CAPITAL EFFICIENCY (RETURN ON EQUITY) IN BANKS AND RISKS

M. Zakhirov
Tashkent Financial institute, senior teacher

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CAPITAL EFFICIENCY (RETURN ON EQUITY) IN BANKS AND RISKS

In the article, we investigate the efficiency of capital and risks in banks, as well as the factors affecting the return on equity of commercial banks. Additionally, scientific recommendations are developed to increase the efficiency of capital and reliability of commercial banks.

Key words: assets, risk-weighted assets, density, return on assets, return on risk-weighted assets, bank capital, net profit after taxes, return on equity, equity multiplier, leverage.

Nowadays banks play a major role in the economy, particularly in financial systems of the most countries in the world. A major part of funds is channelled through banks, which makes banks become one of the most important financial institutions. Banks’ huge expertise and experience in accumulating funds and channeling them by extending loans makes them unique and gives exceptional opportunity to take excessive risks and leverage. Banks’ this inevitable role in economy and their exemption require special forms of regulation and supervision as well as investigation of their performance.

Profitability is one of the most widespread indicators of performance of banks. One of the key indicators of profitability in banks is return on equity. However, there are several arguments against reliability of this indicator, as long as it is not risk
sensitive. According to Moussu and Petit-Romec “The reliance on RoE as a performance measure is a key incentive to excessive risk-taking in banks. The reliance on this metric emerged from the risk management approach to banking which underlies bank capital regulation. The pre-crisis RoE has a strong impact on the destruction of value for shareholders for a sample of large banks in 28 countries.”[1] According to Bandt at al “Banks often argue that higher capital requirements will jeopardize their performance. This could occur for example if banks’ cost of financing were to increase significantly due to more capital holding. These higher funding costs could result in lower ROE for banks and have a disruptive effect on lending. In addition, as evidenced by the recent financial crisis, higher risk – may be associated with higher leverage- is usually associated with higher expected return, so that the analysis of the ROE should control for risk-taking.”[2]

Fiordelisi at al assessed the inter-temporal relationships between bank risk, efficiency and capital levels. They used a large data set of banks from 26 European Union countries (EU-26) ranging from 1995 to 2007. At first, they assessed the impact of efficiency on bank risk, second, the impact of bank capital on risk and efficiency trade-offs. Conversely, according to Fiordelisi at al as capital is costly highly capitalized banks may, on average, increase their level of risk to maximize revenues. [3]

Investigations mentioned above suggested that analyses of profitability should consider riskiness too. For instance, simple ROE formula – given below - is fraction of net profit after tax and total equity, which does not include any risk sensitive factors.

\[
\text{ROE} = \frac{\text{net profit after taxes}}{\text{total equity}}
\] (1) [4]

On the other hand, there is another formula which includes equity multiplier.

\[
\text{ROE} = \text{ROA} \times \text{EM}
\] (2) [5]

Where:
ROA– Return on assets,
EM - Equity multiplier.

However simple equity multiplier can not reflect actual risks taken by banks. For this reason, here new formula will be introduced, created by author.

\[
\text{ROE} = \text{RORWA} \times \text{Density} \times \text{Leverage}
\] (3)

Where:
RORWA– Return on risk weighted assets, [6]
Density – share of risk weighted assets in total assets, [7]
Leverage – the use of borrowed funds in the purchase of an asset.

New created (3) formula is derived from (2) formula. The mathematical proof will be introduced below. First of all we will open two indicators, where ROA is
fraction of net profit after tax and total assets, while equity multiplier is fraction of total assets and total equity.

\[
ROE = ROA \times \text{Equity multiplier} = \frac{\text{net profit after taxes}}{\text{total assets}} \times \frac{\text{total assets}}{\text{total equity}} \tag{4}
\]

Where:
Net profit after taxes – income after paid all taxes and before paid dividends,
Total assets – total balance sheet assets,
Total equity – total balance sheet equity.

Then to give risk sensitivity in this factors, we will include risk weights to the first fraction of (4) formula, which is given below.

\[
ROE = \left(\frac{\text{net profit after taxes}}{\text{RWA}}\right) \times \frac{\text{RWA}}{\text{total assets}} \times \frac{\text{total assets}}{\text{total equity}} \tag{5}
\]

Where:
RWA – risk weighted assets along with Basel Accord requirements.

In the (5) formula first fraction indicates return on risk weighted assets (RORWA), second fraction indicates Density of assets and third fraction indicates Leverage (way of finding equity multiplier and leverage is the same. However, we used leverage in (5) formula to highlight risk sensitivity). Eventually, we will get (3) formula.

The difference between (2) and new created (3) formula is that, all factors included in (3) formula are risk sensitive. Particularly, first RORWA indicator reflects profitability and efficiency of risk weighted assets, second Density indicator reflects share of risky assets in total assets and finally Leverage indicates how far bank leveraged, which is more crucial to maintain reliability, soundness and stability of banks.

Table 1
ROE and its factors in commercial banks of Uzbekistan (ROE and RORWA in percents, Density and Leverage in numbers)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>RORWA</td>
<td>3,11</td>
<td>2,49</td>
<td>2,43</td>
<td>2,22</td>
<td>2,24</td>
<td>2,40</td>
<td>2,45</td>
<td>2,21</td>
<td>2,14</td>
</tr>
<tr>
<td>Leverage</td>
<td>6,73</td>
<td>6,39</td>
<td>6,79</td>
<td>7,76</td>
<td>8,43</td>
<td>8,62</td>
<td>8,16</td>
<td>8,49</td>
<td>8,97</td>
</tr>
</tbody>
</table>
Table 1 indicates that, return on equity of commercial banks of Uzbekistan steadily increased after sharp decline in 2009 from 13.5 percent to 10.97 percent between 2008 and 2015, eventually dropping to 14.08 percent from previous 14.35 percent in 2016. However, it reached pre decline position only in 2013 showing 13.73 percent. If one looks through indicators included by author, he or she can find real factors driving return on equity up. Moreover, indicators such as leverage and density increased, while return on risk-weighted assets declined. That means that - as long as leverage and density are indicators of risk sensitivity, while return on risk weighted assets implies efficiency – banking system of Uzbekistan tends to raise its performance through taking high risks not by increasing its efficiency. Particularly, return on risk-weighted assets dropped from 3.11 percent in 2008 to 2.14 percent in 2016. On the other hand leverage increased from 6.73 to 8.97 in absolute value and density of banks assets increased from 65 percent to 73 percent.

Dynamics of these factors become more visible and understandable in the diagram given below.
As it stated above, return on equity and return on risk-weighted assets are tending in opposite direction. Particularly, return on equity increased from 10.97 percent in 2009 to 14.08 in 2016, while return on risk-weighted assets declined from 2.49 percent in 2009 to 2.14 percent in 2015. That means that, in reality banks are not improving their profitability through efficiency, by contrast other factors are hiding banking system’s undesirable poor performance. For instance, banks are raising their profit by taking more risks, therefore, decreasing their stability and soundness. As diagram indicates both leverage of banks and density of banks assets are gradually raising year by year.

On the one hand taking more risks and getting more profit is not undesirable from the point of stakeholders of the bank, because more profit bears more dividends. On the other hand it is not desirable if marginal risk is not accompanied by marginal profit. As a result marginal cost of risk starts to increase pressing profitability of bank downward. As diagram highlights return on risk-weighted assets is gradually decreasing,
consequently pushing down return on equity, on the other words, pushing down profitability. However, diagram shows that profitability is not decreasing; by contrast it is increasing which can be explained by other factors pushing up return on equity. Negative effect of poor efficiency of risk-weighted assets is compensated by positive effect of higher leverage of banks and stronger density of banks assets.

Investigation of efficiency of banks and its factors gave the chance to derive following trends in banking system of Uzbekistan:

- Return on equity gradually increased from 2008 after dimming in 2009. Namely, return on equity was 13.50 in 2008 and 14.08 in 2016;
- Leverage steadily rose from 2008 to 2016, without taking into account a slightly drop of 2014. Particularly, leverage was 6.73 in 2008 and 8.97 in 2016;
- Density of banks’ assets ambiguously increased from 2008 with approximately remaining flat between 2010 and 2013. Namely, density was 0.65 in 2008 and 0.73 in 2016;

It is possible to conclude that, return on equity of banks is rising. However, this result is not gained due to efficiency, which may be proofed by highlighting gradual decline of return on risk-weighted assets. On the other words, banks are making profit due to higher leverage and stronger density of assets, which increases risk sensitivity of banks. This may eventually result in increase of moral hazard.

According to the results of investigation following suggestions will be apparent:

- Banks should give more attention to the efficiency of banking operation by lowering operational costs;
- Banks should employ improved methods of credit screening and monitoring to avoid rise of nonperforming loans which decreases banks efficiency. Results showed that, marginal risk taken by banks was not accompanied by marginal return on risks. Namely density of banks assets is rising, while return on risk-weighted assets is falling;
- Banks should be more careful of increasing leverage, as long as higher leverage bears higher moral hazard. Consequently, it raises instability of banks and harms image of banks;
- Banks should be more rational when they increase density of assets. Higher risk should be covered by higher profit.

If banks consider these suggestions banks profitability will increase due to higher efficiency not according to the higher leverage and density which is being experienced nowadays.

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