assessments could enhance accountability and promote convergence toward best practices.

5. Conclusions

Overall, the analysis of the relationship between cost efficiency and shareholder structure reveals that ownership structure is an important indicator of banking efficiency, but its effect may depend on a range of factors, including internal management practices and external economic conditions that evolve over time. The findings suggest that foreign banks consistently exhibit higher efficiency than their domestic private counterparts likely due to superior technology adoption, more stringent governance standards and better access to international best practices. In contrast, state-owned banks display persistent inefficiencies, which may stem from bureaucratic constraints, less profit-oriented objectives and limited managerial autonomy.

These results shed light on the significance of policies aimed at better governance and improving cost management practices across all bank types as shareholder structure and cost efficiency in the banking sector seem to be closely related. They also emphasize the need for targeted reforms that promote transparency, accountability and stronger managerial incentives. Policies encouraging improved corporate governance and more effective cost management systems across all ownership types could also improve cost outcomes. Ultimately, these findings underscore that the relationship between shareholder structure and cost efficiency is complex. Enhancing efficiency in the banking sector therefore requires a strategy that combines internal governance reforms and regulatory oversight to ensure long-term financial stability.

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