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Determinant of Profitability of US Commercial Banks: Panel Evidence From Period 2013-2017

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Abstract: The purpose of the paper is to further examine the determinants of commercial bank profitability in United State during period from 2013 to 2017. The quantitative research method is used in this paper and data of fifty commercial banks in the US are used. The results indicate that return on average assets (ROAA) is found negatively and significantly affected by bank size and large banks are influenced by tremendous all kinds of costs. The other significant determinants are credit risk and operational efficiency, both of them affect negatively on bank profitability. Turning to external factors, the growth of GDP and inflation are both insignificant in bank performance.

Keywords: United State; Banking; Profitability

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1.Introduction

When it comes to the development of the economy and the stability of finance, commercial banks play a considerable role. They support available funds and loans to investors. In the United State, commercial banks are the basis of business and finance. As of 2018, the banking asset of first five largest banks was almost equal to 56% of the US economy. Meanwhile, their annual revenue rises to nearly 240 billion dollars by 2019, earnings in the bank sector have a wide fluctuation based on economic climate and bank-specific characteristics. Following up many previous studies about the determinants of bank profitability in United States, we find that they generally separated internal and external factors (Ongore, 2013).

The aim of this paper is further examining the determinants of bank profitability in the United State. Therefore, return on average asset (ROAA) is set as a measure of bank profitability. Our group design two equations according to external and internal factors. The effect of internal factors is considered liquidity, bank size, credit risk, operational efficiency, and capital strength. The other effect of external factors is considered the growth of GDP and inflation rate. Meanwhile, we choose top fifty commercial banks based on data during the period 2013-2017 in United State. And we divide this paper into five parts, when we finish the introduction, following by the literature review section which shows different perspectives of far-famed authors associated with different factors settling bank profitability. Date and methodology will be presented at third section providing two model formulation. Next section will analysis and give the results of the research. Finally, we show the conclusion of this paper and give some recommendations to further studies.

2.Literature review

2.1 Prior research

There are numerous empirical studies about determinants of the bank profitability, including liquidity, credit risk, efficiency, capital, and macro-economy. In an early research, Bourke (1989) points that elements determining bank profitability can be classified into two categories, including the internal determinants controlled by the management of banking institutions and the external determinants that are uncontrollable and reflecting the macroeconomic or legal environment.

Molyneux & Thornton (1992, cited in Shahzad et al., 2018) argues significant and negative relationship of liquidity with profitability. In fact, if banks retain large amounts of money rather than investing, they will have sufficient liquidity and their profitability will be affected negatively (Ayanda, Christopher & Mudashiru, 2013). However, Bourke (1989) finds that the bank's liquidity and profitability are positively correlated. Similarly, some researchers have a consistent view that when liquidity falls, the profitability decreases (Rasiah, 2010; Chronopoulos et al., 2015; Rudhani, Ahmeti and Rudhani, 2016; Shahzad et al., 2018).

There are many studies which indicate a link between bank size and profitability. By achieving economies of scale, the expansion of banks can increase the bank's profitability. An example provided by Mester (2010, cited in Regehr and Sengupta, 2016) is that banks with larger assets can reduce risk through product lines, industry and regional diversification, and all above ultimately lead to the increased profitability. In contrast, ECB (2015) reveals size can significantly and negatively affect bank profitability due to complex systems and high-cost structures of larger banks. On the other hand, an argument is made by Chronopoulos et al. (2015, cited in Bikker and Vervliet, 2018), stating that there is a non-linear relationship that profitability begins to increase as the size increases, and then decreases.

It is observed by Buchory (2015) and Bhattarai (2016) that NPL has a positive association with ROAA and ROAE respectively. On the contrary, Athanasoglo, Sophocles and Matthaios (2005) and Ozurumba (2016) demonstrate the connection between credit risk and bank profitability is negative. An evidence was given by Said (2018) is to suggest that nonperforming loan ratio is inversely related to the profitability of the commercial banks with a total asset of 100million-300million in the US.

It is argued by Dietrich and Wanzenried (2014) that before and during the financial crisis, Swiss banks had negative operating efficiency indicators (cost-to-income ratios). Similarly, the view is supported by Kalaitzis and Fotiadis (2017) that this factor negatively affects the profits of UK banks. These findings are the same as in the prior literature, proving that more profitable banks are more efficient, while less cost-controlled banks have lower profits (Pasiouras and Kosmidou, 2007; Athanasoglou, Brissimis, and Delis, 2008).

Capital is a common internal variable to banks, which is significant for the determination of bank profitability. The empirical evidence of the positive relation between capitalization and profitability of banks in the US is given by Berger (1995), and similarly, Goddard et al. (2004) for European banking systems agree with it. While it is true that Tregenna (2009) finds such relationship is negative in US banks over the period 1994 to 2005 and Chronopoulos et al. (2015) indicates that capital ratio is a significant and negative variable in the regression analysis, based on 1984–2010 US banks data.

Using GDP growth as a variable has not been widely characterized in measuring bank performance. Kosmidou (2008) takes the Greek commercial banks from 1990 to 2002 as an example to examine how macroeconomic variables affect performance and his empirical result suggests a correlation between GDP and bank profitability is positive, which is consisted with finding of Arpa et al. (2001) for Austrian banks and Kok et al. (2015) for euro area banks. Whereas, it is proved that the impact of GDP on ROAA is obviously negative (Staikouras and Wood, 2003; Banerjee and Majumdar, 2014).

There is various empirical analysis showing that the correlation between inflation rate and the profitability of banks is complex. Perry (1992) describes how inflation affects the profitability depending on whether inflation could be predicted. Demirgus-Kunt and Huizinga (1999), Athanasoglou et al. (2008) and Trujillo-Ponce (2013) have an agreement that inflation rate is positively correlated with profitability, while it is demonstrated that the inflation rate is not significantly related to euro area banks' ROAA (Kok et al., 2015). Besides, an evidence suggested by Dietrich and Wanzenried (2014) that inflation has a remarkably positive effect in countries with low or middle income, but it does not affect profitability in high-income countries.

From the above, we can see some conflicts on macroeconomic variables influencing bank profitability in the different

literature results, namely concerning the effects of GDP growth and inflation. However, considering the different geographical location of the sample and the reference period between the papers, this observation is not difficult to understand.

2.2 Variable selection

Performance measures

ROAA is a crucial ratio for evaluating the bank profitability and is widely used in literature .This ratio link business profits with bank owned assets, reflecting how efficient the bank utilizes its assets. And it can objectively reflect the ability of banks to use asset without being affected by refinancing. Therefore, we chose ROAA to represent top 50 US commercial bank performance from 2013 to 2017.

Internal factors

Banks receive deposits and issue loans to create liquidity, which calculated by the ratio of loans to deposits (LODEP) (Arthur and Rabarison, 2017). Effective liquidity management enables banks to meet customer needs, and even if banks are in financial crisis, ineffective liquidity management can lead to serious consequences (Rudhani, Ahmeti and Rudhani, 2016). Although researchers have different views on the liquidity and profitability of banks, it would be predicted that higher liquidity would lead to the higher profitability.

Natural logarithm of total assets (LNSIZE) is used to measure bank size. Prior studies in which the bank size exerts a positive and negative impact on the probability of banks. Furthermore, bank size and profitability are non-linear. Since the result that size affects the bank profitability is still inconclusive, natural logarithm of total assets as a proxy is used for its size to explain how asset size affects profitability. It is assumed that size affects profitability positively because of the low rates from the US government.

The rate of non-performing loans to total loans (NPL) is an indicator ratio of credit risk (Laryea, Ntow-Gyamfi and Alu, 2016). Various studies have identified non-performing loans (NPLs) as explanatory variables that determine bank profitability and regulate the correlation between them. This factor indicates the loan quality as well, which have a strong impact on expecting bank future profitability (Said, 2018). Different results show the amount of credit loan provided, depending on bank size, affects the profitability differently. It is expected that banks with higher the non-performing loans to total loans have the higher the risk and therefore the lower the profitability.

Cost to income ratio (CTI) measures operational efficiency and a bank's success. It is also considered as a management ability's indicator to control and reduce the rate. In previous studies, it is clear that cost to income ratio affects the bank's performance negatively. Thus, we use this ratio to expect that the negative relationship between CTI and profitability since it demonstrates the management efficiency resulting in increased costs.

The equity to assets ratio (EQTA) is used for evaluating the overall capital level, referring to the adequacy of equity. Although more capital helps banks reduce the possibility of collapse, increase their market share and profitability, it results in a significant falling in leverage. Thus, we predict that EQTA is negative and insignificant in relation to bank profitability.

External factors

The growth rate of GDP (GDPGR), the most popular macroeconomic indicator, is measured total economy activity. It is expected that GDP growth could influence many elements associated the demand and the supply of bank deposits and loans (Olalere et al, 2017). It is worth discussing whether the GDP growth rate influences the banking sector and its performance. As most analysis, we project that GDP growth rate could have a positive impact on bank profitability.

Inflation rate (INFL) is associated with market growth. Revell (1979) indicates the link between inflation and profitability influenced by salaries and operating costs of the bank. Under such circumstance, more researchers confirm a positive association between inflation and profitability. According to the view of Dietrich and Wanzenried (2014), we expect that there is no significant coloration between the two variables due to the high income of the US.

3.Data and methodology

3.1 Data

In this study, accounting data of individual banks is drawn from Orbis Bank Focus. The country- and market-specific data such as GDP growth, Inflation rate and Unemployment rate is obtained from World Bank dataset. The sample includes top

50 (ranked by assets) commercial banks based in United State over the period 2013 to 2017 consisting of 249 observations, 1 observation is omitted due to data unavailability. The time period 2013 to 2017 is chosen by data availability.

3.2 Model formulation

In order to examine to what extent the internal factors (e.g. bank's-specific characteristics) and external factors (e.g. macroeconomic) affect the profitability of US commercial banks, quantitative research method is used in this paper. The bank-specific equation is shown below:

The model (1) is to examine the impact of the internal factors (e.g. bank's-specific characteristics)on bank performance

$$ROAA_{it} = \beta_0 + \beta_1 LNSIZE_{it} + \beta_2 CTI_{it} + \beta_3 LODEP_{it} + \beta_4 NPL_{it} + \beta_5 EQTA_{it} + \varepsilon_{it} \quad (1)$$

Where β0 is a constant, i refers to an individual bank, t refers to year,εis an error term.

The model (2) is to examine both the internal factors (e.g. bank's-specific characteristics) and external factors (e.g. macroeconomic) influence on bank performance. As shown below, the external factors of each year are added to model (1):

$$ROAA_{it} = \beta_0 + \beta_1 LNSIZE_{it} + \beta_2 CTI_{it} + \beta_3 LODEP_{it} + \beta_4 NPL_{it} + \beta_5 EQTA_{it} + \beta_6 GDPGR_{it} + \beta_7 INFL_{it} + \varepsilon \quad (2)$$

The two models are tested by heteroscedasticity and found in Table1 that heteroscedasticity exists significantly in model (1) and model (2). Therefore, In the presence of heteroscedastic errors, robust standard errors will be used. Next, the two models are tested by heterogeneity to select which model is the best and robust standard errors are used in model (1). As shown in Table2, based on Breusch-Pagan Lagrangian multiplier test and F test, the p-value successes to reject the null hypothesis so that pooled OLS model is not suitable in both two models. Furthermore, Hausman test is conducted and the result suggests that fixed effect method is better than random effect method. Therefore, we consider that the fixed effects method used in our analysis is appropriate. Finally, we do VIF test, the results in Table3 show that multicollinearity do not exist for both models.

Table1 Heteroscedasticity Test

Breusch-Pagan test	
Regression (1)	Regression (2)
0.0000	0.0000

Table2 Selection of Models

Regression	**Test Method**	**Hypothesis**	**p-value**
Equation (1) Internal Factors	Breusch-Pagan LM test with robust standard errors	H0: pooled OLS H1: RE	0.000
	F test	H0: pooled OLS H1: FE	0.000
	Robust to heteroskedasticity Hausman-like test	H0: RE H1: FE	0.0000
Equation (2) Overall Factors (Internal & External Factors)	Breusch-Pagan LM test with robust standard error	H0: pooled OLS H1: RE	0.000
	F test	H0: pooled OLS H1: FE	0.000
	Robust to heteroskedasticity Hausman-like test	H0: RE H1: FE	0.0000

Table 3 VIF results of two regressions

variable	**VIF**	
	Regression (1)	**Regression (2)**
LODEP	1.61	1.61
LNSIZE	1.06	1.06
NPL	1.37	1.37
CTI	1.03	1.04
EQTA	1.20	1.20
GDPGR		1.17
INFL		1.17
Mean VIF	1.25	1.23

4.Results

This sections provides detailed analysis of empirical results, including a general analysis of internal and external determinants on bank profitability, and results of the regressions about the two models.

4.1 Descriptive statistics of variables

The Table4 shows descriptive statistics for internal factors and external factors which used in the regression models, including observations, mean, standard deviation, min value and max value. These data are used to describe the basic features of factors in this research and provide simple summaries about the sample and the measures.

Table4 Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ROAA	249	1.076386	0.891087	-3.01	5.81
LNSIZE	249	11.42353	1.053858	9.5	14.38
CTI	249	57.23454	15.2513	13.57	89.95
NPL	249	1.400602	1.034148	0.05	7.18
LODEP	249	74.42329	22.73367	9	138.11
EQTA	249	12.09357	2.970676	6.39	23.97
GDPGR	250	2.174	0.5203721	1.49	2.86
INF	250	1.318	0.666056	0.12	2.13

4.2 Results of the regressions

The Table5 shows the results of the regressions. The first column reports the results of the model (1) which only considers the internal factors (e.g. bank's-specific characteristics) and the second column shows the result of model (2) which both internal factors (e.g. bank's-specific characteristics) and external factors (e.g. macroeconomic) are taken account to.

Table5 Regression Results

	Dependent variable ROAA	Dependent variable ROAA
LNSIZE	-0.6545503(0.000)***	-0.6512018(0.000)***
CTI	-0.035604(0.000)***	-0.0361899(0.000)***
LODEP	-0.0093542(0.282)	-0.0095788(0.271)
NPL	-0.6566329(0.000)***	-0.6472787(0.000)***
EQTA	-0.0242198(0.659)	-0.0228476(0.676)
GDPGR		0.0135474(0.581)
INFL		-0.0114181(0.396)
R2	0.3145	0.3154
Prob>F	0.0001	0.0001
Notes: 50 Banks, period 2013-2017, No. of observations=249, p-values in parentheses; *Significant at the 10 per cent level, **significant at the 5 per cent level, ***significant at the 1 per cent level.		

As shown in Table, model (1) and (2) are very statistical significant with P-value = 0.0001. The overall explanatory power (in terms of adjusted R2) for these two models are not relatively high, which are 31.45% and 31.54% respectively. The explanatory power of the model (in terms of adjusted R2) that examines the determinants of ROAA increases slightly when factors are considered.

4.2.1 Bank's-specific characteristics

Size

The results indicate that the relationship between size and bank performance is negative and statistically significant regardless of macroeconomic factors. Our finding consists with previous finding of ECB (2015). He provides support to the argument

that in larger banks, the structure are more complex, therefore lead to more costly structure. Furthermore, larger banks will be negative impacted on the performance of profitability by bank size. Moreover, with respect to See Tregenna (2009), it could be argued that economies of scale will be limited by size of bank, and it might suffer from diseconomies of scale owing, for example, because of agency costs, overhead costs of bureaucratic processes and other costs may influence the management of large banks. In practice, the failures of large banks are more likely to cause macroeconomic externalities compared with small bank. In order to ensure economic stability in US, the government should provide more financial assistance to large banks.

Credit risk

Credit risk is found to be one of the most important determinants of bank profitability in the research in both the two models and it has negative effects on bank performance which is consists with the finding of Athanasoglo, Sophocles and Matthaios (2005) and Ozurumba (2016). This result suggests in US banking sector, it seems that managers have adopted a risk-averse strategy which is mainly used to improve screening and monitoring credit risk to maximize profits.

Operational efficiency

Cost-to-income ratio is significant and negatively related to bank profitability whether macroeconomic factors are considered or not. The result consists with previous research such as Dietrich and Wanzenried (2014) and Kalaitzis and Fotiadis (2017), they confirm this inverse relationship for Swiss banks and UK banks respectively. The finding supports the argument that more efficient banks will perform better and an increase in expenses of operations in banks will lead to a decrease in the profits of banks operating in the US banks. As a result, for the purpose of promoting the profitability US banks, bank managers should take the necessary actions to achieve a more efficient cost control (Pasiouras and Kosmidou, 2007).

4.2.2 Macroeconomic

We turn to the effects of macroeconomic, from the table, it indicates that the growth of GDP has an insignificant and positive impact on bank profitability when the level of significance is 5%. Our finding is inconsistent with the findings of Staikouras and Wood (2003), Banerjee and Majumdar (2014). Meanwhile, the positive relationship means that growing economy will bring on the increasing in the demand and supply of funds from banks so that in turn it results in higher profitability. (Anne Deraso Illo, 2011)

In addition, the table also shows that the inflation is unimportant and negative about the influence of bank profitability at 5 % level of significance. Our finding of insignificant and negative correlation between bank profitability (ROAA) and inflation which is consist with the view of Dietrich and Wanzenried (2014).

The results both the growth of GDP and inflation confirm our pervious hypothesis. There are serval reasons. First, there are the limited data our group use. Second, we analysis the period from 2013 to 2017 which is little short and relatively stable economic environment since the end of financial crisis. Last， The United State is the world financial center, in terms of external influence it combines with an enormous variety of factors.

5.Conclusion

5.1 Overview of study

This paper examines the impact of bank-specific characteristics and macroeconomic conditions, measured by return on average assets (ROAA). For this aim, a panel data is applied to data which is obtained 50 commercial banks ranking by total assets in United State covering the period 2013-2017. We find that bank size has a negative and significant impact on the profitability of banks. What's more, large banks are influenced by tremendous all kinds of costs. The other significant determinants are credit risk and cost-to-income, both of them affect negatively on bank profitability. As for external factors, the growth of GDP and inflation are insignificant. However, the growth of GDP have a positive impact on bank profit and inflation is the opposite.

5.2 Recommendation for further research

The further study can be extended in plenty of parts. For example, the whole bank sector may be not limited in commercial bank. There are Islamic and conventional banks. Also the further study can consider other analytical methods including GARCH model, ARCH model and VAR model. (Anne Deraso Illo, 2011). We can continue to find whether the results will be different. Additionally, the further study can address a longer period more than 5 years. At same time, it can have a wider

choices about financial and economic conditions. it will be better to add more variables, such as taxation and regulations.

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The author(s)declare(s) that there is no conflict of interest regarding the publication of this paper.

References

[1] Anne, D. I. (2011) The effect of macroeconomic factors on financial performance of commercial banks in kenya [online] Available at: http://erepository.uonbi.ac.ke/handle/11295/13250 [Accessed October 2013].

[2] Arpa, M., Giulini, I., Ittner, A., & Pauer, F. (2001) 'The influence of macroeconomic developments on Austrian banks: implications for banking supervision'. bis Papers, 1: 91-116.

[3] Arthur, B.R., Rabarison, M.K., (2017) 'Deposit-lending synergies and bank profitability' .Journal of Economics and Finance, 1-17.

[4] Athanasoglou, P.P., Brissimis, S.N. and Delis, M.D. (2008) 'Bank-specific, industry-specific and macroeconomic determinants of bank profitability'. Journal of International Financial Markets, Institutions and Money, 18(2): 121-136.

[5] 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, 3-4.

[6] Ayanda, M.A, Christopher, I. and Mudashiru, A.M. (2013) 'Determinants of Banks' Profitability in a Developing Economy: Evidence from Nigerian Banking Industry'. Interdisciplinary Journal of Contemporary Research in Business, 4 (9): 163-176.

[7] Banerjee, R. and Majumdar, S. (2014) 'Profitability Determinants of Commercial Banks in UAE-A Sure Model Approach'. In Third Asian Business Research Conference, 47

[8] Berger, A. N. (1995) 'The Relationship between Capital and Earnings in Banking'. Journal of Money, Credit and Banking, 27(2): 432-456.

[9] Bhattarai, Y. R. (2016) 'Effect of Non-Performing Loan on the Profitability of Commercial Banks in Nepal'. The International Journal Of Business & Management, 4(6): 435-442.

[10] Bikker, J.A. and Vervliet, T.M. (2018) 'Bank profitability and risk-taking under low interest rates'. International Journal of Finance & Economics, 23(1): 3-18.

[11] Bourke, P. (1989) 'Concentration and other determinants of bank profitability in Europe, North America and Australia'. Journal of Banking and Finance, 13(1): 65-79.

[12] Buchory, H. A. (2015) 'Banking Profitability: How does the Credit Risk and Operational Efficiency Effect? '. Journal of Business and Management Sciences, 3(4): 118-123.

[13] Chronopoulos, D. K., Liu, H., McMillan, F. J. and Wilson, J. O. (2015) 'The dynamics of US bank profitability'. The European Journal of Finance, 21(5):426-443.

[14] Demirgüç-Kunt, A. and Huizinga, H. (1999) 'Determinants of commercial bank interest margins and profitability: some international evidence'. The World Bank Economic Review, 13(2): 379-408.

[15] Dietrich, A. and Wanzenried, G. (2011) 'Determinants of bank profitability before and during the crisis: Evidence from Switzerland'. Journal of International Financial Markets, Institutions & Money, 21(3): 307–327.

[16] Dietrich, A. and Wanzenried, G. (2014) 'The determinants of commercial banking profitability in low-, middle-, and high-income countries'. The Quarterly Review of Economics and Finance, 54(3): 337-354.

[17] ECB (2015) 'Bank profitability features in Euro area banks: The role of cyclical and structural features'. Financial Stability Review, 134–145.

[18] Goddard, J., Molyneux, P. and Wilson, J.O. (2004) 'Dynamics of growth and profitability in banking'. Journal of Money, Credit and Banking, 1069-1090.

[19] Kalaitzis, A., Fotiadis, F. (2017) Determinants of Bank Profitability in the UK during 1999-2014: The impact of the Euro

currency and the Financial Crisis [online] Available at: repository.ihu.edu.gr/xmlui/handle/11544/15195 [Accessed 21 March 2017].

[20] Kok, C., Móré, C., and Pancaro, C. (2015) 'Bank profitability challenges in euro area banks: the role of cyclical and structural factors'. Financial Stability Review, 1.

[21] Kosmidou, K. (2008) 'The determinants of banks' profits in Greece during the period of EU financial integration'. Managerial Finance, 34(3): 146-159.

[22] Laryea, E., Ntow-Gyamfi, M. and Alu, A.A. (2016) 'Nonperforming loans and bank profitability: evidence from an emerging market'. African Journal of Economic and Management Studies, 7(4): 462-481.

[23] Olalere, O.E., Omar, W.A.B. and Kamil, S. (2017) 'Bank specific and macroeconomic determinants of commercial bank profitability: Empirical evidence from Nigeria'. International Journal of Finance & Banking Studies (2147-4486), 6(1): 25-38.

[24] Ozurumba, B. A. (2016) 'Impact of Non-Performing Loans on the Performance of Selected Commercial Banks in Nigeria'. Research Journal of Finance and Accounting, 7(16): 95-109.

[25] Pasiouras, F., Kosmidou K. (2007) 'Factors influencing the profitability of domestic and foreign commercial banks in the European Union' Research in International Business and Finance, 21(2): 222–37.

[26] Perry, P. (1992) 'Do banks gain or lose from inflation'. J. Retail Bank, 14: 25–30.

[27] Rasiah, D. (2010) 'Review of Literature and Theories on Determinants of Commercial Bank Profitability'. Journal of Performance Management, 23(1).

[28] Regehr, K. and Sengupta, R. (2016) 'Has the relationship between bank size and profitability changed?'. Economic Review (01612387), 101(2).

[29] Revell, J. (1979) 'Inflation and Financial Institutions'. Financial Times, London.

[30] Rudhani, L.H., Ahmeti, S. and Rudhani, T.(2016) 'The Impact of Internal Factors on Bank Profitability in Kosovo'. Acta Universitatis Danubius: Oeconomica, 12(1).

[31] Said, A. (2018) 'Effect of the Asset Quality on the Bank Profitability: A Study of US Commercial Small Banks'. International Research Journal of Applied Finance, 9(4): 196-204.

[32] See Tregenna, F.(2009) 'The fat years: the structure and profitability of the US banking sector in the pre-crisis period'. Cambridge Journal of Economics, 33:609-632.

[33] Shahzad, F., Nawab, S., Tanveer, S., Shafi, K. and Bhatti, W.K. (2018) 'Analyzing the individual effect of determinants effecting the financial performance of banks using camels mode'l.

[34] Staikouras, C. K., & Wood, G. E. (2004) 'The determinants of European bank profitability'. International business and economics research journal, 3: 57-68.

[35] Tregenna, F. (2009) 'The Fat Years: The Structure and Profitability of the US Banking Sector in the Pre-crisis Period'. Cambridge Journal of Economics, 33(4): 609–632.

[36] Trujillo-Ponce, A. (2013) 'What determines the profitability of banks? Evidence from Spain'. Accounting & Finance, 53(2): 561–586.