Impact of the global recession on the Southeastern European (SEE) Banking Sector: A simple exposition

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Abstract

Purpose- The purpose of this paper is to analyse the impact of the current global recession on the Southeast European (SEE) banking sector to determine whether the recession caused a reduction in the number of banks. The SEE countries included in this study are: Bosnia & Herzegovina, Albania, Hungary, Macedonia, Serbia, Croatia, Bulgaria, Turkey, Slovenia, Romania, Kosovo, and Czech Republic.

Design/methodology/approach- The method used in this paper involves a simple technique based on country specific financial and/or economic variables. The effects of the recession on SEE banking sector are assessed by the numbers of banks in operation using critical country specific variables.

Findings- The results vary considerably from one country to another. Both financial and economic causal variables in most cases demonstrate statistically significant effects. In particular, Albania, Bosnia and Herzegovina were found to be in a favourable condition whilst, Romania and Kosovo were more likely to be adversely affected by the global recession.

Keywords: Financial Crisis, Recession, Banking, Southeastern Europe.

JEL code: G01, G21
Introduction

Southeast European (SEE) banking during the current recession is a topical issue. With regards to the current recession or financial crisis that began in 2007, Bhaduri (2010) indicates that each financial crisis has recurring features that are similar; yet the historical perspective makes each crisis different. He suggests that the purpose of any theory concerning recession is to identify specific characteristics, even if they might not be sufficient to adequately address a particular crisis. Although formal models are not always historically accurate, yet they at least provide some insight into the central mechanisms that precipitate many financial crises. Bhaduri (2010) points to two features that typically recur in a crisis. The first is the loss of confidence in or by the financial sector. Since the system of credit provision is the dependent on mutual confidence among the players in the market, any abrupt changes in lenders’ behavior is likely to cause a crisis. The second feature is the transmission of the crisis from the financial sector to the real economy via aggregate demand, typically through a sudden decline in real investment. However, Bhaduri (2010) argues that fragility of private consumption is playing a crucial role in current global recession. Thus, for simplicity of exposition, he focuses on greater consumption expenditure sustained by rising asset prices (including housing) to examine the pattern of interaction between financial fragility and aggregate demand.

In contrast, Vaknin (2008) explains the recession in the context of what has happened in Macedonia. As this nation has a rudimentary banking system, he suggests that foreign direct investment can serve as an indicator for this nation's integration into the international system during the current crisis. Harrison (2008) conducted interviews with bankers about the collapse of demand in Southeastern Europe, and from these interviews he predicted that the Euro would survive the current crisis. Roubini (2008) employed the metaphor of a storm indicating that the SEE nations would suffer from the current global credit crunch. The SEE working group on tax policy analysis (2009) lists central bank activities to halt the recession. Indeed the focus of their activity was dealing with the crisis and government response. Rombel (2009) provides confirmation of this as he reported finding that the variation in the SEE money was extreme and suggested that this would lead to tightening in lending. Kulish (2009) suggests that this recession provided a raison d’etre for the European Bank to implement Reconstruction and Development in an effort to stabilize any increase in non-performing loans. Finally Diamantopoulos (2009) reports finding that with limited liquidity and a fall in capital inflows there is a recession.

Conceptually there are many ways to explain the current recession occurring in the banking industry of SEE countries. This paper attempts to examine the impact of the global recession on the banking sector. The countries examined under this study are: Bosnia & Herzegovina, Albania, Hungary, Macedonia, Serbia, Croatia, Bulgaria, Turkey, Slovenia, Romania, Kosovo, and Czech Republic. This study uses a simple analytical technique to determine whether the impact of the global recession on SEE banking can be explained via country specific institutively selected causal variables and the numbers of banks in operations. In doing so, there is an assumption that there is a relationship between the number of commercial banks in
operation and global recession that is channeled through one or more country specific critical variable/s.

The country specific data and related information are collected mainly from the central banks of the countries under study. As most of the SEE nations are very new in adapting the market economy and some are still in the transition stage, there are limitations of their database. Accordingly, local knowledge played a vital role in the judgmental process while considering data for the analysis.

This paper is structured in the following manners: the next section presents the methodological frame work and rationale. The results section presents the estimated regression, descriptive statistics; and finally the conclusions are discussed.

Methodology & Rationale

To demonstrate the effects of the recession on the banking system, this paper analyzes the commercial banks of SEE countries using a simple technique. The analysis is based on the assumption that both from intuitive and theoretical viewpoints the impact of global recession may be transmitted via the country specific critical variables onto the banking industry and overall economy of each of the SEE countries.

This paper identifies the number of SEE banks and then examines whether any of these explanatory variables are related to the current global recession. In doing so, the assumption is that there will be a link between the number of banks and causal variables namely Capital, Asset, Profit, Liquidity, Risk, ROA, ROE, Efficiency ratio, Loan quality, Interest rate, Currency, Reserve ratio, Inflation, GDP, Deposit, Capital transfer, Liability, and alike. Accordingly, the relationship is expressed by the following generalized equation (1).

\[ Banks = f (\text{Capital, Asset, Profit, Liquidity, Risk, ROA, ROE, Efficiency ratio, Loan quality, Interest rate, Currency, Reserve ratio, Inflation, GDP, Deposit, Capital transfer, Liability, ...}) \]

(1)

The above relationship is also presented in a more concise manner as a linear equation (2) below:

\[ \Phi_i = \alpha + \Gamma \nu_{ij} + \varepsilon \]

(2)

where, \( \Phi_i \) indicates number of banks in each SEE countries under study; \( \nu_{ij} \) refers to country specific critical variables, \( \Gamma \) is the parameter, and \( \varepsilon \) is the error term.

However, depending on the hypothetical relationship between the response and causal variables the sign of the estimated equation would vary. The estimation is done without intercept when intercept is found insignificant.

There may be several measures of any of these effects. On econometric grounds this study chooses a measure that suits the best with available country
specific causal variable/s. It predicts that the capital effect is positive since more capital means that a bank is more likely to survive. The same is true for asset quality. If banks are profitable then one would expect once again to see more banks. The liquidity effect should be similar. However, risk would seem to have a negative effect on the number of banks. This would be true regardless of how the analyst may factor in risk, whether international or domestic.

Although the accounting measures of return on assets and return on equity would be closely related to the profit effect, yet both are included in case they are available when other similar effects are missing. Logically the efficiency ratio would seem to increase the number of commercial banks. There may be many measures of loan quality and when they are about dubious loans, the effect would be predicted to be negative. A higher interest rate would presumably make it more difficult to make loans and thus harm banks.

Finally, the required reserve ratio would make banks less profitable and thus decrease the number of banks. One might say that the effect would be positive when safety issue is considered. However, others might support taking bank safety too far with the notion of 100% required reserves as a goal. Again, some of the SEE countries might have relatively well-developed financial system and thereby have both commercial and investment banks are in operations there, yet this study focused on the commercial banks predominantly.

**Empirical Results**

The OLS technique is used in this study to estimate the efficacy of general contention that the current global recession might be transmitted to SEE banking sector through the number of operational banks and its country specific critical variables like Capital, Asset, Profit, Liquidity, Risk, ROA and ROE, Efficiency ratios, Loan quality, Interest rate, Currency, Reserve ratio, Inflation, GDP, Deposit, Capital transfer, Liability, and so on. Based on these intuitionally linked causal variables that are related to each of the selected twelve (12) SEE nations, the estimated regressions and descriptive statistics are presented below in paragraphs A to L under the country heading:

**Bosnia and Herzegovina**

The central bank for Bosnia and Herzegovina provided information for 25 quarters for their commercial banks. There are two measures of capital as per the Basle agreements, 3 measures of asset quality, 2 measures of profitability, 3 measures of liquidity and finally 2 measures of foreign currency risk. The final regression is shown below in estimation 3-a.

\[
\begin{align*}
\text{Banks} &= 8 + 0.0014 \text{Capital} \\
\text{(4.16)} & \quad \text{(12.59)}
\end{align*}
\]

\[(3-a)\]

With 25 observations it generates R$^2$ of 0.87, Durbin-Watson of 1.67 and F statistic of 158.54. In the event of a deepening recession, one might observe a fall in the capital (which is net capital to risk weighted assets ratio). This might then cause a fall in the number of banks from its most recent value of 30.
Albania

The central bank of Albania provided data on return on assets, return on equity, efficiency ratio, and loan quality; but the end result concentrated heavily on loan quality. Accordingly, the substandard loans of Albanian commercial banks is used as the critical variable in the estimation as provided in (3-b).

\[
Banks = 15.12 - 0.25 \text{ Substandard Loans} \\
(3-b) \\
(25.54) \quad (-2.68)
\]

With 43 quarterly observations it provides R² of 0.93, Durbin-Watson of 1.61 with an autoregressive routine, and an F of 563.65. Here, the problem seems to be substandard loans. If the recession causes the quantity of substandard loans to increase, Albania might see the reversal process of their increased 17 commercial banks.

Hungary

The central bank of Hungary provided information on interest rates and required reserve ratios. Based on this two variables the estimated model is provided in 3-c.

\[
Banks = 11 + 13.14 \text{ Interest rate} - 11.52 \text{ Reserve ratio} \\
(3-c) \\
(3.53) \quad (5.26) \quad (-4.11)
\]

With 31 observations it finds an R² of 0.85 and an F of 79.34, Durbin-Watson of 1.27. Recently the number of commercial banks in Hungary has already fallen to 34; and if the recession leads to a higher reserve ratio or a higher central bank base rate, the number of Hungarian commercial banks might fall even further.

Macedonia

Next, the estimation for Macedonia used liabilities, interest investment, net capital transfer, and net loans as critical variables. This is presented in 3-d.

\[
Banks = 47 - 0.0003 \text{ Liabilities} - 0.0003 \text{ IntInv} - 0.2 \text{ Net K transfers} - 0.0006 \text{ Net Loans} \\
(3-d) \\
(66.01) \quad (-9.87) \quad (-6.60) \quad (-2.12) \quad (-3.27)
\]

Above estimate is derived from the data of 22 quarters with an R² of 0.92, Durbin-Watson of 2.04 and an F statistic of 47.82. If the global recession leads to increased liabilities, increased capital transfers, increased net loans or an increase in the international investment position, the number of Macedonian banks may fall further from its present 38 (as it has been falling over the last few years from 43).


**Serbia**

There is some information available for the commercial banking system in Serbia. Accordingly, the model used local currency dinars, government deposits, inflation, and total liabilities for the Serbian banking system. The estimated model is presented in 3-e.

\[
\text{Banks} = 46.8 - 0.0007 \text{Loans} - 0.11 \text{GovDep} + 1.27 \text{Inflation} - 0.0006 \text{Tliabilities} \quad (3-e)
\]

\[
\begin{array}{ccccc}
(8.55) & (-4.53) & (-2.02) & (2.89) & (-2.86)
\end{array}
\]

From 23 observations, it finds an \( R^2 \) of .89, a Durbin-Watson statistic of 1.64 and an F statistic of 35.44. More loans, government deposits, total liabilities or a fall in inflation could lead to a decline from the current number of 35 commercial banks of Serbia.

**Croatia**

In Croatia, the key variables seem to be the growth of off-balance-sheet (OBS) items, total assets and pretax income. Many other variables were initially employed, but ignored them later as the relevant t-statistics were found minimal. Accordingly, the final estimation is based on OBS growth, total assets position, and income before tax. This is provided in 3-f.

\[
\text{Banks} = 50.5 - 0.03 \text{OBS growth} - 0.04 \text{Total Assets} + 0.00004 \text{Pretax Income} \quad (3-f)
\]

\[
\begin{array}{ccccc}
(13.60) & (-1.79) & (-3.36) & (1.95)
\end{array}
\]

The descriptive statistics stem from a data set of 36 quarterly observations show an \( R^2 \) of 0.96, Durbin-Watson of 1.40 and an F statistic of 201.7. If pre-tax income increases, one might expect more banks are in operations. However, during the recession a fall in this income is more likely. Further affect of recession may be channelized through increased OBS items, and perhaps more assets of dubious quality. Thus, the global downturn could cause a fall of Croatian commercial banks from its current value of 36.

**Bulgaria**

Domestic credit is seems to be the key variable for Bulgaria. The number of banks here ranged between 37 and 40; with 40 the most recent value. Considering the domestic credit as the critical variable, the estimated regression for Bulgaria is presented in 3-g.

\[
\text{Banks} = 38.08 + 0.000000002 \text{Domestic Credit} \quad (3-g)
\]

\[
\begin{array}{cc}
(137.19) & (2.86)
\end{array}
\]

Based on a data set of 36, this estimation generated an \( R^2 \)of 0.34, D-W of 1.94, and an F of 17.5. Here an autoregressive routine is used due to the low Durbin-Watson that was found from the fist run. If domestic credit falls due to the recession, Bulgaria might lose some of its currently operating 40 commercial banks.
Turkey

For Turkey the critical variables are thought to be deposits and external assets. The most recent number of commercial banks recorded is 45. The estimated model \(3-h\) exhibits the results for this nation.

\[
Banks = 50.87 + 0.0002 \text{Deposits} - 0.32 \text{External Assets} \quad (3-h)
\]

\[
(99.82) \quad (2.22) \quad (-8.01)
\]

Here it finds an \(R^2\) of 0.82, F statistic of 52.06 with a Durbin-Watson of 1.63 from a set of 26 quarterly data. The global recession might hit the commercial banks of Turkey through the channel of bank deposits as the effect of external asset is more difficult to explain.

Slovenia

Slovenia is also included in the SEE area. Here, two critical variables namely total assets and gross domestic product (GDP) are thought to be dominating. The estimated regression for this country is provided in \(3-i\).

\[
Banks = 40.45 - 0.000001 \text{Total Assets} - 0.00005 \text{GDP} \quad (3-i)
\]

\[
(5.36) \quad (-2.44) \quad (-1.90)
\]

With a data set of 23 quarters it evidenced an \(R^2\) of 0.59, F statistic of 14.21 and a Durbin-Watson of 1.52. Here, an autoregressive routine was also employed.

Romania

The data set for Romania seems to be problematic. Yet, as this country is within the SEE region, Romanian position is estimated using available information on Assets, Liability and local currency ROL as critical variables. The estimated model is presented in \(3-j\).

\[
Banks = 31.32 + 0.000000003 \text{Domestic Assets} - 0.00000004 \text{Other Assets} + 0.000000008 \text{Other Liabilities} - 0.000001 \text{Currency ROL} \quad (3-j)
\]

\[
(77.57) \quad (1.86) \quad (-2.95) \quad (2.72) \quad (-1.74)
\]

Above estimation stems from 31 observations that shows an \(R^2\) of 0.33, F statistic of 3.15 and a Durbin-Watson of 1.57. While the recession might diminish the availability of domestic assets and other assets, it is unclear why less money and more other liabilities would lead to more banks. However, it seems that the number of banks might remain at 31 without a major shift.

Kosovo

The status of Kosovo may be disputed, but it is in the area of Southeastern Europe. The data set is again suspicious that led to the mediocre results as shown in \(3-k\).

\[
Banks = 18.80 + 0.000001 \text{Currency} - 0.0000008 \text{Total Income} \quad (3-k)
\]

\[
(84.40) \quad (2.01) \quad (-1.73)
\]
Here 30 quarters data set is used that generated an $R^2$ of only 0.13, F value of 2.09 and a Durbin-Watson of 1.50. The most recent number of banks in Kosovo is 19 may remain steady.

**Czech Republic**

Also the estimation for Czech Republic is included for comparison purposes. Although, there were a few problems with the data set, the estimated model is provided in 3-I.

\[ \text{Banks} = -0.0003 \text{ Current Transfers} + 0.00004 \text{ Long Term Tangible Assets} \]
\[ (-2.300 \quad (35.33) \]
\[ + 0.00003 \text{ LT Intangible Assets} \]
\[ (7.89) \]

Based on 39 quarters of data it finds an $R^2$ of 0.47, F statistic of 13.41 and a Durbin-Watson of 1.23. The final regression is run without intercept as the intercept showed insignificant at the first instance. An autoregressive routine was also performed. If the recession were to transmit through long-term assets (either tangible or intangible) to decrease, one would predict a decline in the operating banks from its current number of 40.

All estimated results of SEE banking sector under study during the current global recession are summarized and presented in Table 1.

<table>
<thead>
<tr>
<th>Country</th>
<th>No. Of Banks</th>
<th>No. Of observation</th>
<th>$R^2$</th>
<th>F-statistic</th>
<th>DW</th>
<th>Critical Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bosnia &amp; Herzegovina</td>
<td>30</td>
<td>25</td>
<td>0.87</td>
<td>158.54</td>
<td>1.67</td>
<td>capital</td>
</tr>
<tr>
<td>Albania</td>
<td>17</td>
<td>43</td>
<td>0.93</td>
<td>563.65</td>
<td>1.61</td>
<td>sub-standard loans</td>
</tr>
<tr>
<td>Hungary</td>
<td>34</td>
<td>31</td>
<td>0.85</td>
<td>79.34</td>
<td>1.27</td>
<td>interest rate, reserve ratio</td>
</tr>
<tr>
<td>Macedonia</td>
<td>38</td>
<td>22</td>
<td>0.92</td>
<td>47.82</td>
<td>2.04</td>
<td>liability, investment, capital transfer, loans</td>
</tr>
<tr>
<td>Serbia</td>
<td>35</td>
<td>23</td>
<td>0.89</td>
<td>35.44</td>
<td>1.64</td>
<td>loans, govt. deposits, inflation, liability</td>
</tr>
<tr>
<td>Croatia</td>
<td>36</td>
<td>36</td>
<td>0.96</td>
<td>201.70</td>
<td>1.40</td>
<td>off-balance sheet, asset, income</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>40</td>
<td>36</td>
<td>0.34</td>
<td>17.5</td>
<td>1.94</td>
<td>domestic credit</td>
</tr>
<tr>
<td>Turkey</td>
<td>45</td>
<td>26</td>
<td>0.82</td>
<td>52.06</td>
<td>1.63</td>
<td>deposits, external assets</td>
</tr>
<tr>
<td>Slovenia</td>
<td>9</td>
<td>23</td>
<td>0.59</td>
<td>14.21</td>
<td>1.52</td>
<td>assets, GDP</td>
</tr>
<tr>
<td>Romania</td>
<td>31</td>
<td>31</td>
<td>0.33</td>
<td>3.15</td>
<td>1.57</td>
<td>domestic and other assets, liabilities, local currency</td>
</tr>
<tr>
<td>Kosovo</td>
<td>19</td>
<td>30</td>
<td>0.13</td>
<td>2.09</td>
<td>1.5</td>
<td>currency, income</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>40</td>
<td>39</td>
<td>0.47</td>
<td>13.41</td>
<td>1.23</td>
<td>current transfers, long-term tangible assets</td>
</tr>
</tbody>
</table>
Conclusion

This paper provides a basic evaluation of the current status quo of the commercial banks of Southeast European countries and their susceptibility during the current global recession by using simple analytical technique. The results vary considerably from one country to another. Out of the twelve countries examined in this study, only seven (7) countries were found to have performances that were deemed satisfactory, due to their regressions being within acceptable levels with reasonable DW and F statistics. The other five (5) counties were not satisfactory because of their unacceptable $R^2$ values. Accordingly, the results imply that the impact of the global recession in the SEE countries (Bosnia and Herzegovina, Albania, Hungary, Macedonia, Serbia, Croatia, and Turkey) may have been channeled through bank loans, interest rate, reserve ratio, liabilities, investments, capital transfers, deposits, inflation, liabilities and external assets.

Descriptive statistics highlighted that Albania, Bosnia and Herzegovina were in a more favourable condition. By contrast, Romania and Kosovo may be more likely to be adversely affected. Studies of Montenegro and the Ukraine were omitted due to the small number of observations, even though Ukraine showed solid statistics and Montenegro an average result. Both microeconomic and macroeconomic causal variables (country specific critical variables demonstrate statistically significant effects; which indicates that the global recession could lead to a decline in the number of banks in those countries.

Clearly, the difficulty with the SEE region is that most countries are relatively new in terms of their current socio-economic and political status; and thus a short and/or incomplete data set is all that is presently available. Also, a limitation that should be noted is that the methodology used in this study is very simplistic and a more sophisticated technique may provide greater insight than the current study. Currently, there are simply not enough data for conducting research such as a panel study. Future research may find that the appropriate data set is available for these countries. However, there is risk that the current global financial crisis may no longer be a causal factor. Having recognized these limitations, this study provides a contribution in terms of presenting a form of evaluation of the impact of the current global recession on the SEE banking sector.

Future research into the impact of the global recession on the banking sector of other emerging market economies may seek to replicate this study by focusing on countries in Africa or Asia. Any comparative study into the commercial banking sector should provide further insights and value to the development of literature on the potential impact of a global recession.
References


