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Modeling the Fundamental Value of the Kosovo Commercial Banks

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Abstract. Valuation is an important element of the bank appraisal since it determines the financial position of the common stocks. The work identifies the deviation of the enterprise value from the total assets of the Kosovo commercial banks. The study used accounting items composed from the audited financial statements of the seven selected banks, operating in the Kosovo banking industry. The methodology stands on the Discounted Cash Flow Model adjusted for the bank-specific characteristics. Monte Carlo simulation technique with 10000 samples was conducted to find possible estimated values, from 2010 till 2017. The absence of the Kosovo Stock Market generated limitations during the valuation process where the cost of equity and beta coefficients were obtained from the Damodaran Database. Outcomes of the study indicate that the enterprise value of the Kosovo commercial had a considerable deviation from bank size. Moreover, from 2010 till 2017 banks operating within the Kosovo banking industry on average were overvalued in the range of 56.6%.

Keywords: Estimated Value, Commercial Banks, Book Value, Financial System.

JEL classification: G13, G15

Introduction

Determining company value is one of the most complex subjects in financial management. The value of the entity can only be estimated since the valuation models are constructed on numerous assumptions and limitations. Moreover, the capability of the valuation techniques to predict future events (cash flows) stands on several restrictions. In addition, valuation comprises procedures before conducting the final valuation act. Industry analysis provides a crucial outlook in positioning banks in terms of risk outcomes, performance, and competition. Banks are financial institutions that are regularly engaged in the due diligence and revaluation of physical and financial assets. Koller et al. (2010) show that banks are prone to additional difficulties compared to ordinary firms since it is difficult to identify the quality of their investment portfolio. Damodaran (2009) indicates that the financial crisis of 2008-2009 showed the complexity of evaluating financial institutions. Besides, the study displayed problems of estimating capital expenditures, working capital and debt level since these elements are not well defined in the annual reports. Financial statements of the banks show a historical

representation of the assets, debts, and equity which are important inputs of the company valuation (Dermine, 2009). The balance sheet, income statement and cash flow statement do not represent the market value of the entity. In contrast, stock prices represent real market value when public companies are listed on the efficient stock exchanges.

The intrinsic value of the company indicates expectations for future cash flows and not linked with the present situation of the businesses (Damodaran, 1996). However, Fama (1968) considers that stock prices move close to their intrinsic value where market prices have a low standard deviation from the mean. Multiple Based Method is a widely used technique for identifying if the listed companies are overvalued, undervalued or properly in the stock exchange. In addition, the method is frequently applied after the regular company valuation is performed (Fernandez, 2001). There are several approaches used for the valuation of banks while none of them holds complete accuracy in defining the enterprise value (Deev, 2011). Risk is a supplementary component that influences the valuation of commercial banks. The higher risk imposed on the banks' operations indicates the lower intrinsic value and the other way around. Aliu et al. (2017) identified that the intrinsic value of the Prishtina International Airport is lower than the liquidation price. Moreover, the study considers that the Five Forces Model of Porter comprises comprehensive risk dimensions of the privately held companies. Standard valuation techniques use beta coefficient as the measure of the company risk exposure. Beta coefficient is generally obtained from the regression of the firms' returns with stock market returns (Bradfield, 2003).

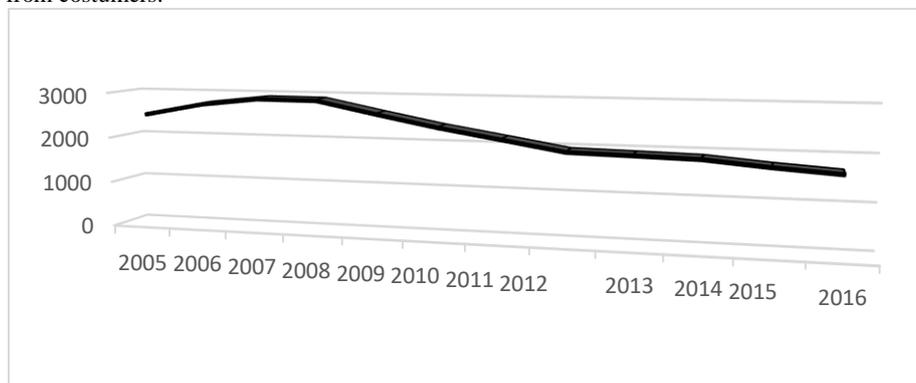
The banking industry is an important element of the financial system that allows directing financial resources from savers to borrowers. Moreover, banks stand are the major financial institutions in Kosovo that provide liquidity for business operations and human activities. The banking industry holds the major share within the Kosovo financial system followed by the Kosovo Pension Fund (CBK, 2004-2017). Kosovo does not have a stock and bond market that would be an additional financial source to expand lending activities of the Kosovo banks. However, deposits and financial performance remain key sources of the increasing size of the banks in Kosovo. Standing on this concern, enormous competition is involved in attracting new depositors since this component might be the main uncertainty on the passive side of the banks' balance sheets. Depositors for the Kosovo banking industry remain as the crucial money supplier of their lending activities. However, is quite hard to differentiate offers for depositors in the banking industry since products are easily imitated from the competitors. The study by Prahinski and Benton (2004) confirms that a better understanding of suppliers' needs expands the firm's efficiency in the marketplace. The additional risk of the banking might be well diversification of the depositors. The high concentration of deposits risks the performance and liquidity while influencing the market value of the banks. Aliu and Knapkova (2017) confirm that diversification benefits are reduced in the crisis periods since stock exchanged are highly interconnected. Due diligence investigation delivers a strong outlook on the specific risks related to corporate governance, quality of the portfolio and legal issues that are not covered from the regular financial reports (Denson and Ko, 2016).

Standing on the identified problem, the study analyzes the enterprise value of the Kosovo commercial banks via implementing ordinary valuation methods. The results of the work obtain the intrinsic value of the bank, not the market price. Moreover, the market price of the bank is determined by the market forces (supply and demand). To the best knowledge, it is the first work that identifies the deviation of the enterprise value from total assets. Outcomes of the study provide indications for the shareholders, managers, depositors, Kosovo Central Bank on the historical value of the commercial banks in Kosovo. Moreover, the DCF technique is used not only to identify the current steady state of the commercial banks but also to backward-looking estimated enterprise value.

Background of the Kosovo Banking Industry

Competition as a key driver of innovation and productivity stands still in the infant states within the Kosovo banking industry. High-interest rate spreads (IRS) and massive profit margins from 2004 until 2017 in the Kosovo banking industry might not be sustainable in the long run. Banks with an insufficient capital base will not be immune from the declining IRS in the Kosovo banking industry. Meanwhile, high IRS were loaded from elements, such as inefficiency of the banks, market segmentation, risk posed during lending activities or cooperative agreement within banks, etc. The study conducted by Aliu et al. (2016) on their study for the Kosovo banking industry, confirms that in the long run, net profit and overall expenses positively affect IRS while GDP and Inflation have a negative effect.

Entry barriers are determined by factors such as economies of scale, product differentiation, cost advantage, government limits, access to distribution channels (Porter, 1980). Microeconomic theories on the market competition confirm that when industry generates profits new entries will occur. Market competition is measured through index concentration named as Herfindahl-Hirschman Index – HHI. Moreover, higher HHI represents a lower competition level in the market. Fig. 1 shows an asset concentration level of the Kosovo banking industry from 2005 to 2016. From 2005 until 2009 the banking industry was a highly concentrated industry with HHI above 2500 points. Moreover, from 2010 until 2016 banking industry was characterized by moderate concentration where HHI was standing within 1600 and 2500 points. The decline of the HHI index corresponds to the period when new banks entered the Kosovo banking market. Products that contain equal purpose are considered as substitutes. Banks can easily shift from one target industry to the other since switching costs are low. Moreover, it is widely proven that the existence of substitute products raises efficiency within the industry and imposes lower profits. However, Peter et al. (2014) confirm that substitute products improve efficiency since each firm intends to have its products or services favored from customers.

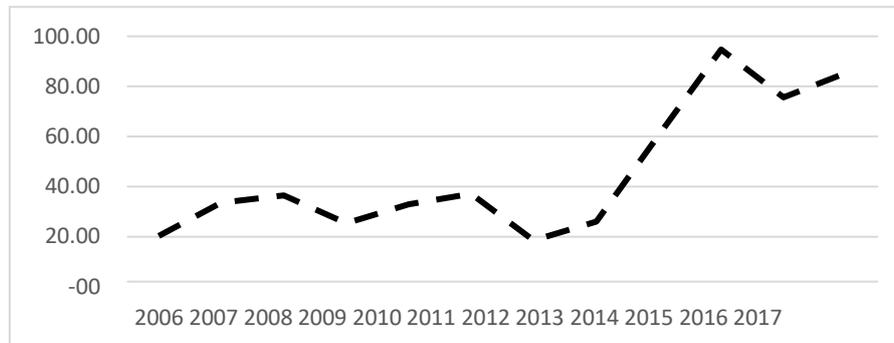


Source: Authors elaboration based on the CBK annual reports.

Fig. 1. Assets concentration (HHI-index) in the Kosovo banking industry (2005-2016).

Fig. 2 show that the banking industry in Kosovo was regularly generating profits from 2006 until 2017. However, there is a decline in the average profits during 2008- 2010 and during 2011- 2013 which corresponds with the financial meltdown of 2008 and the European debt crisis of 2011. In addition, profits in 2006 were in the range of 20.2 million euro, while in 2017 profits were in the range of 85.4 million euro, an increase of 323%. Profits are crucial signals for new banks to enter the industry. Central Bank of Kosovo

has set up entry barriers which entail a minimum capital base of 7 million-euro, shareholder's financial sustainability, management criteria, etc. (CBK, 2010).



Source: Authors elaboration based on the CBK annual reports.

Fig. 2. Net profits of the Kosovo banking industry from 2006 until 2017.

Since 2014 average interest rates on the lending activities are experiencing a downward trend which is a clear sign of increased competition. Interest rate spread (IRS) indicates a difference between interest rates on lending activities and deposits. The average IRS from 2007 until 2013 was 10.2% that confirms a huge difference within interest rates on deposits and loans. However, from 2014 until 2017 average IRS drops to 6.5%, which corresponds with the decrease of the industry concentration level. However, from the early years of operations, the Kosovo banking industry imposed low costs on deposits while high lending rates.

Methodology and Data

The study stands on the standard valuation steps adjusted for the banking industry. Inputs used within the valuation process correspond to the country risk profile. Since banks in Kosovo are not publicly traded (not listed in the stock market), beta coefficient is obtained from the Damodaran Database (Damodaran, 2019). The valuation of non-listed companies creates extra difficulties in the process. Aliu et al. (2016) represent a case where small changes in the beta coefficient, brings a diverse intrinsic value of the private economic entities. Data concerning the inputs used during the valuation are collected from the audited financial statements of the individual banks, operating in the Kosovo banking industry. Accounting items were gathered from 2010 till 2017 on an annual basis and seven banks were selected for the analysis. However, some of the banks are missing the results of the enterprise value since FCFF was negative for those years. The sample size consists of Raiffeisen Bank, Procredit Bank, NLB Bank, BKT Bank, TEB Bank, BpB Bank, and Banka Ekonomike. BKT Bank in Kosovo operates as a branch of a mother bank in Albania. Accounting data of the BKT were gathered from the consolidated financial statements of the mother bank in Albania.

The following formula explains the composition of the DCF model used for the study:

$$\begin{aligned}
 & \text{FCFF}_1 \\
 & F = \text{FCFF}_1 * g^1 \\
 & \text{FCFF}_3 = \text{FCFF}_2 * g = \text{FCFF}_1 * g * g = \text{FCFF}_1 * g^2 \\
 & \text{FCFF}_4 = \text{FCFF}_3 * g = \text{FCFF}_2 * g * g = \text{FCFF}_1 * g * g * g = \text{FCFF}_1 * g^3 \\
 & * \\
 & \text{FCFF}_i = \text{FCFF}_1 * g^{i-1}
 \end{aligned}$$

$$\begin{aligned}
 & \text{FCFF}_1 \\
 & \text{FCFF}_1 * g^1 \\
 & \text{FCFF}_1 * g^2 \\
 & \text{FCFF}_1 * g^3 \\
 & \text{FCFF}_1 * g^4 + \dots + \\
 & \text{FCFF}_1 * g^{(n-1)} \\
 & \text{FCFF}_1 * g^{i-1} \\
 & \text{DCF}_n = \frac{\text{FCFF}_1}{(1+r)^1} + \frac{\text{FCFF}_1 * g^1}{(1+r)^2} + \frac{\text{FCFF}_1 * g^2}{(1+r)^3} + \frac{\text{FCFF}_1 * g^3}{(1+r)^4} + \dots + \frac{\text{FCFF}_1 * g^{(n-1)}}{(1+r)^n} \\
 & \text{DCF} = \sum_{i=1}^n \frac{\text{FCFF}_1 * g^{i-1}}{(1+r)^i}
 \end{aligned}$$

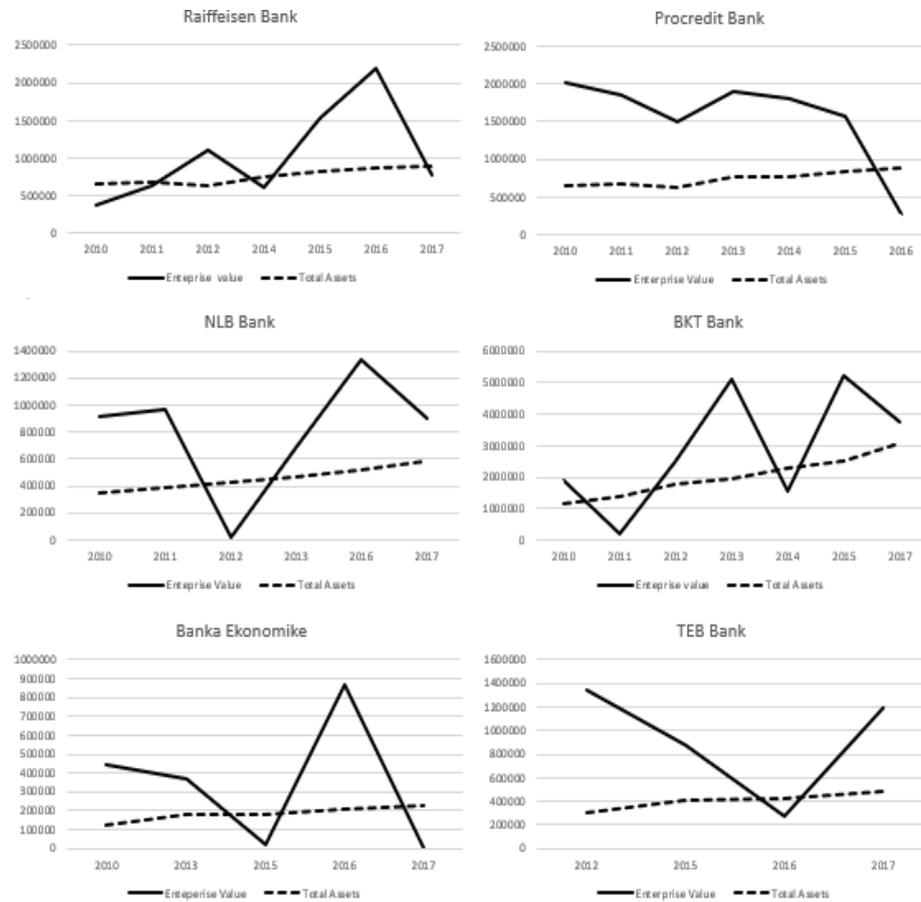
Discounted Cash Flow method has been used to identify the enterprise value of the Kosovo commercial banks. Free Cash Flow (FCFF) to the firm is used as available money remained for debtholders and shareholders. Besides, FCFF has been discounted for the weighted average cost of capital (WACC). WACC has been detected based on the weighted sum between the cost of debt and cost of equity. The cost of equity was formulated by the Capital Asset Pricing Model (CAPM). Market returns were obtained from the Standard and Poor's annual returns (S&P 500, 2019) while the risk-free rate (RFR) from the Kosovo government bonds (RFR, 2019). However, the cost of debt (cd) was generated from the average interest rate imposed on deposits from the Kosovo commercial banks (CBK, 2019).

Monte Carlo simulations with 10000 trials were used to generate possible enterprise values of the banks from 2010 till 2017. Damodaran database was used to detect the growth rate within the geometric progression. The growth rate is the only parameter simulated with Percentage Point Function (PPF) while the other components remain constant. Growth rate calculation involves parameters, such as randomly calculated values between zero and one (probability), mean growth rate and standard deviation of growth rate. DCF simulations have been realized for the 20 upcoming years since cumulative DCF-s do not provide added values after 20 years.

Results

The study detects the enterprise value of the commercial banks operating in the Kosovo banking industry, from 2010 till 2017. The results of the study reflect the estimated values based on the inputs used within the appraisal method. Identical techniques (DCF method) were used for each bank in our sample size. Fig. 3 represents enterprise value in relation to total assets of the four Kosovo commercial banks, such as Raiffeisen Bank, Procredit Bank, NLB Bank, BKT Bank, TEB Bank, and Banka Ekonomike. It is clear from the graph that in 2011-2012 there is a drop in the enterprise value of the banks that match with the European debt crises of 2011. Moreover, during 2016 and 2017 there is another drop in the enterprise value of the Kosovo banks. Detailed results concerning the enterprise value of the banks are provided in Table 1 in the appendix. In addition, missing values in Table 1 shows that FCFF was negative in those years. Negative FCFF indicates that enterprise value is not calculated for those years. The maximum positive correlation between total assets and enterprise value stands for BpB Bank

($r_{ij}=+0.64$), followed by Raiffeisen Bank ($r_{ij}=+0.53$). In contrast, the maximum negative correlation occurred for the Procredit Bank ($r_{ij}=-0.65$) and the TEB Bank ($r_{ij}=-0.34$). Raiffeisen Bank reached the maximum estimated enterprise value in 2016 (2.2 billion euro) while the minimum one in 2010 (365 million euro). Procredit Bank experienced maximum value in 2010 (2.02 billion euro) while the minimum one in 2016 (283 million euro). However, the maximum value NLB achieved in 2016 on a range of 1.3 billion euro and the minimum one in 2012 (24 million euro). Raiffeisen Bank on average from 2010 till 2017 was overvalued (difference between enterprise value and total assets) in the range of 73.7%, followed by BKT Bank with 69.6%, NLB Bank with 56.4%, BpB 54.9%, Banka Ekonomike with 53.7%, Procredit Bank with 47.5% and TEB Bank with 44.4%. The most overvalued bank was Raiffeisen Bank while the least overvalued was TEB Bank. However, banks operating in the Kosovo banking industry from 2010 to 2017 were overvalued in the range of 56.6%. Data concerning the total assets of the individual banks are presented in Table 2 in the appendix.



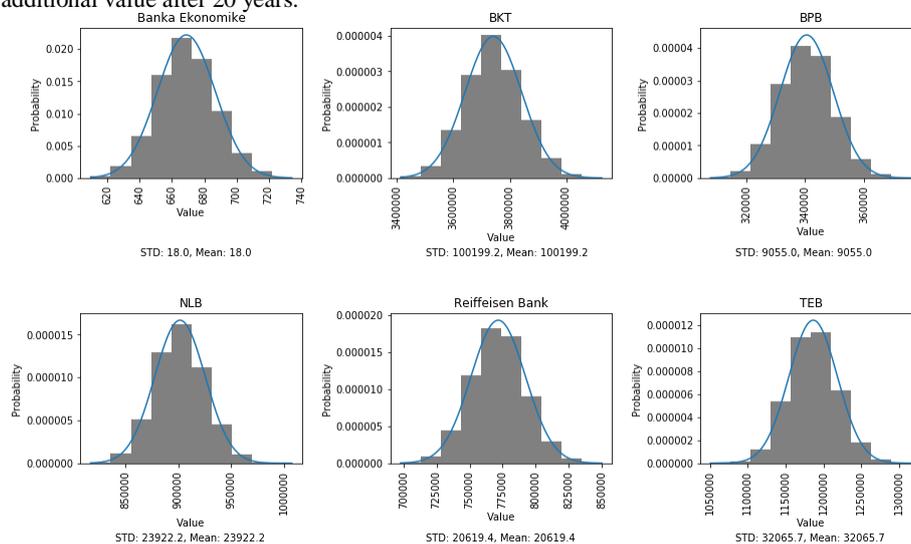
Source: Authors elaborations based on the financial statements of the banks.

Fig. 3. The association between enterprise value and total assets of the commercial banks.

The normal distribution indicates a probability function that shows the possible estimated enterprise values of the Kosovo banks. Data close to the mean has the highest probability of

occurrence which represents a more representative enterprise value of the banks. Fig. 4 shows the normal distribution of the six Kosovo banks with a standard deviation of growth rate at 1%. Percentage point function is used to create growth rates, standing on the following parameters: the randomly generated values within zero and one mean of the growth rate which is obtained from the Damodaran Database and standard deviation of the growth rates. The distribution of the estimated value did not show any negative numbers since the growth rates were constantly positive and with a low

standard deviation (only 1%). Negative values in the distribution can appear mainly when the growth rates are negative, or the standard deviation is more than 100%. The randomly created numbers were equally spread on the DCF geometric progression. Each trial contains its own randomly created growth rate values and geometric progression was programmed for 20 years in the future. Moreover, DCF is constrained with 20 years since future outcomes do not provide additional value after 20 years.



Source: Authors elaborations based on the financial statements of the banks.

Fig. 4. The normal distribution of the DCF-s (Enterprise Values) for the Kosovo banks with 10000 samples.

Conclusion

Enterprise values of the companies and the changes in their market prices stand as the permanent concern for the shareholders. Detecting enterprise value based on cash flow methods is considered as the most difficult issue for the financial analyst. DCF model uses numerous assumptions and expectations based on projections which make the model defective and less precise. The banking industry operates under a specific risk environment compared to the other industries. The crises of 2008-2009 exposed the problems linked with inappropriate valuation and lack of risk management controls from the financial institutions. However, our study identifies the estimated enterprise value of the Kosovo banks based on the numerous limitations.

Kosovo does not have a stock market that would enable listed banks to observe changes in their daily stock prices. The lowest average value, banks in Kosovo experienced in 2011 in the

range of 762 million while the maximum average value occurred in 2013 with 1.6 billion euro. The debt crisis of 2011 generated widespread panic within the European continent that was reflected in the financial performance of the Kosovo banking industry. However, 2017 was characterized by a decline in the enterprise value through overall banks. Procredit Bank in 2010 reached the maximum enterprise value (2.02 billion euro) while the Raiffeisen Bank in 2016 (2.2 billion euro). However, NLB Bank reached the maximum value of 1.3 billion euro in 2016 while the maximum value of the BKT stands in 2014 with 5.2 billion euro. The outcomes of the study represent authors' estimations while other scholars might identify different values. The results of the study show that the enterprise value stands above bank size (total assets) which is a clear indication that Kosovo banks were on average overvalued from 2010 till 2017. The results indicate that banks in the Kosovo banking industry from 2010 till 2017 were overvalued in the range of 56.6%.

The study recognizes several restrictions imposed on the DCF model where beta coefficient was obtained from the Damodaran database. Besides, beta coefficient co- vers a sample of selected banks within the European Union which might not correspond with the risk characteristics of the Kosovo banks. Market returns were generated from the S&P500 index that corresponds with US financial reality. Lack of financial and legal due diligence did not allow observing multiple risk dimensions of the Kosovo banks which are treated as off-balance sheet records. Moreover, besides ordinary limitations linked with the valuation of public companies, lack of the stock market generates further difficulties.

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Appendix

Table 1. The enterprise value of the commercial banks on the Kosovo banking industry (2010-2017).

Enterprise Value	2010	2011	2012	2013	2014	2015	2016	2017
<i>In million euros</i>								
Raiffeisen bank	365	642	1,108	missing	616	1,525	2,203	771
Procredit bank	2,027	1,856	1,500	1,900	1,804	1,560	283	missing
NLB Bank	919	970	24	680	missing	missing	1,331	901
BPB Bank	239	158	77	116	missing	189	372	340
Banka Ekonomike	445	missing	missing	371	missing	25	865	0.6
TEB Bank	missing	missing	1,340	missing	missing	869	274	1,186
BKT Bank	1,895	185	2,515	5,104	1,526	5,218	missing	3,741

Source: Authors elaborations based on the financial statements of the banks.

Table 2. Total assets of the individual commercial banks operating in Kosovo.

Total Assets	2010	2011	2012	2013	2014	2015	2016	2017
<i>In millions of euros</i>								
Raiffeisen bank	654	682	628	698	760	831	879	900
Procredit bank	803	802	804	791	801	791	800	794

NLB Bank	347	386	423	464	463	464	516	584
BPB Bank	62	78	93	108	117	136	152	188
Banka Ekonomike	125	151	155	176	170	178	212	224
TEB Bank	169	212	300	372	369	410	429	488
BKT Bank	1,139	1,355	1,772	1,944	2,274	2,512	2,870	3,047

Source: Authors elaborations based on the financial statements of the banks.