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Banks Ownership and Development Indicators Prior to the COVID-19 Pandemic. A Comparative Study.

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Abstract

Theoretical background: The role of banks in the economy has attracted scientific interest for many centuries now. Generally speaking, the relationship between financial development and economic growth has been widely discussed. Many studies investigated the links between the development of the financial sector and a given country's social and economic growth using econometric methods such as cross-section, time series, panel data, company-level, industry-level and country level. The banking sector is an integral part of the economy and plays a key role in its development.

Purpose of the article: The ownership status of financial institutions is not neutral for themselves or for their clients. The research problem deals with analysing the impact of ownership changes in the banking and insurance sector on the economic and social development of selected countries, especially in Poland, measured with basic macroeconomic indicators. The article attempts to verify the hypothesis that the ownership structure in banking and insurance institutions has, contemporarily, no significant impact on the socio-economic development indicators, provided that these institutions are guided by business- rather than policy-based criteria in their decision-making process.
Research methods: Both qualitative and quantitative research was used to empirically verify the hypotheses in question. Qualitative research is based on descriptive analysis while quantitative research will include statistical information systemization method, based on statistical source data analysis, and static dependence methodology, including fixed effects and random effects panel models.
Main findings: Literature studies and research show that moderation and pragmatism are needed in the financial sectors of EU countries, including Poland. We need both public (including state-owned) financial institutions (banks and insurers) and those controlled by private capital. It seems that today it would be difficult to accept that the entire financial sector of a given country would be taken over by public institutions – state-owned companies, and the omnipotence of private institutions would also be problematic. The main issue is proportions: instead of the exclusivity of one or the other form of ownership, one has to seek an intelligent balance between them ("this and that" instead of "either-or").

Introduction

Ownership, from the ancient times to the modern age, has been among the fundamental categories analyzed from various perspectives by the representatives of many fields and disciplines. The number of thinkers dealing with ownership is awe-inspiring. The same is true of researchers who analyzed ownership mainly from the standpoint of economics and finance. It is beyond any doubt that within the field of economics and finance the research generally involves description, measurement, comparison across time and space, explanation, valuation (impartial evaluation from different points of view), prediction, suggestion, including the formulation of early warning signs. Such is also the intention of the authors of the below discussion. Of course, not all can be demonstrated to the same extent within the confines of an article. Due to the intense intervention of states during and after financial crisis in banking sector our objective is to focus on presenting the problematic of private and state ownership using the example of largest banking institutions operating in Europe, the USA and China.

The research problematic presented in the article concentrates on analyzing the impact of types of ownership of banking sector assets, reflecting the social and economic policy in place, on the profitability of banking institutions on three continents, as measured, *inter alia*, with the return on assets and equity, level of loans, Net Interest Margin (%), Total Capital Ratio (%). We intend to determine to what extent public ownership of the largest banks in China may have a real impact on the change of banking profitability ratios while juxtaposing these values with those applicable to the largest banks in Europe and the USA. The authors will attempt to

prove the hypothesis that bank ownership (public or private) has no significant impact on the profitability of that sector or on the society's wealth measured with GDP per capita. This problem remains important as public ownership in banking sector in some regions remains high and rise questions on proper usage of public funds. Also financial crisis introduced measures of state interventionism in banking sector and induced questions on further policy in this respect.

To empirically verify the hypotheses that stem from the above research problem, a mixed methodology of qualitative and quantitative studies will be used. The qualitative research is based on descriptive analysis while the quantitative research will include the method of statistical information systemization, based on statistical source data analysis, static dependence methodology, including fixed effect and random effect panel models.

Literature review

The first stage of the 2008–2009 crisis manifested itself in the area of financial mechanisms and institutions and their underlying regulatory and supervisory structures (Cerra & Saxena, 2017; Gertler & Gilchrist, 2018; Postuła & Tomkiewicz, 2019). Categories related to the banking sector are currently more and more likely to be contemplated not only in the context of the government's regulatory policy but also that of the financial impact. The issue of forms of ownership cannot be emphasized enough. The ownership status of financial institutions is not neutral, not to themselves, not to the condition of the banking sector and, consequently, not to the national economy and clients. It must be added here that the latter, i.e. especially the depositors, borrowers and investors, do not always attach any importance to it, if they know at all by who a given financial institution is owned. The role of banks in the economy has attracted scientific interest for many centuries now (e.g. Schumpeter, 1934; Dewatripont et al., 2010; Shiller, 2012; Liu et al., 2022). Generally speaking, the relationship between financial development and economic growth has been widely discussed. Many studies (King & Levine, 1993; Beck et al., 2000; Kirkpatrick, 2000; Fase & Abma, 2003; Beck and Levine, 2004; Craigwell et al., 2001; Kar et al. 2011; Murinde, 2012; Pradhan et al., 2014; Hsueh et al., 2013; Herwartz & Walle, 2014; Uddin et al., 2014; Menyah et al., 2014) investigated the links between the development of the financial sector and a given country's social and economic growth using econometric methods such as cross-section, time series, panel data, company-level, industry-level and country level. The banking sector is an integral part of the economy and plays a key role in its development (Asteriou & Spanos, 2019; Flejterski, 2019; Ducan & Elliot, 2004). A weak banking sector not only threatens the long-term sustainable growth of the economy, but it may also be the cause of a financial crisis, and consequently, of an economic one, too. Another issue is the impact of the form of ownership on security, stability, competitiveness

and profitability (Menicucci & Paolucci, 2016; Mungly et al., 2016; Marcelin et al., 2022). To ask which of the main forms of ownership serves better the interests of clients, respective financial institutions, including managers and employees, of the banking sector as a whole and, last but not least, of the entire national economy is no rhetorical question. States' reactions on financial crisis makes it even more important as government's stakes has tripled in that period (Banal-Estañol et al., 2022) so a discussion is needed if such usage of public funds induce added value.

Research methodology

To verify the hypothesis put forward in the introduction and in view of the above theoretical considerations, a decision was made to choose for the analysis 10 largest banks from each continent (a total of 30 banks, see Appendix 1), having Chinese, American and European capital, respectively, as the majority owner. As the first step, publicly available financial data on the banks analyzed for the period between 2010 and 2019 were selected from ORBIS database and from other available sources of information. Such selected group of banking institutions showed a major diversity in terms of the authorities' approach to investing public funds in their assets. This public/private ratio varied largely depending on the region, e.g. in case of Chinese banks selected for the analysis we are dealing with state ownership, contrary to the analyzed European banks and a great majority of US banks.

A decision was made to apply indicators that measure the correlation between the scale of the government involvement in the volume of assets of the analyzed group of banks and GDP per capita. To analyze the profitability of their operations, the ratio of given bank's assets as a share of GDP of a given country, or continent for European banks, was used. The data relating to economic growth comes from World Bank Development Database.

The explanatory variables are GDP per capita, and the bank's assets as a share of GDP per capita. Meanwhile, to determine the assets profitability we relied on the return on assets (ROA) and the return on equity (ROE). Return on bank's assets and equity are standard bank profitability ratios used in the literature (Garcia-Herrero et al., 2009; Bolt et al., 2012). The bank's size and financial indicators such as profitability ratios, liquidity ratios, capital and leverage ratios, and assets quality ratios are an effective tool to classify public and private banks. These ratios are also suggested by the World Bank statistical bulletin to assess banks' financial results. Return on assets, interest margins and capital adequacy have a positive correlation with the quality of customer service (Elizabeth & Elliot 2004). Raza et al. (2011) use the ROA and ROE in their study. Profitability ratios are independent factors in the assessment of any institution, also a financial one (Tarawneh, 2006; Raza et al., 2011). Detailed data relating to banks have been available to the full extent for Chinese banks since 2010, which is the starting year of our analysis and the first

year of government institutions' active involvement in the banking sector following the crisis of 2008–2009.

As regards the response variables, a decision was made to also analyze, in addition to bank profitability ratios, the following ones due to the main purpose of the article, i.e. the comparison of the banks' impact in the three geographic areas: Total Capital Ratio, Net Interest Margin (%) and Loans.

Theoretical research reveals that in banks characterized by higher capital ratios, their managers recommend avoiding excessive risk. This stems from the fact that greater risk increases return variance, which, in turn, may increase the likelihood of major loss on equity (Hellmann et al., 2000; Repullo & Suarez, 2004). Meanwhile, banks may increase the asset risk in response to higher capital requirements, perhaps excessively compensating for the positive effect of the higher capital buffer. There are also other studies demonstrating that better capitalized banks do not necessarily take lower risks. For example, the principal agent theory shows that the presence of imperfect information, which is endemic in complex organizations such as banks, may manifest itself in a moral hazard related to the existence of distorted incentives between the client and a financial institution. Likewise, the literature on empirical banking shows how more regulated banks may be urged to take risk due to the negative impact of capital requirements on the bank's profits (Koehn & Santomero, 1980; Kim & Santomero, 1988; Blum, 1999). This disparity of opinions gives rise to the question on risk-taking patterns in banks in the USA and Europe compared to the banking sector in China.

The Net Interest Margin (%) was selected for the analysis because it is significantly driven by macroeconomic factors, as changes in economic conditions impact the entire banking system at a given time. Most empirical research reveals that GDP growth is used as a controlling variable and is positively correlated with Net Interest Margin (%), (Horvath, 2009; Gunter et al., 2013). Many articles take account of the market interest rates with different maturity rates or their respective standard deviations to factor in the end of the profitability curve. Only a few articles contain additional macroeconomic variables such as inflation rates (Horvath, 2009; Entrop et al., 2015) and market interest rate spreads (Rumler & Waschiczek, 2016).

A decision was made to include the level of loans in the analysis as such an approach was adopted by Ciccarelli and Mojon (2010), among others, who introduced it in the VAR model to examine the profitability of the credit channel of monetary transmission and to investigate credit fluctuations during the last crisis in the USA and the euro area. Levine et al. (2018) used this data to distinguish between demand for and supply of credit. DeBondt et al. (2010) empirically examined the information content for the euro area, in particular they analyzed bank lending in terms of aggregate increase in credits and production.

As a first step, the analysis made use of descriptive statistics (see Table 1), which helped identify the differences in the way the volume of assets was reflected in GDP in the geographies under analysis. This will make it easier to interpret the correlations examined further in the article.

Table 1. Descriptive statistics of the variables defined for analysis in the period between 2010 and 2019

Variable	Obs	Mean	Std.	Min	Max
Assets	244	1322.019	866.6008	85.81	4351.457
Loans	180	27.47594	32.79402	.13	178.53
Total Capital Ratio (%)	204	14.20392	2.46113	8.84	22.9
Net Interest Margin (%)	252	2.283135	.9589109	.37	5.63
ROA	254	.7761024	.4980374	-1.53	1.65
ROE	254	10.74228	7.646864	-23.43	32
Assets as a share of GDP per capita	244	9.058509	12.01667	.1662872	45.73835
GDP per capita	270	33426.73	20007.54	4550.454	62794.59

Source. Authors' own study.

The mean bank assets as a share of GDP per capita is 9.06%, with the lowest share among the banks examined standing at 0.17% and the highest at 45.74%. Meanwhile, typical bank assets as a share of GDP per capita differed by 12.02 pp from the mean share. By analyzing the results obtained from geographical perspective, it was concluded that the mean bank assets as a share of GDP per capita in European banks stands at 4.05%. In the meantime, the lowest assets as a share of GDP per capita among this group of banks examined stood at 1.97% and the highest at 7.10%, and the typical assets of European banks as a share of GDP per capita differed by 1.44 pp from the mean share, which indicated a very low variance in this respect among the largest European banks. A relatively similar situation can be observed in the USA, where the mean bank assets as a share of GDP per capita stands at 1.47%, with the lowest share among the banks examined standing at 0.16% and the highest at 3.77%. Typical bank assets as a share of GDP differed by 1.22 pp from the mean share – so, again, we are dealing with a very low variance. Completely different results are obtained for the Asian area, where the mean bank assets as a share of GDP per capita stands at 22.63% in Chinese banks. Among the banks examined, the lowest share was 6.80% and the highest – 45.74%, while the standard bank assets as a share of GDP per capita differed by 13.20 pp from the mean share. These results are interesting also because in case of China all banks selected for analysis are institutions where the state is the majority shareholder.

In the context of such results indicating that the highest ratio of assets as a share of the country's GDP per capita was found in the analyzed state-owned Chinese banks, further analyses pointing to the economic profitability of financial institutions and the defined explanatory variables will refer to banks from that region. The purpose of the research was to identify the determinants driving selected ratios (GDP per capita, or a given bank's assets as a share of GDP per capita) using panel analyses as part of the random effects model. A decision was made to use panel method because the available data on the variables analyzed described the study population in more than one period. Hence, panel data bear both the characteristics of cross-sectional data (describing a population at a specific moment in time) and those of time series (describing an entity in different periods). To achieve the intended goal, analyses

were conducted on panel data, and panel models were built using the generalized least squares method, fixed effects panel model and random effects panel model (it follows from experience to date that this model is not adequate for the data used, nevertheless, an attempt was made to apply it). For all data the modeling effect adopted was that of "from general to specific". Research and model estimation were based on 244 observations covering 30 banks.

As the first step, a study was conducted, showing a match between models and response data, i.e. GDP per capita and the bank assets as a share of GDP per capita. The method applied indicates that the higher the intergroup and intragroup *r*-squared ratio, the better the model match. The best-match model is the one including the variable of bank assets as a share of country's GDP per capita (see Table 2).

Table 2. Random effects model estimated for assets due to no variability in independent variables

Variable	Without	With GDP per capita	With bank assets as a share of GDP per capita
European banks	-82.913539	-1294.3618***	1782.8127***
US banks	-807.84389*	-2711.995***	1332.7409***
GDP per capita		.04000944***	
Bank assets as a share of GDP per capita			107.07163***
_cons	1604.0386***	1298.6246***	-690.78414*

* significant at the 0.05 level and higher, ** significant at the 0.01 level and higher, *** significant at the 0.001 level and higher

Source: Authors' own study.

The results demonstrate that all explanatory variables are significant in the model. In European banks the assets are, on average, 1782.8127 million higher compared to Chinese banks *ceteris paribus*, while in US banks the assets are, on average, 1332.7409 million higher compared to Chinese banks *ceteris paribus*. The results obtained are quite interesting when collated with data from Table 1, as they indicated that in the USA and Europe we are dealing with higher assets, but, at the same time, their lower share of GDP per capita than in China.

Considering the significant impact on the economic development, the level of loans granted by respective banks was included in the analysis as the next step. In this case, the level of the intergroup and intragroup *r*-squared ratio was higher in the model including the variable of GDP per capita. In this model all explanatory variables are significant (see Table 3).

Table 3. Random effects model estimated for loans due to no variability in independent variables

Variable	Without	With GDP per capita	With bank assets as a share of GDP per capita
European banks	41.627794*	73.800529***	51.702961
US banks	3.0016511	53.657439*	15.683433
GDP per capita		-.00106825***	

Variable	Without	With GDP per capita	With bank assets as a share of GDP per capita
Bank assets as a share of GDP per capita			1.0113631
_cons	7.7689196	16.106801	-6.3719137
N	180	180	180

* significant at the 0.05 level and higher, ** significant at the 0.01 level and higher, *** significant at the 0.001 level and higher

Source: Authors' own study.

The analysis reveals that in European banks the loans are, on average, 73.80 million higher compared to Chinese banks *ceteris paribus*, while in US banks loans are, on average, 53.66 million higher compared to Chinese banks *ceteris paribus*. The analyses conducted have also demonstrated that with GDP per capita increasing by 1 unit, the loans decreased by 0.00107 units, *ceteris paribus*, and it is scientifically proven that as GDP per capita increases, the demand for borrowed capital decreases.

As the next step, we proceeded to analyze Total Capital Ratio for which the best-match model is the one including the variable of assets as a share of a country's GDP per capita. The model has demonstrated that in European banks the variable analyzed is, on average, 4.06 million higher compared to Chinese banks *ceteris paribus*, while in US banks (significant at the 0.05 level and higher) the Total Capital Ratio is, on average, 2.5 million higher compared to Chinese banks *ceteris paribus* (see Table 4).

Table 4. Random effects model estimated for Total Capital Ratio due to no variability in independent variables

Variable	Without	With GDP per capita	With bank assets as a share of GDP per capita
European banks	3.1999186***	2.1175515	4.0602646***
US banks	1.5144535	-.31149545	2.4998168*
GDP per capita		.00003583	
Bank assets as a share of GDP per capita			.04962313
_cons	12.697695***	12.424826***	11.638294***
N	204	204	194

* significant at the 0.05 level AND higher, ** significant at the 0.01 level AND higher, *** significant at the 0.001 level AND higher

Source: Authors' own study.

The fourth variable analyzed when comparing the situation in three groups of banks is the Net Interest Margin (%). In this case the best-match model is the one including the variable of GDP per capita, which confirms the factors indicated above (see Table 5).

Table 5. Random effects model estimated for Net Interest Margin (%) due to no variability in independent variables

Variable	Without	With GDP per capita	With bank assets as a share of GDP per capita
European banks	-.0828383***	.31390646	-1.5223927***
US banks	.57067383*	2.7609308***	.05966187
GDP per capita		-.00004584***	
Bank assets as a share of GDP per capita			-.02779574
_cons	2.4116116***	2.7526465***	2.9625961***
N	252	252	243

* significant at the 0.05 level and higher, ** significant at the 0.01 level and higher, *** significant at the 0.001 level and higher

Source: Authors' own study.

The analyzed variable relating to European banks is not significant in the model, meaning that differences in the Net Interest Margin between European and Chinese banks are statistically insignificant. Meanwhile, with respect to US banks, the value of this variable is, on average, 2.76 units higher compared to Chinese banks *ceteris paribus*. Moreover, the model has demonstrated that with GDP per capita increasing by 1 unit, the Net Interest Margin decreased, on average, by 0.000046 units *ceteris paribus*.

At the last stage of analysis, an attempt was made to determine the variance of the return from capital and from assets among the banks analyzed. Studies have demonstrated that ROA can be examined using the response variable of bank assets as a share of GDP per capita, while for ROE the best-match model is the one including the variable of GDP per capita. Results of the analyses using these variables are presented in Tables 6 and 7.

Table 6. Random effects model estimated for ROA due to no variability in independent variables

Variable	Without	With GDP per capita	With bank assets as a share of GDP per capita
European banks	-.83573194***	-.96787819***	-.73792844***
US banks	-.13227068	-.33936606	-.02269473
GDP per capita		4.330e-06	
Bank assets as a share of GDP per capita			.00457923
_cons	1.07747***	1.0454879***	.96126701***
N	254	254	244

* significant at the 0.05 level and higher, ** significant at the 0.01 level and higher, *** significant at the 0.001 level and higher

Source: Authors' own study.

The variable relating to US banks is not significant in the model, meaning that the differences in ROA between the US and Chinese banks are statistically insignificant. The same is true of the bank assets as a share of GDP per capita, which also has an

insignificant impact on ROA. Meanwhile, in European banks ROA is, on average, 0.738 units lower compared to Chinese banks *ceteris paribus*. Another difference is that what impacts ROA in this case is the value of bank assets as a share of GDP per capita (see Appendix 2 for more information) .

Table 7. Random effects model estimated for ROE due to no variability in independent variables

Variable	Without	With GDP per capita	With bank assets as a share of GDP per capita
European banks	- 13.716753***	-12.190488***	-14.056881***
US banks	-8.5861818***	-6.195339	-9.0296716***
GDP per capita		-.00005001	
Bank assets as a share of GDP per capita			-.04098463
_cons	17.976417***	18.345479***	18.482859***
N	254	254	244

* significant at the 0.05 level and higher, ** significant at the 0.01 level and higher, *** significant at the 0.001 level and higher

Source: Authors' own study.

For ROE the variable relating to US banks is not significant in the model, meaning that the differences in ROE between the US and Chinese banks are statistically insignificant. Meanwhile, in European banks the value of ROE is, on average, 12.19 units lower compared to Chinese banks *ceteris paribus*. In addition, analyses have demonstrated that the value of GDP per capita also has an insignificant impact on ROE.

Research results and discussion

There is a very extensive global literature on studies on banks' profitability, which was already pointed out in the first part of the article, presenting a review of literature on the subject. Researchers' efforts, including those undertaken for our article, can be divided into those focusing on microeconomic approach and those conducted from the macroeconomic standpoint. From the micro-perspective, the issue of banking sector's profitability is of key importance. From the macro- perspective, the banking sector's profitability has an impact on the country's economic development. This is the object of research into relationships between ownership and profitability in various countries (Grigorian & Manole, 2002). The authors identified a strong positive correlation between banking sector ownership and greater effectiveness, and a slightly weaker one between the quality of prudential regulation of the banking system and the profitability of its operations.

Contrary to the capital injections and other legislative solutions undertaken on a large scale for the banking system by governments in Europe and in the United States, in China the banks survived the crisis without any noteworthy write-offs, and

even ranked on top of the list of the world's most profitable banks in the crisis years. According to The Banker, Top 1,000 world banks ranking in 2010 included 101 Chinese banks, which contributed 21% of global banking profits. Particularly commendable were their good results with respect to capital strength, asset quality, liquidity and profitability. However, despite the success of reforms in the last thirty years, the Chinese banking sector still has many unsolved problems: the dominance of state ownership and the attendant ineffectiveness, political intervention in lending (Micco et al., 2007), private companies' limited access to bank finance (Zhang, 2008), financial repression (Héricourt & Poncet, 2009) as well as exchange rate and interest rate control. Many observers of the Chinese banking sector are perplexed by the coexistence of high profitability and low effectiveness, as manifested in many empirical studies. Both Feyzioğlu (2009) and García-Herrero et al. (2009) argue that the high profitability of Chinese banks is not linked to higher effectiveness. Instead, Feyzioğlu (2009) supposes that the large market concentration possibly accounts for this discrepancy. In our analysis, the argument of large concentration of the banking sector in China was fully confirmed as banks' assets represent up to 45% of GDP. Our own research demonstrated that Chinese banks match the American ones in profitability and are more profitable than the European banks, which coincides with other studies indicated above. Such results also warrant the conclusion that public ownership, as this is what we are dealing with when it comes to the financial institutions analyzed, is no less efficient than private entities of this type. The operations of public banks are evaluated based on ROA and ROE, while those of private banks are evaluated based on spreads between the ratio of non-interest expenses to non-interest income and the net interest margin.

Some empirical studies suggest that the loans to GDP per capita ratio significantly increases at times of economic slowdown (Rye & Jackson, 2020). However, depending on relevant criteria and circumstances, studies emphasize the advantages of both bank-based and market-based systems (Arcand et al., 2012). Their analysis, based on optimal bank credit level in Beck and Levine (2004), covers the period between 1960 and 2010. The relationship between credit for private sector and GDP increase is concave and non-monotone. Finance starts to have a negative impact on growth when credits for private sector reach 100% of GDP (Arcand et al., 2012). Other researchers applied panel regressions to a sample of 50 advanced economy and emerging countries in the period between 1980 and 2009. The financial development level is good only up to a certain point, and then it starts acting as a brake on growth. The crisis that occurred more than 10 years ago showed that the stability of both financial and economic system affects the lending growth. If, in a longer term, the credit growth rate is much higher than GDP growth, this may lead to imbalance in the economy, especially if there is a feedback mechanism between credit growth and real estate prices. In our panel studies we have proved that as the GDP per capita increases, the demand for bank loans decreases. At the same time, analyses have revealed that the level of loans is higher in Europe and in the US than in China, which stems from the public confidence in financial institutions and from the lending activities in this country.

When it comes to the interest margin (%), in Chinese banks it stands at a similar level to the one in Europe. The differences between these institutions are minor, while the US banks reach a much higher level of this indicator. For European and Chinese banks, this could be caused by lower revenues and higher expenses as these institutions have a higher geographic range and a higher number of banking products. This is confirmed by the studies of Berger et al. (2010) based on research into Chinese banks operating between 1996 and 2006. Upon comparing two financial institution models, i.e. one ensuring a narrow vs. a wide mix of deposit and credit products, it turns out that a bank generates higher profits when it offers a more specialized product mix to clients located in geographically limited areas (Drechsler et al., 2017). Following our analysis of the number of products and of the structure of bank branches in China and Europe, the results were obtained for interest margin. Meanwhile, the results for US banks may be due to a few factors already pointed out by DeYoung and Rice (2004) in their research into the structure of US banks' revenues between 1989 and 2001. These authors concluded that non-interest income gradually grew to account for 40% of banks' total revenues, being complementary to interest income, rather than crowding it out. Its value increased in proportion to the scale of the banks' core deposit and lending activities. DeYoung and Rice (2004) also believe that more profitable banks are steadily increasing non-interest income as a share of their total revenues, unlike less profitable banks. This relationship indicates that the increase of non-interest income, when it corresponds to the growth rate of the sum total of parameters measuring the banks' development, may enhance the level of the bank's security and stability. This was corroborated by the results obtained by us.

Another variable of significance from the standpoint of financial security and stability, which entails mid-term consequences for GDP per capita, is the capital ratio. During the last financial crisis banks with robust balance sheets were better positioned to maintain their loans. The study by Albertazzi and Marchetti (2010) uses Italian data between 2007 and 2009 to find evidence of limited credit supply related to low bank capitalization. Kapan and Minoiu (2013), making use of a sample of over 800 banks from 55 countries in the period between 2006 and 2010 have demonstrated that bank capital played a shock-absorbing role: better capitalized banks (those having a lower leverage ratio) which were exposed to financial market shocks lowered the supply of credits to a lesser extent than other banks. To conclude, all research referred to above suggests that a higher capital ensures reserves, with credit being more stable and reliable even at times of economic slowdown. Our study has demonstrated that compared to Chinese institutions, banks in Europe and in the USA are much better capitalized. Accordingly, one should bear in mind that in future a financial crisis possibly spreading to China due to global interconnectedness may shake the financial sector over there.

The analysis results indicate that the population's living standards in respective countries, as measured with GDP per capita, depend on a number of varied factors: economic and non-economic, objective and subjective, endo- and exogenous alike.

This prevents us from formulating definitive conclusions as to the impact of the state's capital share of the banking sector, but it is, however, possible to find a number of correlations which are described in this part of the article.

Conclusions

The contemporary economic and financial reality, including the way financial sector structure is shaped in various geographical areas, is characterized by a variety of hues and shades, hence, despite the yearning for simplification, it would be useful to provide more nuanced answers, preferably ones having a practical value, too. This is confirmed by our research that points to the specifics and diversity of banks operating on different continents. The profitability of Asian banks is higher than that of the remaining group of institutions from that sector, particularly from Europe. The banking sectors in China, Europe and in the USA are dominated by largest banks. It is sometimes said that everything is more complicated than most people think. Perhaps within the field of economics and finance there is no single, universal and timeless answer relating to all countries and sectors. Economic models are necessarily simplified; at the same time, neither the so-called turbo-globalism, nor the populist nationalism will automatically guarantee security, stability and welfare. The last global financial crisis highlighted again the irregularities in the functioning and development of the financial sector, and that an excessive emphasis was placed on economic development. In the 1970s, research results also confirmed the expectations as to the links between the financial sector and economic growth (Minsky, 1986; Kindleberger, 1986). It has been observed that in the last three decades, the financial sector assets in the USA and China have increased six time faster than the nominal GDP. We believe that the technocratic pragmatism and intelligent combination between public and private ownership is always needed. This was the basis for the statement that finance was to become the master of rather than a servant to the economy. It is emphasized in literature that there is a limit to growth beyond which the financial sector has a negative and declining effect on GDP. In case of our research, there is a visible correlation between profitability indicators, and a society's wealth (measured with GDP per capita or bank assets to GDP per capita, depending on which model was more reliable). However, there is no doubt that irrespective of the geographical area, such correlation does exist. Further research could also focus more on differences among countries and regions as, to some extent, discussed analysis consider governmental decisions as *ceteris paribus*. Such limitation was introduced in order to verify if any differences among public- and private-owned banks can be identified in general although the authors acknowledge variations in public policies, private capital strategies and economy characteristics as possible factors influencing results.

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Appendix 1

Table 1. List of banks analyzed

No.	Company name
	EUROPE
1	BNP Paribas SA
2	Crédit Agricole SA
3	Banco Santander SA
4	Deutsche Bank AG
5	Societe Generale
6	Barclays Bank PLC
7	ING Bank NV
8	Crédit Mutuel (Combined – IFRS)
9	Unicredit SPA
10	Intesa Sanpaolo
	USA
1	JPMorgan Chase Bank, NA
2	Bank of America, National Association
3	Wells Fargo Bank, NA
4	Citibank NA
5	U.S. Bank National Association
6	PNC Bank, National Association
7	Capital One National Association
8	TD Bank National Association
9	Bank of New York Mellon
10	Charles Schwab Bank
	CHINA Company name Latin alphabet
1	Industrial and Commercial Bank of China Limited
2	China Construction Bank Corporation
3	Agricultural Bank of China Limited

No.	Company name
4	Bank of China Limited
5	Bank of Communications Co. Ltd
6	Postal Savings Bank of China Co Ltd
7	China Merchants Bank Co., Ltd.
8	Industrial Bank Co., Ltd.
9	China CITIC Bank Corporation Limited
10	Shanghai Pudong Development Bank Co., Ltd.

Source: Authors' own study.

Appendix 2

Table 1. Descriptive statistics for European banks

Variable	Obs	Mean	Std.	Min	Max
Variable	78	1536.788	560.9235	736.5795	2800.133
Assets	77	50.12844	38.7702	8.78	178.53
Loans	75	15.84653	2.307423	11.66	22.9
Total Capital Ratio (%)	78	1.334872	.592796	.37	2.92
Net Interest Margin (%)	78	.2379487	.4327993	-1.53	.97
ROA	78	4.213974	7.004245	-23.43	13.89
ROE	78	4.050812	1.44483	1.969123	7.096628
Assets as a share of GDP per capita	90	37907.63	2062.352	34377.51	40613

Source: Authors' own study.

Table 2. Descriptive statistics for USA

Variable	Obs	Mean	Std.	Min	Max
Variable	88	810.5625	678.7718	85.81	2218.96
Assets	88	10.99932	10.19445	.13	41.29
Loans	49	14.11959	1.928243	11.65	20.12
Total Capital Ratio (%)	88	3.003295	.9383352	1.14	5.63
Net Interest Margin (%)	88	.9429545	.3426608	.06	1.65
ROA	88	9.276705	4.030967	.57	22.18
ROE	88	1.469097	1.222732	.1662872	3.770433
Assets as a share of GDP per capita	90	55058.17	4505.708	48466.82	62794.59

Source: Authors' own study.

Table 3. Descriptive statistics for China

Variable	Obs	Mean	Std.	Min	Max
Variable	78	1684.279	1027.72	355.331	4351.457
Assets	15	7.856	1.890245	3.85	10.45
Loans	80	12.71562	1.873295	8.84	19.74
Total Capital Ratio (%)	86	2.406279	.3439564	1.51	3.06
Net Interest Margin (%)	88	1.08625	.2302338	.48	1.47
ROA	88	17.99432	4.098582	11.32	32
ROE	78	22.62862	13.19693	6.80465	45.73835
Assets as a share of GDP per capita	90	7314.398	1533.05	4550.454	9770.847

Source: Authors' own study.