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## SUSTAINABILITY OF THE BIGGEST BUSINESS CONTROVERSIAL ENTERPRISES IN SERBIA

Održivost najvećih poslovno kontroverznih preduzeća u  
Srbiji

### Abstract

In the period after the outbreak of the global financial crisis, the number of loss-making companies has been increasing both in EU countries and in Serbia. Their losses were often so staggering that they exceeded their own equity resulting in a negative equity. From 2008 to 2016, the total losses exceeding the net capital of the Serbian economy continued to increase at an average annual rate of 20%. The peak was reached in 2016 (1,608 billion dinars), which was 4.3 times higher compared to the year of the outbreak of the global economic crisis. This paper analyzes the performance of the biggest companies in Serbia which were making losses exceeding the equity in the period from 2008 to 2017. In the literature these companies are also referred to as "business controversial enterprises" and "zombie" companies. The research was conducted on a sample of 31 loss-making companies whose losses accounted for almost one-fourth of the total losses exceeding the capital value of the Serbian economy. Consequently, the restructuring of business controversial enterprises is not only the matter of their existence, but also the matter of strategic importance for the entire Serbian economy.

**Keywords:** *business controversial enterprises, losses exceeding equity, financial structure, the biggest companies in Serbia.*

### Sažetak

U periodu nakon izbijanja globalne finansijske krize broj preduzeća koja su poslovala sa gubicima se povećavao kako na području zemalja EU tako i na području Srbije. Gubici su neretko toliki da nadmašuju nivo sopstvenog kapitala usled čega je neto vrednost kapitala ovih preduzeća negativna. U periodu od 2008. do 2016. godine ukupni gubici iznad nivoa kapitala privrede Srbije su se kontinuirano povećavali po prosečnoj godišnjoj stopi od 20%. Maksimalni nivo dostignut je 2016. godine (1.608 milijardi dinara) što je 4,3 puta više u odnosu na godinu izbijanja globalne ekonomske krize. Ovaj rad bavi se analizom performansi najvećih preduzeća u Srbiji koja su u periodu od 2008-2017. godine poslovala sa gubicima iznad nivoa kapitala. Ova preduzeća se u literaturi mogu sresti pod nazivom „poslovno kontroverzna preduzeća“ i „zombi“ preduzeća. Istraživanje u ovom radu je sprovedeno na uzorku od 31 preduzeća čiji gubici iznad nivoa kapitala u posmatranom periodu dosežu gotovo ¼ ukupnih gubitaka iznad nivoa kapitala privrede Srbije. Posledično, restrukturiranje poslovno kontroverznih preduzeća nije samo pitanje njihove egzistencije već i pitanje od strateškog značaja za celokupnu privredu Srbije.

**Ključne reči:** *poslovno kontroverzna preduzeća, gubici iznad nivoa kapitala, struktura finansiranja, najveća preduzeća u Srbiji.*

## Introduction

The paper focuses on the biggest companies in Serbia according to their revenues which in the period from 2008 to 2017 operated at a loss exceeding the equity. The paper builds on research analysis of the financial structure in the biggest companies in Serbia [8], [9], focusing on one segment of these companies and extending the time horizon of the observation.

The initial criterion for defining the sample was the annual revenue above 5 billion dinars (EUR 44.2 million) in 2013, resulting in the total of 186 companies from the real sector. The original idea was to select the healthiest and the most vital segment of the domestic economy, although there were loss-making companies in the group whose losses occasionally exceeded the value of their own equity. During the financial analysis of the companies, a group of companies was identified whose performance primarily caused negative tendencies among the analyzed companies, and in the entire economy as well. These are companies that operated at losses exceeding the level of their own equity. From 2008 to 2017, 35 out of 186 companies made losses exceeding the equity at least for one year. As the losses can be caused due to extraordinary circumstances, an additional criterion was introduced: operating at losses which exceeded the equity for 2 years or more. The criterion was met by 31 companies from the group of the biggest companies in Serbia and they will be the subject of the analysis in the paper.

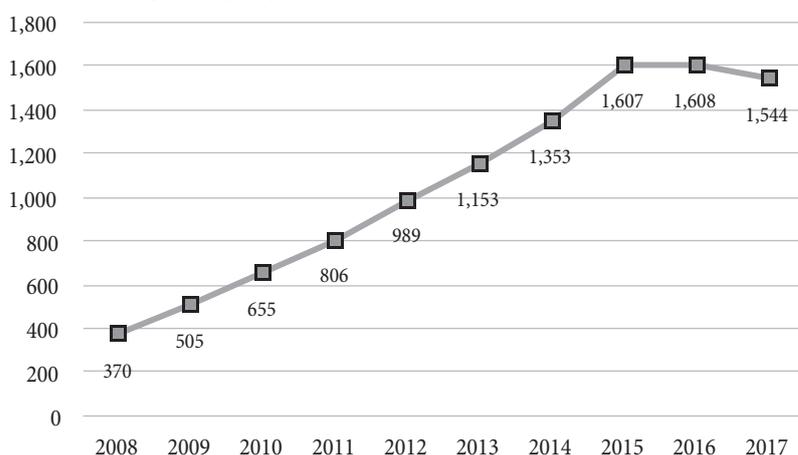
The necessity and importance of analyzing this group of companies is best illustrated by the trend of increasing the total losses above the level of the capital of the Serbian economy, which on average increased by 20% in the period from 2008 to 2016. The peak was reached in 2016 when it amounted to 1,608 billion dinars, 4.3 times higher than at the outbreak of the global economic crisis. The unfavorable trend was discontinued in 2017, since the total loss was decreased by 64 billion dinars (-4%) (Figure 1).

## Business controversial enterprises

Companies that operate at losses exceeding their equity are defined in the literature as “business controversial enterprises” [4] and “zombie” companies [7], companies in financial disturbances, etc. According to Đuričin [4, p. 122], business controversial enterprises are the companies that operate at a loss despite their profit potential. Operating at a loss results in: 1) decrease in reserves and the risk of bankruptcy increase (which affects the interests of creditors); 2) equity erosion (affecting the interests of the owner). However, there is a difference between loss-making companies and value-subtracting companies. Value-subtracting companies make losses even on the assumption that labor and capital are free (Figure 2).

The situation when losses exceed the equity is usually the result of a tactical crisis, that is, a profitability crisis in which companies experience negative financial results. Losses gradually reduce the level of the equity that the owners have invested in the company as well as the

Figure 1: Losses exceeding the equity value in the Serbian economy, 2008-2017 (in billion dinars)



Source: Author's illustration based on [13]

accumulation from previous years. On the other hand, the situation may be due to other financial processes such as: leveraged buyouts, significant currency depreciation, substantial adjustments to intangible assets (amortization of goodwill), etc. [12].

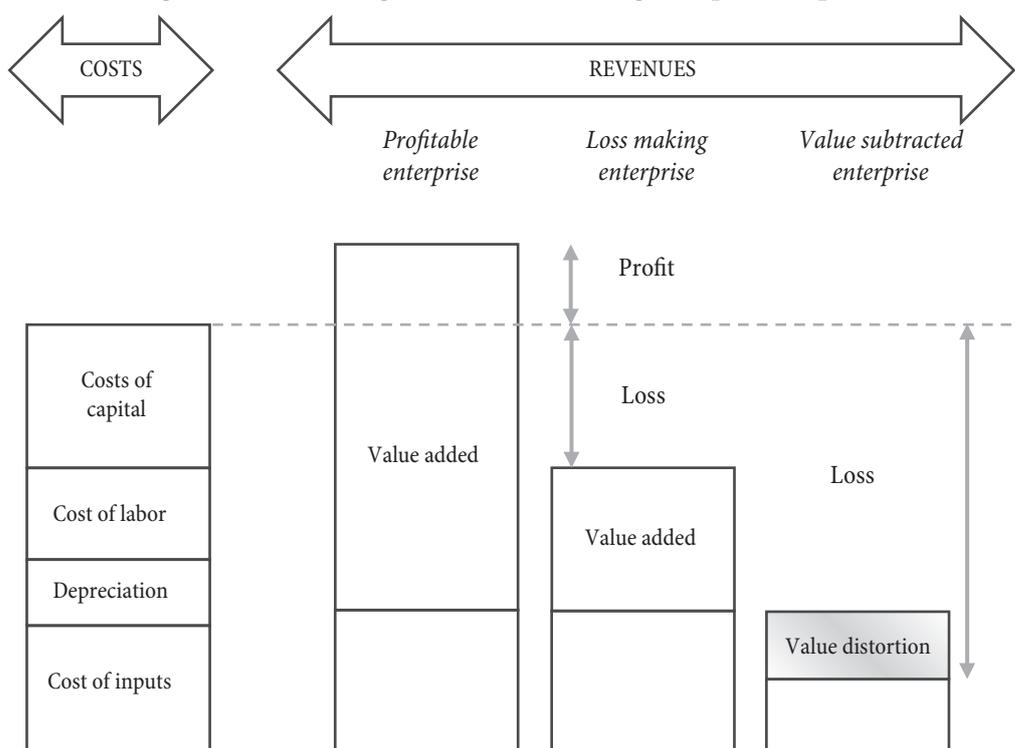
Business controversial enterprises are characterized by over-indebtedness, when liabilities exceed the value of the total assets of a company. In the event of liquidation of the company, the available assets would not be sufficient to cover the liabilities of the company, or the creditors' claims. To put it differently, the survival of these companies is financed by creditors. The controversy is reflected in the fact that such companies survive even though there are all formal (legal), and in some companies even essential (economic) conditions to undergo bankruptcy and/or liquidation. The legislator clearly defines the conditions under which bankruptcy and liquidation of a company can be initiated. Creditors have the legal right to initiate a bankruptcy proceeding before judicial authority in a timely manner, or significantly before the liabilities of the company exceed the value of its assets, which is the main feature of these companies. Therefore, the issue rightly arises as to whether the survival of the companies with a negative equity is justified.

In a negative transition, i.e., the transition from the phase of the economic cycle marked as "stability" to the recession phase, there is a contraction of economic activities. The company's response to the situation, especially the one with a high financial leverage, is by implementing a deleveraging, that is, the sale of non-profitable assets and the use of the so increased liquidity for servicing previous loans during revenue decline. The companies that in this way make financial adjustments in a particular business phase reduce the level of business activities concentrating on cash flows instead of investments, resulting in growing liquidity and the phase characterized by a "lack of development opportunities and excess capital". The aforementioned does not apply to business controversial enterprises with profit potential and poor financial health, which are "too big to fail".

### Basic features of the sampled companies

As already mentioned, the sample consists of 31 business controversial enterprises in Serbia. The largest number of the analyzed companies belongs to the processing and trade sectors that are equally present (32%). Sectoral membership of the analyzed business controversial enterprises is depicted

Figure 2: Loss-making and value-subtracting enterprises [5, p. 102]



in Figure 3. In terms of the legal form, the prevailing companies are limited liability companies (69%), followed by joint stock companies (24%) while public companies are least represented (7%). Perhaps at first glance, the low share of public companies in the group of business controversial enterprises is surprising, but this is a consequence of the basic criterion for creating the sample (companies with the highest revenue).<sup>1</sup> Consequently, the sample comprises primarily the vital segment of public companies. However, two public companies operating at a loss exceeding the equity represent the generators of the largest losses from the sample. Along with the public companies, there are eight other companies with full or majority state ownership among the business controversial enterprises.

1 Out of the 186 biggest companies in Serbia, there are 13 public enterprises, out of which only 2 companies operate at a loss exceeding the equity (JP Srbijagas and JP PEU Resavica).

The largest increase in the number of business controversial enterprises in the group of the biggest companies in Serbia occurred in the initial stage of the financial crisis (2008-2010), and gradually decreased and increased in the following years, reaching the peak in 2015-2016 (Figure 4). Whereas there was a fluctuation in the number of companies operating at a loss exceeding the equity, the total losses exceeding the equity of these companies were increasing progressively.

From the macroeconomic perspective, the importance of these companies is best illustrated by the data from the aggregate financial statements presented in Table 1 and Table 2. At the beginning of the analyzed period, these companies employed approximately 32,000 employees. However, the number of employees slightly fluctuated over the first few years, and after 2011 there was a significant decline. The downward trend in the number of employees resulted from the implementation of restructuring measures in several companies from the sample (Figure 5).

Figure 3: Sectoral membership of the biggest business controversial enterprises

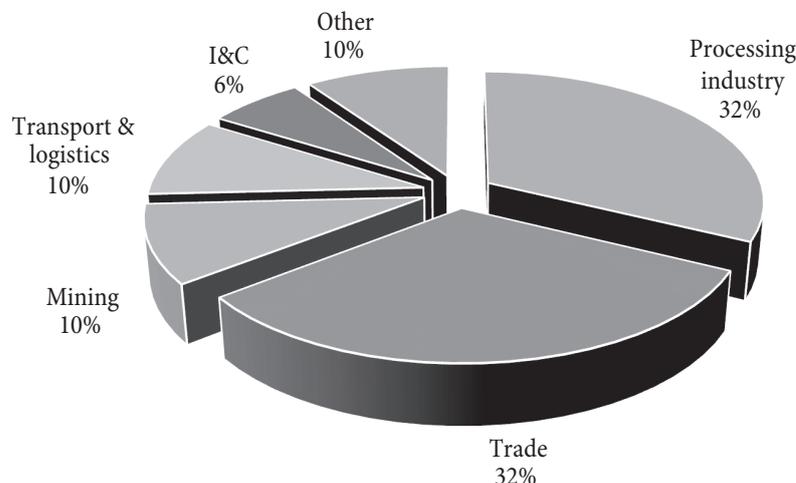


Figure 4: The number of business controversial enterprises in the group of the biggest companies

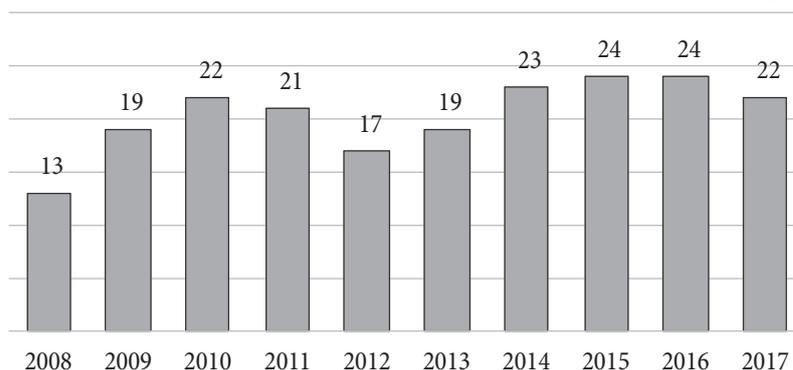


Figure 5: The number of employees

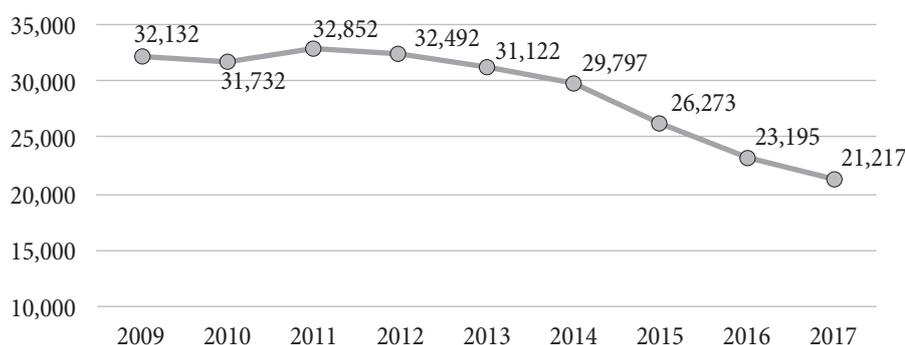


Table 1: Summary of the aggregate balance sheets of the analyzed companies

|                               | 2008         | 2009         | 2010         | 2011         | 2012         | 2013         | 2014         | 2015         | 2016         | 2017         |
|-------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Fixed assets</b>           | <b>201.1</b> | <b>216.0</b> | <b>242.3</b> | <b>288.5</b> | <b>290.7</b> | <b>309.0</b> | <b>338.0</b> | <b>342.2</b> | <b>321.9</b> | <b>327.9</b> |
| Subscribed unpaid capital     | 1.4          | 0.1          | 0.5          | 0.2          | 0.1          | 0.1          | 0.1          | -            | -            | -            |
| Intangible assets             | 39.6         | 38.8         | 37.7         | 36.5         | 35.8         | 57.1         | 57.2         | 60.8         | 59.3         | 58.6         |
| Property, plant and equipment | 137.7        | 145.6        | 171.0        | 189.8        | 202.7        | 221.9        | 241.9        | 242.0        | 229.2        | 233.7        |
| Long-term investments         | 22.4         | 31.5         | 33.1         | 62.1         | 52.1         | 29.9         | 38.8         | 39.4         | 33.4         | 35.6         |
| <b>Deferred tax assets</b>    | <b>0.1</b>   | <b>0.3</b>   | <b>0.1</b>   | <b>0.3</b>   | <b>0.6</b>   | <b>1.2</b>   | <b>0.7</b>   | <b>0.9</b>   | <b>0.8</b>   | <b>1.1</b>   |
| <b>Current assets</b>         | <b>118.1</b> | <b>143.4</b> | <b>219.4</b> | <b>221.5</b> | <b>226.1</b> | <b>208.5</b> | <b>172.5</b> | <b>185.4</b> | <b>183.4</b> | <b>183.4</b> |
| Inventories                   | 37.9         | 42.6         | 64.4         | 71.7         | 69.1         | 64.4         | 55.2         | 55.0         | 44.1         | 49.8         |
| Account receivables           | 59.0         | 72.7         | 92.9         | 92.6         | 101.7        | 94.3         | 84.7         | 92.1         | 92.5         | 77.2         |
| Short-term investments        | 8.1          | 12.6         | 35.8         | 36.2         | 23.8         | 16.3         | 10.0         | 9.6          | 14.6         | 15.1         |
| Cash and cash equivalents     | 6.2          | 5.7          | 10.4         | 7.5          | 12.0         | 10.4         | 8.6          | 15.2         | 21.7         | 21.0         |
| Value added tax and accruals  | 6.8          | 9.9          | 15.8         | 13.5         | 19.5         | 23.0         | 14.0         | 13.5         | 10.5         | 20.3         |
| <b>Total assets</b>           | <b>319.3</b> | <b>359.7</b> | <b>461.9</b> | <b>510.3</b> | <b>517.4</b> | <b>518.7</b> | <b>511.2</b> | <b>528.5</b> | <b>506.1</b> | <b>512.5</b> |
| Equity                        | 47.8         | 28.4         | 47.4         | 54.9         | 49.3         | 43.6         | 15.5         | 19.3         | 27.7         | 58.2         |
| Long-term provisions          | 3.0          | 3.5          | 2.2          | 3.3          | 3.6          | 7.1          | 7.2          | 8.8          | 8.8          | 6.2          |
| Long-term liabilities         | 151.4        | 190.5        | 259.7        | 325.0        | 293.7        | 289.3        | 345.7        | 316.2        | 356.7        | 309.1        |
| Deferred tax liabilities      | 1.7          | 2.0          | 2.4          | 2.5          | 3.8          | 7.4          | 8.0          | 7.1          | 6.8          | 5.8          |
| Short-term liabilities        | 149.6        | 205.9        | 252.9        | 269.5        | 304.5        | 385.4        | 452.6        | 510.4        | 480.5        | 417.4        |
| Loss over equity              | 34.2         | 70.7         | 102.7        | 144.9        | 137.5        | 214.1        | 317.8        | 333.4        | 374.4        | 284.2        |
| <b>Equity and liabilities</b> | <b>319.3</b> | <b>359.7</b> | <b>461.9</b> | <b>510.3</b> | <b>517.4</b> | <b>518.7</b> | <b>511.2</b> | <b>528.5</b> | <b>506.1</b> | <b>512.5</b> |

Source: Author's calculation based on the official financial reports of the analyzed companies.

Table 2: Summary of the aggregate income statements of the analyzed companies

|                                     | 2008          | 2009          | 2010          | 2011          | 2012          | 2013           | 2014           | 2015          | 2016          | 2017        |
|-------------------------------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|-------------|
| Operating revenues                  | 365.0         | 332.9         | 481.6         | 543.2         | 529.1         | 521.4          | 495.4          | 471.0         | 433.5         | 423.3       |
| Operating expenses                  | 386.4         | 363.0         | 494.5         | 566.2         | 554.7         | 548.7          | 511.9          | 474.9         | 422.9         | 396.2       |
| <b>Operating profit (loss)</b>      | <b>(21.4)</b> | <b>(30.0)</b> | <b>(12.9)</b> | <b>(23.0)</b> | <b>(25.6)</b> | <b>(27.3)</b>  | <b>(16.5)</b>  | <b>(4.0)</b>  | <b>10.7</b>   | <b>27.1</b> |
| Financial revenues                  | 25.2          | 16.1          | 23.7          | 39.8          | 30.4          | 19.0           | 14.8           | 25.2          | 15.8          | 30.9        |
| Financial expenses                  | 49.5          | 40.6          | 58.9          | 53.1          | 58.2          | 37.5           | 70.0           | 47.5          | 42.5          | 22.0        |
| <b>Profit (loss) from financing</b> | <b>(24.3)</b> | <b>(24.5)</b> | <b>(35.2)</b> | <b>(13.3)</b> | <b>(27.8)</b> | <b>(18.5)</b>  | <b>(55.2)</b>  | <b>(22.3)</b> | <b>(26.7)</b> | <b>8.8</b>  |
| Other revenues                      | 13.4          | 23.0          | 17.8          | 17.5          | 14.7          | 12.3           | 20.4           | 27.7          | 21.0          | 50.2        |
| Other expenses                      | 13.3          | 22.5          | 17.4          | 26.4          | 35.2          | 78.7           | 73.0           | 38.5          | 47.6          | 20.1        |
| <b>Profit (loss) before tax</b>     | <b>(45.6)</b> | <b>(54.0)</b> | <b>(47.6)</b> | <b>(45.2)</b> | <b>(73.9)</b> | <b>(112.3)</b> | <b>(124.4)</b> | <b>(37.1)</b> | <b>(42.6)</b> | <b>66.1</b> |
| Tax                                 | 0.1           | 0.6           | 0.4           | (0.0)         | 0.7           | (1.2)          | 0.1            | (0.7)         | (0.7)         | (0.7)       |
| <b>Net profit (loss)</b>            | <b>(45.8)</b> | <b>(54.7)</b> | <b>(48.0)</b> | <b>(45.2)</b> | <b>(74.6)</b> | <b>(111.2)</b> | <b>(124.4)</b> | <b>(36.4)</b> | <b>(41.9)</b> | <b>66.8</b> |

Source: Author's calculation based on the official financial reports of the analyzed companies.

## Performance of business controversial enterprises

The book value of the total business assets of the analyzed companies increased significantly from 2008 to 2011 (average annual growth rate of 17%), after which it successively increased and decreased by a few percentage points. At the end of 2017, the book value of the total assets of the analyzed companies amounted to 512.5 billion dinars (about 4% of the property of the Serbian economy). The asset structure was dominated by fixed assets (accounting for 61% on average). The growth in business assets was largely due to revaluation, i.e., reassessment of asset valuation (intangible investments, property, plant and equipment), rather than real investments into fixed and working capital. Fourteen companies from the sample conducted a revaluation of assets in the observed period. Total revaluation reserves increased from 12.1 billion dinars in 2008 to 79.4 billion dinars in 2017. The gas distribution company Srbijagas and the companies from RTB Bor Group had the major influence on the growth of revaluation reserves.

Unlike the value of fixed assets, the value of total working capital recorded significant fluctuations in the observed period (standard deviation of 19%). The growth trend from 2008 to 2012 was followed by a significant decline, recording the minimum value of working capital in 2014. The decline in the value of working capital could be attributed to the decline of business activities in 2014, leading the fall in the value of almost all positions of the working capital in majority of the analyzed companies. Not surprisingly, the most significant decline in the working capital occurred in the companies that were in the process of restructuring and bankruptcy, where the fall in activities was accompanied by the implementation of write-off measures.

Considering the nature of the sample, liabilities dominate the financial structure. The total value of the liabilities of the analyzed companies in the observed period continued to increase until 2016, when they reached 852 billion dinars, the increase of 2.8 times compared to 2008. Total liabilities decreased by 13% in 2017. Since the book value of the equity is calculated as a difference between the value of assets and total liabilities, the total net value

of the equity of the analyzed companies was negative. As for the analytical positions of the equity, in addition to increasing the revaluation reserves, the total value of the capital assets increased as a result of the primarily applied financial restructuring measures of some companies, which are mostly reduced to the conversion of debts into equity and/or recapitalization of the owners (strategic partners).

Financial analysis based on individual financial statements enabled a deeper insight and better understanding of various aspects of financial health of the analyzed business controversial enterprises. Two measures of central tendency were used: the arithmetic mean and the median which is essential as it is not affected by extreme values.

The average ratio of total leverage (TL) had increased steadily over the past decade. Total leverage increased from 0.99 in 2008 to 2.19 in 2017. The median of this indicator was at a slightly lower level and also had an upward trend with the exception in 2012 and 2017 (Figure 6).

The worsening of the financial structure can be seen not only due to increasing indebtedness, but also due to the unfavorable maturity structure, bearing in mind the dominance of short-term sources. Figure 7 indicates that the growth of total liabilities was primarily due to the growth of the short-term financial leverage (STL). The average (median) value of the STL rose from 0.63 (0.60) in 2008 to 1.66 (0.78) in 2017. Such a large deviation between the average and median value in the last year can be attributed to sharp increase in indebtedness, such as the case of Železara Smederevo. When it comes to the share of long-term leverage (LTL), the average value increased from 0.36 to 0.53, while the median value decreased from 0.21 to 0.16.

The unfavorable liability maturity structure results in the absence of net working capital (NWC), i.e., a negative net working capital, during the entire observed period. Total NWC of business controversial enterprises in 2017 reached -234 billion dinars, which is 7.4 times higher compared to its level in 2008. The financing of fixed assets from short-term sources is unsustainable in the long run. 74% of companies from the sample had a negative NCW in 2017.

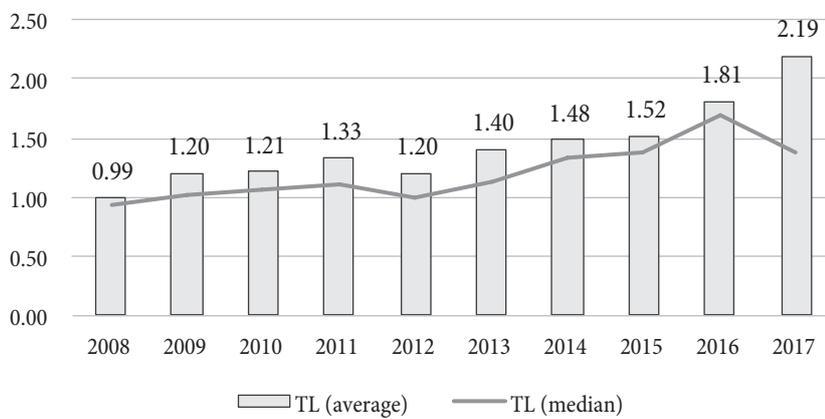
The low liquidity is best illustrated by the current and quick liquidity ratios of these companies that are

far below the normal orientation. The average current and quick ratios at the beginning of the observed period were 0.82 and 0.51, respectively, while the values of these indicators at the end of 2017 amounted to 0.72 and 0.44 respectively. These liquidity ratios also had a negative trend (Table 3).

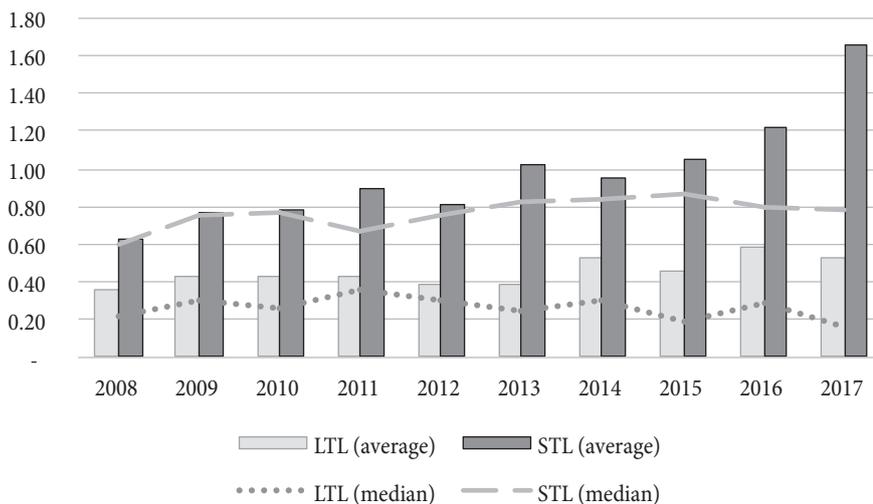
In the absence of liquid assets, business controversial enterprises have to rely on spontaneous sources of financing. Spontaneous sources were measured based on the so-called cash gap. It is the period for which a company should provide additional sources for financing working capital

(Table 4). The average cash gap of the analyzed companies was -42 days (median -9 days). A negative cash gap means that the companies from the sample had been significantly prolonging the deadlines for settling liabilities to suppliers, that is, the burden of financing the working capital was passed on to their suppliers. The inefficiency in debt collection was compensated by prolonging the settlement of liabilities to suppliers, maintaining own liquidity at the expense of others' (non)liquidity. Consequently, companies operating at losses exceeding the equity are the generators of insolvency for the entire economy, since the burden

**Figure 6: The ratio of the total leverage of the analyzed companies**



**Figure 7: Liability maturity structure of the analyzed companies**



**Table 3: Liquidity ratios**

|                   |         | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|-------------------|---------|------|------|------|------|------|------|------|------|------|------|
| Current liquidity | Average | 0.82 | 0.93 | 0.77 | 0.85 | 0.90 | 0.72 | 0.75 | 0.74 | 0.75 | 0.72 |
|                   | Median  | 0.76 | 0.79 | 0.71 | 0.85 | 0.96 | 0.66 | 0.59 | 0.56 | 0.45 | 0.52 |
| Quick ratio       | Average | 0.51 | 0.64 | 0.48 | 0.49 | 0.53 | 0.44 | 0.47 | 0.52 | 0.53 | 0.44 |
|                   | Median  | 0.54 | 0.47 | 0.46 | 0.47 | 0.48 | 0.40 | 0.32 | 0.30 | 0.43 | 0.41 |

of financing is transferred to a healthy segment of the economy creating the so-called illiquidity spiral [2], [10].

Although they are in the same group, these companies significantly differ in their financial performances. Some companies operated at a loss which exceeded the equity only at the beginning of the observed period or during the first half of this period. At the outbreak of the global financial crisis, these companies were in the state of over-indebtedness. However, gradually they managed to consolidate their financial structure. This is the proof that a negative equity does not necessarily lead to a strategic crisis (for example, Elixir Zorka-Mineralna đubriva d.o.o, SBB d.o.o.). The largest number of analyzed business controversial enterprises experienced indebtedness in the years after the outbreak of the crisis, which can be seen in Figure 4. Out of 31 companies, 65% of the companies operated at a loss which exceeded the equity for longer than 5 years. Moreover, 4 companies operated at a loss exceeding the equity during the entire ten-year period of observation (for example, JP PEU Resavica, RTB Bor Group - Copper Mines in Bor and Majdanpek).

In spite of the fluctuations in the number of the companies operating at a loss exceeding the equity, the

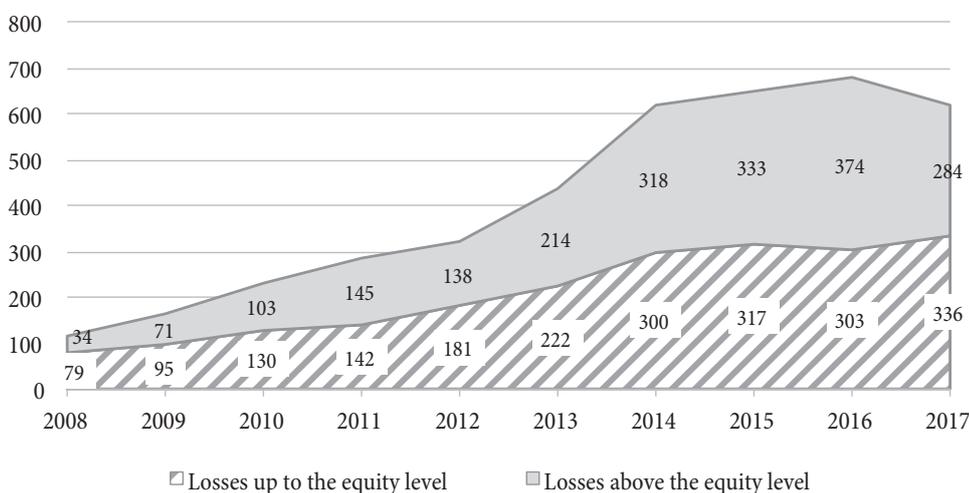
total losses exceeding the equity of these companies increased significantly. Average annual growth rate of the losses exceeding the equity in the 2008-2017 period was 32%. The total losses exceeding the equity in 2017 were almost 8.3 times higher compared to 2008 (Figure 8). The losses exceeding the equity of these companies in 2008 accounted for 9.2% of the total losses exceeding the capital value of the Serbian economy, doubling their share in 2017 (18.4%).

Bearing in mind the previous data, it is not necessary to prove the non-profitability of the companies whose losses have fully outweighed their own equity. Total cumulative net financial result of the analyzed companies in the 2008-2017 period amounts to -515.5 billion dinars. When revenue is not sufficient to cover debts, increased level of indebtedness magnifies the negative effect of the financial leverage. This is primarily the result of low operating margins, but also the high cost of capital due to underdeveloped (shallow and full of imperfections) capital market in Serbia [6]. However, it should be pointed out that in this group of companies there are some companies which managed to recover and achieve a positive financial result. Thanks to these companies, the overall financial

Table 4: Spontaneous sources of financing

|                                  |         | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|----------------------------------|---------|------|------|------|------|------|------|------|------|------|
| Cash gap (in days)               | Average | 2    | (34) | (38) | (44) | (41) | (60) | (33) | (80) | (48) |
|                                  | Median  | 5    | -    | (11) | (12) | (12) | (21) | (13) | (16) | (4)  |
| Companies with negative cash gap | Number  | 14   | 15   | 17   | 17   | 18   | 17   | 18   | 20   | 17   |
|                                  | Share   | 45%  | 48%  | 55%  | 55%  | 58%  | 55%  | 58%  | 65%  | 55%  |

Figure 8: Total balance losses of business controversial enterprises from the sample



(in billion dinars)

result of the observed companies from the sample was positive in 2017 (Table 2). Malinić *et al.* [11] conducted a research indicating that even in the group of companies with the largest net profit in Serbia, one-third of the companies cannot create the value for the owners, that is, their revenue cannot cover the cost of capital.

Long-term financial security of a company is determined by its earnings power and its equity. It is not difficult to estimate the financial health of a non-profitable company whose losses have fully outweighed its own equity. Long-term non-profitability and chronic illiquidity, individually, and especially together, increase the risk of bankruptcy.

The risk of bankruptcy was measured by using Emerging Market scoring model (EM-score). This is a special version of the Altman Z-score model adapted for emerging markets [1]. A higher value of the indicator indicates a lower probability of bankruptcy in the forthcoming period and vice versa. Based on an EM-score value, a credit rating equivalent can be determined.

There are three security zones, i.e., risk levels. The EM-score above 5.85 indicates a safe zone, and the credit rating equivalent for such enterprises ranges from BBB to AAA (investment ranking). The EM-score lower than 4.15 implies a red zone indicating a high probability of bankruptcy (the credit rating ranging from B- to D). A grey zone represents a moderate safety zone ranging from 4.15 to 5.85 (credit rating ranging from BBB- to B).

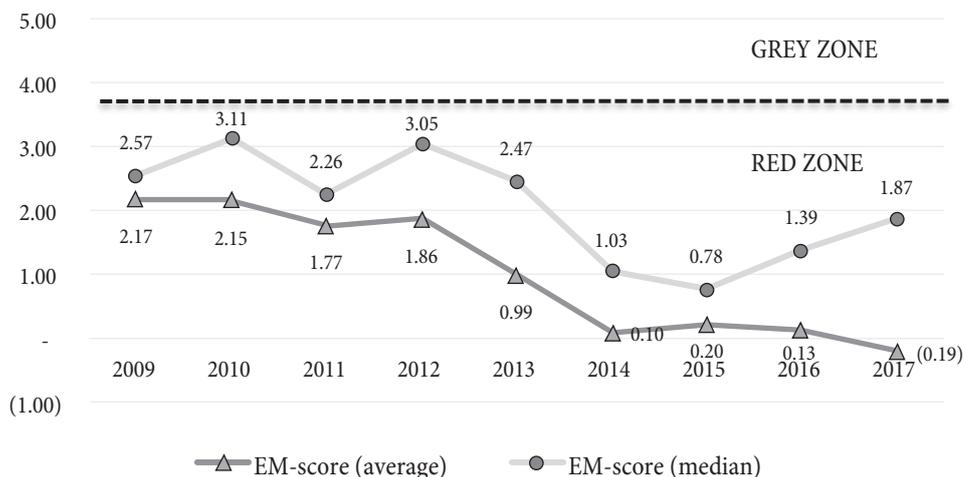
An average value and a median of the EM-score of the analyzed business controversial enterprises are in the

highest risk zone, that is, a red zone. Based on Figure 9 several conclusions can be made. Firstly, the downward trend in the average EM-score indicates an increase in the bankruptcy risk of business controversial enterprises in the observed period. Secondly, the average value of the indicator was decreasing below 1.75 from 2013, indicating the probability of bankruptcy (credit rating D). Thirdly, the EM-score median indicates a more favorable situation since it is at a higher level. From 2008 to 2013 the EM-score median ranged between CCC- and CCC credit rating interval, after which it fell below the level indicating a default (with the exception in 2017).

### Concluding remarks

The survival of business controversial enterprises depends primarily on the intentions of their owners. As for state-owned enterprises, the state finances and prolongs the survival of these enterprises in various ways, such as: artificial recapitalization, public procurements, spontaneous financing, etc. [4, p. 123]. First of all, the state encourages commercial banks to grant (short-term) loans, even though the risk assessment and the creditworthiness of these companies indicate clearly that this is not rational. These funds are mostly used to pay salaries to employees, and only the remaining part of the funds to increase working capital. Secondly, by public procurements, the state uses its budget and its natural reserves to conduct the collateralization of commercial loans in order to encourage more business activities of these enterprises (for

Figure 9: Risk of bankruptcy based on EM-score



example, an agricultural machinery program). The third type of support is the so-called spontaneous financing. The state exempts such companies from payments and/or tolerates non-payment of due liabilities to their suppliers, banks and employees instead of initiating bankruptcy [4, pp. 123-124].

The aforementioned financial measures only partially reduce the symptoms, but not the causes of losses exceeding the equity. The state as the owner has to make a clear distinction between the companies of the highest strategic interest and the ones which are not. For the first group of companies, the survival is crucial and therefore not brought into question and the state strives to find the way to improve their effectiveness and efficiency. However, the justification of the survival of other group of companies has to be based on fundamental economic principles.

Regarding privately-owned enterprises, the justification of their survival has to be based on the essential (economic) criteria, which is whether the company's going concern value is greater than its liquidation value. The private interest operates according to the market mechanism and relevant laws.

The isolated implementation of financial restructuring measures often does not eliminate the causes of the problems due to which the restructuring became inevitable in the first place. For loss-making companies which are at the stage of the crisis of profitability, an adequate response is

a turnaround strategy that implies changing the existing business model, refocusing of the business portfolio and concentrating on the activities that essentially promote the competitive advantage. Without these measures or in the event of their unsuccessful implementation, the enterprises quickly face a strategic crisis (the so-called program crisis). For the enterprises at this stage of crisis there are two (radical) alternatives: reorganization (financial consolidation, strategic re-focusing and organizational change) or liquidation.

Restructuring is justified when the going concern value is higher than the liquidation value of the enterprise. If there are investors willing to buy the company at a price higher than the going concern value, selling the company through a merger or an acquisition is a better option than restructuring. If a company is in such a stage of crisis that there are no real prospects for its revitalization, the liquidation of the company is the only option, given that the liquidation value is higher than the going concern value of the company (Table 5). Naturally, if it is an enterprise of public interest, i.e., strategic interest to the state, the survival of such a company is not doubted, and the appropriate measures are taken to improve its effectiveness and efficiency. On the other hand, enterprises operating in commercial sectors, regardless of the ownership structure, have to operate according to the market mechanism and relevant laws.

**Table 5: Strategic options for companies in financial distress**

| Hypothesis   | Option   | Outcome   |
|--|--|---|
| Selling price in M&A transactions > Going concern value or liquidation value | Selling companies in M&A transactions  | The company continues to operate as a dependent company of the buyer or merges into the customer's business and ceases to exist   |
|  | Selling companies in M&A after submitting a pre-prepared reorganization plan |   |
| Going concern value > liquidation value                                      | Voluntary restructuring  | Continuation of the business operation in accordance with the conditions agreed with the creditors  |
|  | Reorganization according to a pre-prepared reorganization plan               | Continuation of the business operation in accordance with the plan of reorganization reached by court order   |
|  | Bankruptcy reorganization  |   |
| Liquidation value > going concern value or selling price                     | Voluntary liquidation  | The company ceases to exist, the sale of assets is conducted by the liquidation manager, liquidation distributions are conducted in accordance with the terms agreed with the creditors |
|  | Bankruptcy liquidation   | The company ceases to exist, the sale of assets is conducted by the bankruptcy manager, liquidation distributions are conducted in accordance with court order                          |

Source: According to [3, p. 635] and [14, p. 439].

The restructuring of business controversial enterprises is essential for their existence, but also a matter of strategic importance for the entire economy of Serbia. In the period from 2008 to 2017, the total losses exceeding the equity of 31 business controversial enterprises from the sample increased by 8.3 times, which indicates their increasingly bad performance, and the urgency to take appropriate measures. The companies operating at losses exceeding their equity are generators of insolvency for the entire economy, since the burden of their financing is transferred to their suppliers, that is, a healthy segment of the economy, creating the so-called illiquidity spiral. Moreover, state-owned business controversial enterprises are also public debt generators. For example, in 2014 the fiscal costs of only two companies from this group (JP Srbijagas and Železara Smederevo d.o.o.) exceeded all the revenues that the state realized under VAT increase and the implementation of solidarity tax. Consequently, the restructuring of these companies is an imperative leading to the fiscal consolidation and the avoidance of the public debt crisis, as well as the improvement of the performance of the entire economy. By direct and indirect subsidies (tolerance of non-payment of social security taxes, non-payment to other public companies, issuing state guarantees for loans, etc.) the state does not solve the causes of the problems of these companies, but merely postpones the application of appropriate measures. Therefore, appropriate strategic options for these enterprises can be full or partial privatization, establishment of public-private partnerships, simultaneous business and financial restructuring, etc.



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