

## THE ANALYSIS OF BANK PERFORMANCE INDICATORS

**Klejda GABESHI, Ph.D. Student**

Doctoral School of Economic Studies, University of Craiova, Romania  
Ass/Lecturer, Logos University, Faculty of Economics, Department of Finance and Accounting,  
Tirana, Albania

E-mail: klea.gabeshi@gmail.com

**Abstract:** *Banking performance is a reflection of how banks work, taking into account the environment in which they operate. The purpose of this article is to carry out a qualitative analysis of banking performance indicators, focusing on studying the efficiency of banking activity and banking productivity as determinants of performance. In order to understand the need and importance of evaluating the performance of the banking sector, firstly is elucidated the position of the sector in the structure of the financial system and the role it plays in its stability and economic development. The most important part of the paper emphasizes the identification of the factors that affect the efficiency and bank productivity. To determine the performance of the banking sector, micro and macroeconomic factors must be examined. Among the "micro" environmental factors in the analysis are considered the bank specific factors. As factors of the "macro" environment are all those factors that are not dependent on or determined by the bank's directors. "Efficiency" is different from "productivity", but it is related to it, and the two indicators together are essential for assessing the state of an economy in order to take appropriate measures to improve the situation and project future goals.*

**Keywords:** *Banking Performance, Banking Sector, Efficiency, Productivity.*

**JEL Classification:** *G21.*

### 1. Introduction

Being the principle pillar of the national financial system, the banking sector has a particular importance in the economy. Banking performance is a reflection of how banks work, taking into account the environment in which they operate. The mission of a performant banking system is to allocate the capital exclusively in profitable projects. To succeed, banks must be able to determine which projects are profitable and which are not. If they do this correctly, then the economy has all the chances to work properly.

The purpose of this article is to carry out a qualitative analysis of banking performance indicators, focusing on studying the efficiency of banking activity and banking productivity as determinants of performance.

In order to understand the need and importance of evaluating the performance of the banking sector, firstly is elucidated the position of the sector in the structure of the financial system and the role it plays in its stability and economic development. Banks, due to their quality of main intermediary in the savings-investments relationship, a decisive relationship for the economic growth, represent a special category of financial institutions, which provide liquidity and payment services, form a way of transmitting monetary policy and exercise financial discipline on borrowers. Banks are subject to a higher degree of regulation and supervision comparing with other institutions in the economy. In the case of emerging countries, which have less complex financial systems, banks play an even more important role than in developed economies, as they are the main institutions that produce the information needed to carry out financial intermediation. The degree to which a banking system supports the economic development of a country depends to a large extent on the state of its "health"; the weaknesses of the banking sector can compromise its fundamental function as a financial intermediary, affect the effectiveness of the monetary policy set by the central bank and generate significant costs related to bank laundering. A healthy banking system promotes development and guarantees long-term sustainability of the economy.

The most important part of the paper emphasizes the identification of the factors that affect the efficiency and bank productivity. To determine the performance of the banking

sector, are studied the internal and external factors (microeconomic and macroeconomic factors) that affect the profitability of all commercial banks. Among the "micro" environmental factors in the analysis are considered the bank specific factors. As factors of the "macro" environment are all those factors that are not dependent on or determined by the bank's directors. "Efficiency" is different from "productivity", but it is related to it, and the two indicators together are essential for assessing the state of an economy in order to take appropriate measures to improve the situation and project future goals.

Continuous monitoring and measurement of the performance indicators of banking activity is very important in identifying the problems and finding ways of solving them.

## **2. Banking Sector Performance Analysis**

Rengasamy (2012) defines banking performance "... a mirrored image of how the bank has used its resources to achieve its objectives". The performance of banking activity as a term means the choice of a collection of indicators that reflect the present situation and also the size of the bank's capacity to attain its intended objective. Banking performance is a reflection of the way banks operate, taking under consideration the environment in which they operate. More specifically, it reflects the quality of the bank's management and stakeholder behavior, the bank's competitive strategies, efficiency and risk management capacity.

Identifying the specific banking factors that influenced the measured performance indicators would help defining objectives that can be improved for each examined bank, such as: capital adequacy level, liquidity, quality of profitable assets as a major source of income, bank income, efficiency interest, operating expenses, income as an indicator of the diversity of banking activity, etc. Part of the analysis of banks' performance as financial intermediaries should be the collection of information and data from formal sources or not, to help both depositors and investors achieve the desired goals. They themselves should provide information about their lending activity within the economy, as they are the main source of its financing in the absence of a developed capital market. Measuring the performance indicators of the banking activity was considered a difficult process due to the nature of both the services and the products it offers, being immaterial.

In order to determine the performance of the banking sector, micro and macroeconomic factors need to be examined. According to Raphael G. (2013), "for an analysis to be valid it should take into account both micro and macro environments". Among the "micro" environmental factors in the analysis are considered the specific indicators of the industry and the individual banks, the specific banking factors. As factors of the "macro" environment are all those factors that are not dependent on or determined by the bank's directors. The macroeconomic factors that determine the performance of the banking sector are: growth, gross domestic product, inflation and others related to them, used by many researchers to measure and analyze efficiency and productivity indicators. Specific banking factors include a series of indicators measured by financial ratios that reflect: liquidity, profitability, efficiency, portfolio quality, capital adequacy and others. Among the factors of industry, market structure we can mention: concentration, competition, etc. Other determinants of performance indicators are related to the structure of the bank such as ownership, origin, longevity of the activity, etc.

Referring to the empirical analyses, there are numerous studies evaluating the performance of the banking sector in terms of productivity by measuring the index of the change of the total productivity factor (TFPCH-Total factor productivity change) of the individual banks in the developed and developing countries. Munteanu, Brezeanu and Badea, (2013) examined the performances of the banking sector in Romania for the period '06 -'11 in terms of modifying the total productivity factor measured with MPIDEA. 19

operating banks in the sector were considered for the analysis during the analyzed period. The selection of the variables was based on the approach that shapes the bank's "intermediary" function in the financial system and in the economy. The empirical results did not show the consistency of changes in (TFPCH) for the period studied. The results recorded a higher value (TFPCH) of large and small banks compared to medium-sized ones. The source of growth of large banks has proven to be the efficiency of the scale, while in medium banks the pure efficiency of the management.

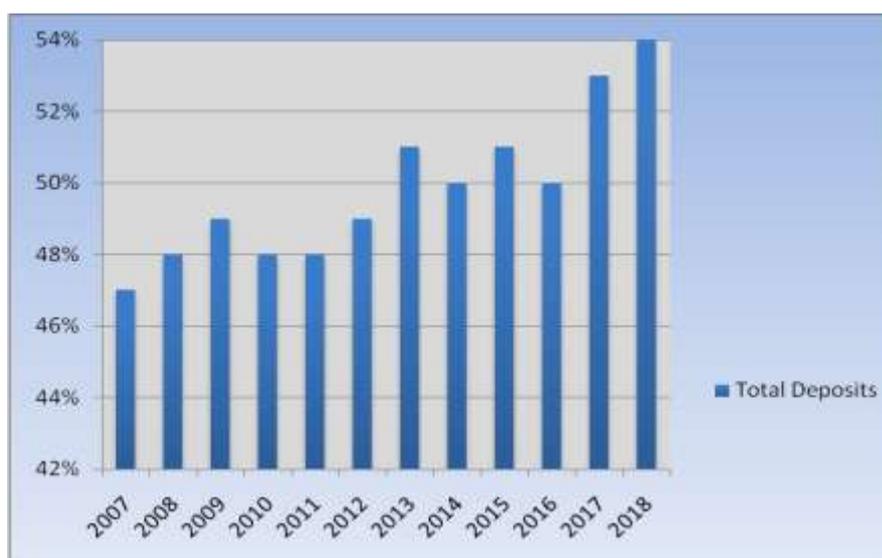
Andries, (2012) analyzed the efficiency and productivity of the Bulgarian banking sector / 21 banks, the Czech Republic / 9 banks, Poland / 23 banks, Romania / 23 banks, Slovakia / 10 banks, Slovenia / 13 banks and Hungary / 13 banks for the respective period 2004-2008. To analyze the performance indicators, the researchers used the non-parametric DEA method, the BCC and CCR models, the parametric SFA method and the non-parametric MPI method. The results of the changes in (TFPCH) of the examined banks showed an increasing trend, thus a progress in the studied period.

The economies of the Western Balkan countries are among the most affected by the effects of recent recessions strongly influenced by the evolution of the region's economies. The slow recovery of the euro area economies represents a risk for the world economies. The almost unmistakable rate of economic growth leads to a drop in demand followed by inflation to deflation. The risks borne by the world economy that are easily transmitted to the economies of the region are: market fluctuations, geographical and political tensions, low rates of economic growth in developed countries and decline in emerging countries. In such an economic environment, the analysis of the financial stability of the region is of particular importance. The countries of the Western Balkans have some common features: the history of socio-economic development, the transformations that have taken place, the reforms undertaken, liberalization, restructuring and the path to development. The structure of their financial system is mainly based on the banking sector, and capital markets are underdeveloped or inactive as in the case of Albania. Another common feature that makes them even more exposed to financial instability is that most banks are owned by the largest banks operating in European countries. Meanwhile, the economies and banking sectors of their "mother" countries are having problems and their economies are shrinking. According to PFS (2015), the most exposed among the countries of the Western Balkans to foreign capital are Montenegro, Albania and Macedonia. All these economies have been directly or indirectly affected by the crisis of recent years. The economies of these countries are small, but all have the objective of joining the European Union, despite the different levels of development.

European banks have continued building a solid capital position and strengthening their balance sheets. The recapitalisation effort that European banks have created following the 2008 financial crisis makes the European banking sector more resilient and robust. In Fig.1. are shown the deposits in EU banks as a share of total banking assets. I have processed the subsequent chart using data from EBF. The share of deposit liabilities over total assets increased in 2018 from 53.4% to 54.2%, in line with the rising trend since 2007 (47.3%) that reveals the shift towards bigger reliance on deposits as a supply of funding.

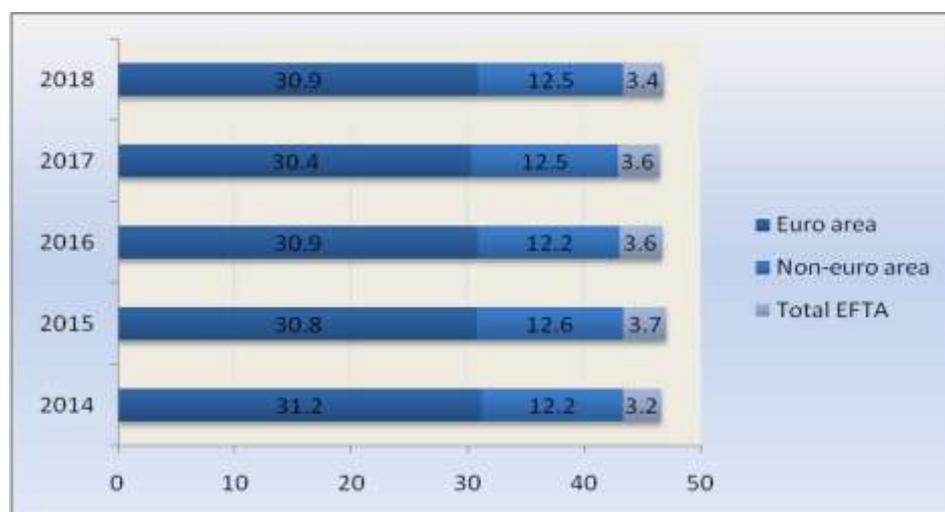
According to the EBF report (2019), the country breakdown for total deposits shows that domestic deposits were equivalent to less than half of the assets in Denmark, Ireland, Greece, Sweden, Finland, France, UK, Luxembourg, Italy, Malta and the Netherlands. The figures still mirror, in part, different banking models, for example the well-developed covered bond markets in Scandinavia. Meanwhile, countries with the largest shares of deposits funding the banking sector's assets were Bulgaria, Croatia, Estonia, Slovenia, Slovakia, Lithuania, Poland and Romania all of which had deposits equivalent to 60% or more of assets.

**Figure 1. Deposits in EU banks as a share of total banking assets**



The amount of total assets held by EU banks expanded in 2018 after few years of consecutive contraction, registering a value of €43.35 trillion (€30.9 billion in euro area and €12.5 billion in non-euro area), as shown in Fig.2. This increase came basically from earn in the total assets in the euro area countries (1.6%). Considering the country breakdown, the country with the strongest boost in absolute terms was Finland with €176 billion (39.1%). Among the four largest European countries only France registered a substantial positive result in their stock of assets which increased by 4.2%, Italy and Spain showed a reduction of 1.3% and 2.9% respectively (EBF 2019). The countries with the most significant reductions in their stocks of assets were Cyprus (-13.1%) and Latvia (-19.5%).

**Fig. nr. 2. Total Assets in EU banks (€ trillions)**



### 2.1. Analysis of bank productivity and its determinants

The productivity of the banking sector refers to the efficiency with which the bank transforms its factors of production (inputs) into services (outputs). More accurately, it reflects the quality of bank's management and stakeholder's behavior, bank's competitive strategies, efficiency and risk management capability. The determinants of the bank

profitability have attracted the interest of the academic research, as well as the interest of the financial markets and the bank supervisors.

The researchers mainly used two indicators to determine the bank's profitability: ROA (return on assets) and ROE (return on equity). The performance of the banking system is a topic that has attracted a lot of attention in recent years around the world. But it is worth noting that most studies have been conducted for the developed countries and only a few of them have been conducted for the developing countries.

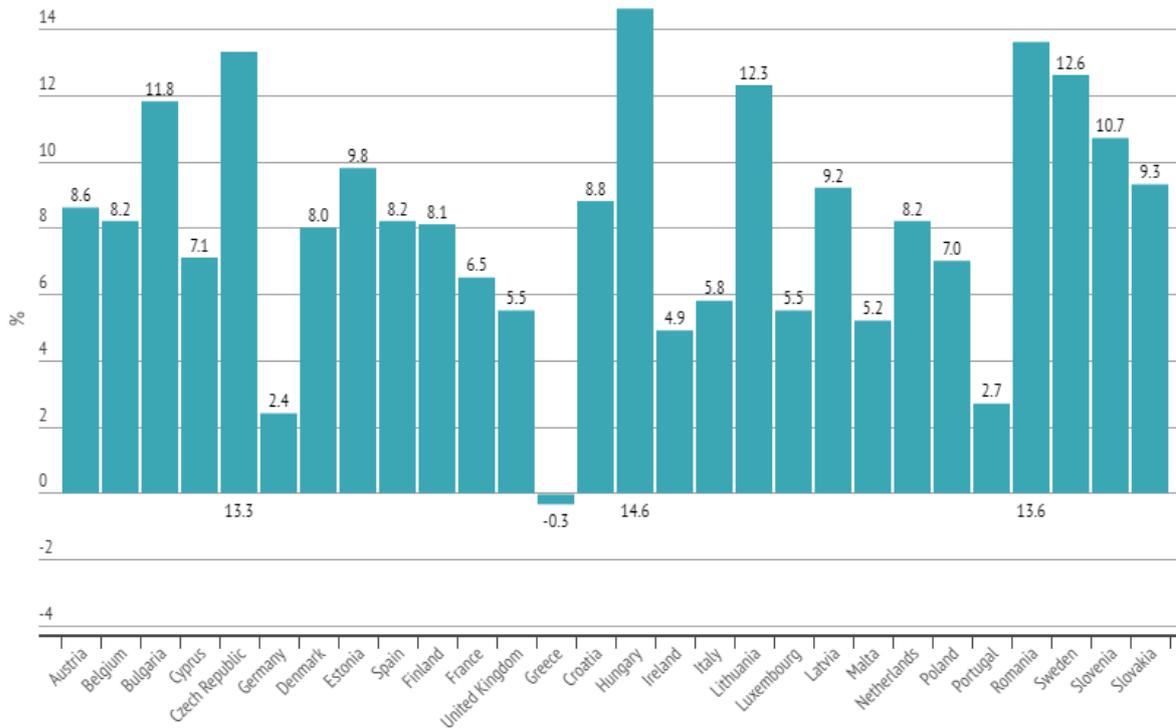
Profitability reflects a situation where earnings generated over a given period exceed expenditures incurred during the identical interval with the only purpose of generating income (Sanni 2009). Molyneux and Thornton (1992) were the first to explore the determinants of bank profitability in a number of countries. They collected data from 18 European countries during 1986-1989 and their results showed a significant positive relationship between return on equity and interest rates and also the banking concentration in each country.

Staikouras and Wood, (2003), analyzed the determinants of bank profitability in 685 European banks, using the variables of credit risk, capital adequacy, interest rate, operational efficiency, bank size, GDP growth rate and gross per capita income for each European country, resulting in a positive link between ROA with capital adequacy and bank size, while credit risk was negatively related to the bank's profitability. Athanasoglou et al., (2005) investigated the Greek banks' profitability between 1985 and 2001 and concluded that credit risk and operating expenses had a negative impact on profitability, while inflation was positively related to financial performance. In (2008), the same authors evaluated the profitability behavior of the Southeast European banking sector over the period 1998-2002. The empirical results showed that the effect of market concentration was positive, while the results related to the macroeconomic variables were mixed.

Deger and Adem (2011) studied the bank specific and macroeconomic determinants of banks' profitability in Turkey over the 2002-2010 period. Banks' profitability was measured by return on assets (ROA) and return on equity (ROE) as a function of bank specific and macroeconomic factors. The results showed that bank size had a positive and statistically significant impact on banks' profitability. However, the size of the loan portfolio had a statistically significant negative impact on banks' profitability. With regard to macroeconomic variables, only real interest rates impacted the banks' performance positively.

The main objective of the study I conducted in (2018) was to identify internal and external factors (bank-specific and macroeconomic factors) that affect the profitability of all commercial banks operating in Albania, through an appropriate empirical analysis. The econometric model used was that of multiple linear regression where, as a dependent variable used as a proxy for banking performance, I choosed the ROE ratio and as independent variables a number of macroeconomic indicators and indicators of assets and liabilities of the Albanian banking system are chosen. The results of the econometric model showed that there is a statistically significant direct link between ROE as a determinant of the bank's profitability and factors such as bank size and inflation rate. On the other hand, the results of the econometric model showed that there is a statistically significant indirect correlation between the ROE level and the indicators of the non-performing loans ratio and the loan-to-deposit ratio.

**Figure 3. Return on equity by country**



Source: <https://www.ebf.eu>

With the ECB maintaining its ultra-low interest rates, profitability remains a key challenge facing European banks. The return on equity (ROE), a key indicator to assess the bank sector's attractiveness for investors has been slowly recovering. As seen from Fig.3., all countries but Greece have a positive ROE with seven countries having a double-digit ROE led by Hungary (14.6%), Romania (13.6%) and Czech Republic (13.3%). Only Greece registered a negative result, compared to three countries in 2017, though only by a very small margin -0.3%. The difference between the highest (Hungary) and lowest (Greece) ROE was 14 percentage points in 2018, very far from the 101.6 recorded in 2013 (11.4% in Czech Republic and -90.2% in Slovenia).

## 2.2. Analysis and evaluation of the efficiency of the banking activity as a performance indicator

Efficiency can be understood as a degree of use of resources to achieve the proposed objectives. Increased efficiency reflects better use of existing resources. This is one of the reasons for its study and measurement. According to Avkiran (2013) "the efficient functioning of any organization in an economy is crucial to maintaining its level of well-being". This is a second reason for studying and evaluating efficiency, being directly related to achieving the ultimate goal of any organization, achieving profit and improving the well-being of society accordingly. The most general definition of efficiency, referred to by modern economic theory, is made by Vilfredo-Pareto, otherwise called "Pareto's Optimum", which is conceived as: the maximum well-being defined as a position (in the economy), whence it is impossible to increase your well-being through production or exchange, without damaging or aggravating one's well-being. Jindal, (2014) argues more broadly the need to measure the efficiency of the banking sector and says that it is directly related to the productivity of the economy. The efficiency of a bank is its ability to transform labor, capital, technology into financial services and banking products to better serve its customers.

When measuring banks' efficiency is recommended, firstly to determine the type of relative efficiency to be assessed: technique, distribution, costs, profit or revenue, secondly to specify the method to be used, parametric, non-parametric or a combination of both and thirdly to identify the factors that influence it. Factors affecting the efficiency of the banking sector are grouped into: a) factors determined by the specific banking activity and their structure; b) macroeconomic factors that affect the evolution and performance of banks; c) market structure factors; d) regulatory factors; e) other factors such as crises, government interventions, quality of institutions, etc. Some authors used as determinants of the efficiency, capital and adequacy, profit, etc., while as factors of structure, the size of banks determined by total assets, whereas others according to others the macroeconomic factors that affect efficiency are inflation, GDP, GDP per capita, GDP growth rate, etc. Most of the studies measure the technical efficiency relative with the non-parametric DEA method (data enveloping analysis).

Chortareas, Girardone and Ventouri (2012) examined 5227 banks operating in 22 European Union countries, developed and developing such as Austria, Denmark, Germany, France, United Kingdom, Czech Republic, Estonia, Lithuania, Latvia, etc., in the period 2000-2008 using the DEA method. Based on the empirical findings, the regulatory and supervisory system was closely linked to efficiency, and the indicators varied depending on the type of rules applied. Supervision of capital adequacy had a positive effect on efficiency, while restrictions on banking had a negative impact. Another important conclusion of the study was that "large" banks operating in a less concentrated economic environment and a more developed financial system tended to be more technically efficient. Based on the findings, the researchers concluded that political systems had an impact on the efficiency of the banking sector.

Spulbăr and Nițoi (2015) used a stochastic border model to estimate the cost-effectiveness of cooperative banks and savings banks in nine countries between 2005 and 2011. In addition, they analyzed the influence of certain variables that quantify the risk and performance of cooperative banks and of savings banks at the level of inefficiency. They found that both co-operative banks in Switzerland and savings banks in Norway and Sweden have a high level of cost-effectiveness. Regarding the variables that influence the level of inefficiency, the results showed that a higher risk implies an increase in this level, while an increase in performance leads to a decrease in inefficiency. The results showed that a higher rate of gross domestic product (GDP) implies an increase in inefficiency. Smaller banks are more cost-effective than larger banks. They interpreted this result as a consequence of the benefits enjoyed by these institutions within the groups to which they belong. Also Spulbăr and Nițoi, in the same year (2015) using a heteroskedastic stochastic border model, investigated the differences in cost efficiency of commercial banks in six emerging countries in Central and Eastern Europe in the period 2005-2011. They also highlighted the determinants of cost-effectiveness of banks. Their analysis was important because the efficiency of commercial banks became essential for the stability of banks. The results showed that high macroeconomic stability supports the efficiency of commercial banks. Also, banks that take higher risks are more inefficient. As a result, banks with less liquidity, lower solvency and higher credit risk are more inefficient than more prudent credit institutions. Analyzing the evolution of the cost index, they found that banks in all banking systems included in the study managed to increase the level of efficiency by 2008. The year 2009 brought a decrease in efficiency for Polish, Romanian, Russian and Hungarian banks. At the same time, for the Bulgarian and the Czech Republic banks, they noted a stagnation of the efficiency index.

### 3. Conclusions

The regional economic environment does not favor the stability of the financial system, but prevents the increase of the efficiency and productivity of the banking sector. The source of the crisis is the deprivation of the banking sector to play its part in an economy, to raise capital and to invest efficiently. Consequently, the measurement of efficiency and productivity indicators remains the starting point for assessing the soundness of the financial system as a whole. With regard to the problems caused by the financial crisis, regulatory standards have been revised, including micro and macro-prudential rules, to allow for a better identification of banking and financial risks, their management and their mitigation with a view to sustainable development. For a healthy banking sector, it is suggested continuous monitoring and evaluation of performance indicators, increased oversight by authorized local or international institutions on the sector, continuous review of the regulatory system in response to changes and developments in the economy as a whole, regular assessment of asset quality, the adequacy of capital to the set limit, the restructuring of the sector in accordance with its performance, etc.

### References

1. Andries, A.M., 2012. The Determinants of Bank Efficiency and Productivity Growth in the Central and Eastern European Banking Systems. *Eastern European Economics*, 49(6), November – December 2011, pp.38-59.
2. Athanasoglou, P., Brissimis, S. and Delis, M., 2008. Bank-specific, industry-specific and macroeconomic determinants of bank profitability. *Journal of International Financial Markets, Institutions and Money*.
3. Athanasoglou, P.P., Sophocles, N.B. and Matthaios, D.D., 2005. *Bank-specific, industry-specific and macroeconomic determinants of bank profitability*. Working paper, Bank of Greece.
4. Avkiran, N.K., 2013. Bank Efficiency Measurement and Network DEA: A Discussion of Key Issues and Illustrations of Recent Developments in the Field. In Pasiouras, F., 2013. *Efficiency and Productivity Growth: Modeling in the Financial Services Industry*, Chapter 8, pp.171-191. John Wiley & Sons Ltd.
5. Chortareas, G.E., Girardone, C. and Ventouri, A., 2012. Bank supervision, regulation and efficiency: Evidence from the European Union. *Journal of Financial Stability*, 8(4), December 2012, pp.292-302.
6. Deger, A. and Adem, A., 2011. Bank-Specific and Macroeconomic Determinants of Commercial Bank Profitability: Empirical Evidence from Turkey. *Business and Economic Research Journal*, 2(2), pp.139-152.
7. European Banking Federation, 2020. *Facts and figures*. [online] Available at: <<https://www.ebf.eu/facts-and-figures/banking-sector-performance/>> [Accessed 1 April 2020].
8. Gabeshi, K., 2018. *The Determinants of Bank Profitability. Empirical Evidence from the Albanian Banking System*. 2<sup>nd</sup> International Conference in Applied Sciences and Economy, 20 April 2018, Tirana, Albania.
9. Jindal, P., 2014. *Operational Efficiency in Banking Sector – A Conceptual Framework*, Chapter 4.
10. Molyneux, P. and Thornton, J., 1992. Determinants of European Bank Profitability: A Note. *Journal of Banking and Finance*, 16, pp.1173-1178.
11. Munteanu, A., Brezeanu, P. and Badea, L., 2013. Productivity change patterns in the Romanian banking system – the impact of size and ownership on total factor productivity. *Theoretical and Applied Economics*, 20(6), pp.35-52.

12. Nițoi, M. and Spulbăr. C., 2015. An Examination of Banks Cost Efficiency in Central and Eastern Europe. *Procedia Economics and Finance*, 22, pp.544-551.
13. PFS, Partners For Financial Stability, USAID from American People, 2015. *Financial Sector and Macroeconomic Stability*, April 28.
14. Raphael, G., 2013. A DEA Based Malmquist Productivity Index approach in assessing performance of commercial banks: Evidence from Tanzania. *European Journal of Business and Management*, 5(6), pp.25-34.
15. Rengasamy, D., 2012. *The need to evaluate bank performance*. Article, Published in November 06, 2012.
16. Sanni, M.R., 2009. The effects of the 2006 consolidation on profitability of Nigerian Banks. *Nigerian Research Journal of Accountancy (NRJA)*, 1(1) pp.107-120. Lagos: The Institute of Chartered Accountants of Nigeria (ICAN).
17. Spulbăr, C., Nițoi, M. and Anghel, L., 2015. Efficiency in Cooperative Banks and Savings Banks: A Stochastic Frontier Approach. *Journal for Economic Forecasting*, 1, pp.5-21.
18. Staikouras, C. and Wood, G., 2003. The determinants of bank profitability in Europe. *European Applied Business Research Conference*, Venice.