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THE FINANCIAL AND STRUCTURAL CAPABILITIES OF KEY INFRASTRUCTURE SECTORS IN SERBIA

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ABSTRACT: *Experts and economic policy creators debate various economic-growth rates without a direct insight into the capabilities of the different economic sectors motivated us to devote this paper to the research of key infrastructure sector capabilities, both in terms of the economic prosperity of the Serbian national economy and as a support for the development of other sectors. This paper examines the energy, transportation, and telecommunications sectors' exposure*

to short-term and long-term risks, and assesses their financial strength, investment possibilities, and long-term profitability. We believe that the following results will be a valuable information input for making better strategic decisions and more expedient planning of economic sustainable growth.

KEY WORDS: *infrastructure, economic growth, financial risks, investments, profitability.*

JEL CLASSIFICATION: M41, M48

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1. INTRODUCTION

Overcoming the economic crisis, and the economic growth to achieve this, imply the presence of a solid foundation for the functioning of the market economy. Creating a legally regulated and favourable business climate is the key prerequisite not only for attracting new investors but also for keeping the old ones. At the same time the stimulation of economic growth should be based on financially healthy economic segments able to bear part of the load while functioning according to market principles. Therefore not all economic sectors will have the same role in achieving economic growth. Economic policy creators often label certain sectors, such as the processing industry, agriculture, water management, mining, and the construction industry, as crucial to national economic development. Thus they often neglect the significance of the infrastructure sectors in the promotion of economic growth. The experience of the countries which have had the highest economic growth rates in recent years shows that the energy, transportation, and telecommunications sectors are, strategically speaking, just as important. These countries' strategy to revive their economies has been to promote investment in energy, transportation, and the telecommunications sectors. These sectors provide energy, logistic, and information support to all the other industries, and favouring them caused a chain reaction, boosting the entire economy and multiplying GDP growth. There are other not so obvious benefits, like the improvement of business processes, increased employment and decreased poverty, a growth in work productivity and consumption, better availability of social services, improved state efficiency, growing concern for the environment, and so on.

Extensive investment is necessary for the development of key infrastructure sectors, for instance: in the energy sector investment in new and revitalizing of old capacity in order to grow production and/or more efficient energy source supply, capital investment in broadband networks within the telecommunications sector, and in transportation investing in road and railway infrastructure and the development of intermodal transport. Along with the need for extensive investment there is the issue of adequate financing. External credit borrowing is always one option, but is not so feasible in the present economic circumstances and introduces a high risk of over-indebtedness. Making a serious investment implies financially healthy companies, able to bear the load of capital investment realization. Accordingly, our aim in this paper is to study the financial, structural, and other problems standing in the way of the growth and future profitability of key infrastructure sectors in the Republic of Serbia (hereinafter RS). We hope that recognizing the problems and indicating ways of overcoming them will help

the economic policy creators to make proper strategic decisions on a sound and timely basis that will improve economic performance.

2. IMPORTANCE OF INFRASTRUCTURE SECTORS

Infrastructure is usually defined as the combination of services and capacities needed for the undisturbed functioning of the economy and society as a whole. In a broad sense, infrastructure constitutes a set of mutually related structural elements which are both the framework for national economic development and an important factor in evaluating the level of development in countries and/or regions. These structural elements are usually divided into 'hard' and 'soft' elements. 'Hard' infrastructure elements include the physical components of mutually related systems of goods production and services, which enable, maintain, and improve living conditions in a society. They include the road network, railways, ports, airports, water supply network, energy sources, sewage system, telecommunication service network, and so on. 'Soft' infrastructure comprises all the institutions responsible for establishing the economic, health, cultural, and social standards in a society. Primarily these include financial, education, and health-care systems, state governing systems, law enforcement, and emergency service systems. The main goals of encouraging infrastructure development are improved access to services, employment growth, higher productivity, higher mobility of goods and services, facilitated economic cooperation, and environmental protection (specially emphasized at present). Therefore adequate investment in infrastructure represents an important assumption of sustainable economic development. Infrastructure investment has a huge influence on the economic and social indicators of a society's well being, and therefore is much more evident in undeveloped countries than in developed ones. It is not surprising that there is much international research into the effects of infrastructure and its elements on economic growth and social development. Accordingly, in this paper we chose to deal with the financial and structural capabilities of key infrastructural sectors in the economy of the RS. Due to space limitations we opted for the energy, transportation, and telecommunications sectors, recognizing them as key propellers in the stumbling economic activity of the RS. However, before focusing on the RS, it is necessary to be familiar with these sectors' position in developed economies.

Energy is undoubtedly the most important infrastructure sector, as it is integral to any economic or social segment. Energy is the bloodstream of an economy as well as its basic propeller, and a crucial input to almost all goods and services.

Hence availability, use of existent energy sources and finding of new ones, rational transformation into final consumption forms, supply stability and use safety, are all crucial to the dynamics of economic growth, society, and the world as a whole. Generally, the economic importance of the energy sector is twofold (World Economic Forum, 2012, pp. 6-10). Firstly, this sector is a modifier of the economic structure in terms of bringing not only faster development to the existent sectors but also enabling the development of new sectors and activities. Secondly, the energy sector is the accelerator of general economic improvement since it encourages large capital investment, efficient and cheap production, employment and consumption growth, and improvement of social standards. However the relative limitation of classical energy sources (oil, gas, coal) on the one hand, and the possibilities of energy supply from renewable sources (water, wind, sun) on the other hand have had a double impact on economic development, promoting the use of alternative energy sources and stimulating the saving and rational management of available energy. Today the achievement of both stated requirements is unimaginable without continuous environmental concern. Bearing all this in mind, energy both stimulates and limits economic growth and social development.

Transportation infrastructure is crucial for economic growth, as well as for the development and wealth of a society. Its importance comes from providing a wide range of necessary intermediary business services. Because transport is essential to almost all economic sectors, developed economies establish safe, widely available, and efficient transportation systems, which facilitate access to existent and new markets, creating added value, employment growth, and labour force mobility and promoting new investment (Garcia, et al., 2008, pp. 3-5) A network of high-quality roads, reliable railways, functional ports, harbours, and airports, by means of saving time and transportation costs, directly encourages the development and improvement of sectors such as agriculture, industry, mining, commerce, and tourism. An efficient transportation infrastructure also has a wider social role. It improves access to and delivery of vital social services like health care and education and thus reduces poverty levels, enabling easier integration into the global economy, especially in undeveloped and developing countries. When transportation infrastructure is limited in capacity and/or less reliable, it causes costs proportional to reduced or missed opportunities in all the fields mentioned above.

Telecommunications is the other typical infrastructure sector whose development affects the efficiency and speed of other sectors' development and the national economy as a whole. This is true for both developed and undeveloped countries.

The importance of telecommunications in the modern economy is that it is the infrastructure sector which affects other sectors more than any other, affecting GDP growth, total economic prosperity, and development of society as a whole (Zhen-Wei et al., 2009). Nowadays wide access to telecommunication services in most countries increases the level of business-process efficiency and management-process creativity, optimizes processes within the energy sector, facilitates access to different markets, increases business transparency, enables real-time information exchange, and so on. At the same time new technologies improve health care procedures, increase justice system productivity, enable higher quality education, promote efficiency and economy in the state apparatus, accelerate rural development, etc. Telecommunications is another infrastructure sector strategically important to the development of the national economy and society. Therefore providing a stable and growing telecommunications sector is essential to the national interest. With the beginning of the global economic crisis many countries which now have the highest economic growth rates - India, China, Brazil, South Korea, Mexico and Japan - recognized that their strategic path to economic revival lay in investment in the Information and Communication Technology (ICT) sector and in the development of a broadband network to access telecommunication services (International Telecommunication Union, 2009). From their experience we can learn very important lessons regarding the long-term effects of prompt opportunity recognition in the telecommunications field, not only for this sector, but for national economy and society as a whole.

3. METHODOLOGICAL FRAMEWORK OF THE ANALYSIS

The fact that infrastructure sector potential has a big impact on GDP growth, both directly and indirectly by affecting the success of other sectors, leads to the conclusion that it is the driving force of national economic development. The evaluation of financial strength, investment capabilities, and long-term profitability should be an important information input for economic policy creators. Detecting financial, structural, and other problems limiting growth and future profitability could, by means of raising the quality of strategic decisions, contribute to the improvement of economic performance.

The information base for the research of key infrastructure sector financial capabilities constitutes summary financial statements for each sector, which are the result of collecting individual financial statements from companies within the sector. The content of the energy and transportation sectors is determined by the Regulation on Activity Classification. From the information and communication

sectors we took only the companies dealing with telecommunication activities, setting aside publishing, film and TV production, and radio and TV broadcasting (Uredba o klasifikaciji delatnosti, 54/2010). Henceforth we will refer to this limited range of telecommunication activities as the telecommunications sector, as it deserves the status of an independent sector regarding its parameters. Summary financial statements for each individual sector (abridged and structured a little differently from the official form) are created from summary financial statements of the Serbian Business Registers Agency. These reports are shown on the next page. They represent the information base for the creation of further reports and numerous indicators. All further statements, calculations, indicators, and graphical reviews were generated by the authors.

These sectors are very heterogenous, and in addition each of them has a very heterogenous structure. The energy sector includes branches and companies dealing with production, transport, distribution and trade of electrical power; production, distribution and trade of gas; as well as production and distribution of steam, hot and cold water, and cold air. Within the transportation sector there are companies dealing with passenger services and goods transport by rail, road, waterway, and air, as well as storage services. Finally, the telecommunications sector includes branches and companies dealing with cable, wireless, satellite, and other telecommunication activities. Beside their role as infrastructure support to other sectors, the importance of the energy, telecommunications, and transportation sectors is represented by the fact that in Serbia in 2011 5,812 companies did business in these areas (428 in energy, 4,932 in transportation, and 452 in telecommunications), employing 140,309 people (Serbian Business Registres Agency).

Bearing in mind the importance of infrastructure sectors and the consequent need to analyse their capabilities on the one hand and their heterogeneity on the other, the logical method is financial analysis. Hence our research evaluates these sectors' financial performance, emphasizing their individual achievements and consequently their position in the Serbian economy. We evaluate the level of these sectors' exposure to short-term and long-term financial risk and their profitability, and analyse their investment capabilities. To this end we use cash flow analysis, cash cycle analysis, net working capital analysis, and ratio analysis. By using these instruments we identify possible problems related to the ability of servicing duties, indebtedness, safety, efficiency of property and capital management, ability to create income and finance sustainable growth, and the effect of financial leverage.

INFRASTRUCTURE SECTORS: FINANCIAL AND STRUCTURAL CAPABILITIES

Table 1: Abridged Balance Sheet

in millions

Positions	ENERGY				TRANSPORTATION				TELECOMMUNICATIONS						
	2007	2008	2010	2011	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011	
A Fixed Assets	568,369	570,422	557,622	557,622	1,484,317	483,566	498,448	508,463	473,583	578,402	269,744	284,632	287,820	291,061	287,158
I Subscribed capital unpaid	37	1,678	1,902	0	4,614	4,100	1,310	1,148	1,569	1,655	288	381	160	563	182
II Goodwill	0	0	0	0	0	0	0	11	46	15	66	3,584	3,688	3,687	3,681
III Intangible assets	2,338	2,436	7,150	9,262	7,259	1,393	3,543	3,537	3,543	4,276	69,839	71,533	65,818	63,310	61,060
III Property, plant and equipment	536,545	557,087	540,658	563,136	1,133,820	397,983	414,968	418,723	440,904	517,343	139,185	149,293	156,223	159,995	154,886
IV Long-term investments	9,449	9,221	7,920	341,470	338,625	80,090	78,615	85,009	27,516	55,062	58,423	59,841	61,932	63,503	67,349
B Current assets	88,755	108,443	138,109	196,066	240,941	101,500	117,034	141,291	187,988	197,152	41,429	46,773	54,460	61,359	74,989
Inventories	19,056	19,935	22,110	25,845	27,715	16,184	16,524	23,090	31,844	39,970	9,833	9,731	9,209	10,451	11,007
II Account receivables	61,119	78,421	100,203	132,059	186,241	52,185	68,231	86,916	103,405	103,859	19,967	27,168	30,038	32,187	33,062
III Short-term investments	2,965	3,720	6,555	6,995	16,704	8,693	20,990	22,195	41,503	42,377	1,783	194	609	1,963	1,932
IV Cash and cash equivalents	5,616	6,368	9,242	11,167	10,281	24,438	11,289	9,090	11,236	10,946	9,846	9,679	14,463	16,759	28,988
C Value Added Tax and Accruals	3,910	4,639	4,728	9,349	11,000	6,055	8,156	8,143	12,071	11,211	3,842	4,667	5,825	6,915	9,649
D Deferred tax assets	41	42	44	73	111	632	915	637	658	937	1,576	1,472	1,530	1,224	1,579
E Total assets	661,075	683,547	700,510	1,121,817	1,736,369	591,754	624,554	658,534	674,300	787,701	316,590	337,544	349,635	360,559	373,375
F Loss over capital	3,506	8,236	12,526	18,371	21,043	13,688	6,981	9,937	14,239	19,838	4,782	16,195	29,771	43,187	45,487
G Total assets and loss over capital	664,582	691,782	713,036	1,140,188	1,757,411	605,442	631,535	668,471	688,539	807,539	321,375	353,739	379,406	403,745	418,861
Positions	2007	2008	2010	2011	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011	
A Capital	503,619	496,681	503,481	773,232	1,289,092	374,701	367,522	358,618	312,237	401,722	152,780	154,153	165,435	173,565	161,411
B Long term provisions	1,699	5,017	5,927	7,097	7,961	7,503	5,578	5,983	5,805	6,530	1,918	2,289	2,491	2,346	2,216
C Long-term financial liabilities	46,879	53,903	51,558	107,933	100,566	97,682	105,244	111,306	147,583	151,601	116,199	116,568	131,444	142,240	128,236
D Short-term financial liabilities	8,246	11,822	12,259	27,871	37,130	33,849	48,969	72,830	86,740	103,279	7,513	35,356	30,405	29,638	56,610
E Current operating liabilities	72,726	65,237	77,202	154,624	197,252	86,862	92,621	106,048	120,168	123,044	42,265	26,591	25,345	28,996	43,828
F Accrual and deferred income	4,907	36,177	40,883	48,302	49,490	2,364	8,815	10,280	11,913	11,764	319	18,059	23,371	26,286	25,905
G Deferred tax liabilities	26,504	23,445	21,726	21,128	75,921	2,481	2,786	3,405	4,093	9,599	381	723	914	674	654
H Total capital and liabilities	664,582	691,782	713,036	1,140,188	1,757,411	605,442	631,535	668,471	688,539	807,539	321,375	353,739	379,406	403,745	418,861

Table 2: Abridged Income Statement

in millions

Positions	ENERGY				TRANSPORTATION				TELECOMMUNICATIONS						
	2007	2008	2010	2011	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011	
A Operating revenues and expenses	9,619	7,712	9,074	22,518	17,586	14,790	20,099	15,851	18,087	23,662	5,621	12,851	9,719	9,897	13,504
I Operating revenues	3,745	13,199	9,150	24,475	12,021	12,960	34,093	27,799	36,476	27,409	6,372	32,698	20,825	23,443	10,666
II Operating expenses	5,874	(5,486)	(75)	(1,958)	5,565	1,830	(13,994)	(11,948)	(18,390)	(3,747)	(750)	(19,847)	(11,106)	(13,546)	2,837
III Net financial revenues (expenses)	(87,558)	(8,140)	(16,902)	(19,168)	9,292	2,220	6,330	6,489	(433)	18,481	(3,869)	(5,319)	(3,511)	(4,324)	(2,981)
C Net other gains and expenses	(97,058)	(29,531)	(12,672)	(9,849)	25,452	3,678	(14,042)	400	(10,158)	16,316	13,160	1,781	9,953	8,861	30,727
D Income (loss) before taxes	9,780	1,595	1,694	1,474	2,965	235	813	687	760	963	2,177	1,144	1,180	1,160	2,273
E Income taxes	0	0	0	2	0	52	46	14	343	247	534	5,787	4,416	3,947	4,883
F Paid to owners	(88,290)	(28,690)	(11,905)	(9,709)	22,220	2,242	(14,853)	(983)	(11,741)	14,840	12,321	(5,279)	4,619	3,604	24,353
G Net income (loss) after taxes	(48,176)	(31,867)	(35,128)	(50,647)	80,839	41,721	39,543	48,853	45,329	63,818	41,836	59,311	59,747	62,231	75,319
EBITDA	(93,687)	(17,652)	(4,437)	(12,179)	36,272	15,343	16,641	25,419	22,670	40,984	18,894	31,209	28,696	29,960	40,327
EBIT															

Source: Author's calculation

4. ANALYSIS OF SHORT-TERM RISK

To analyse and evaluate the financial and structural capabilities of key infrastructure sectors it is necessary to know their liquidity positions, i.e., the short-term financial safety of this economic segment. A thorough understanding of this phenomenon means discussing structural liquidity position and analysing cash flow compatibility.

In order to understand the structural liquidity position of the most important infrastructure sectors we will mainly rely on liquidity indicators, turnover indicators, and indicators showing length of cash cycle (Malinić et al., 2013, pp. 83-126). The results of certain indicators are also given for the economy as a whole in order to establish the relative liquidity position of the key infrastructure sectors (Table 3).

If we first consider the values of the first two liquidity ratios we can see that the infrastructure segment of the economy shows no significant achievements. The achieved values of the liquidity ratio are declining steadily and, if we compare the shown values to the orientational norms of business practice in developed countries, we will see that they lag far behind. The reported values of current ratio and quick ratio in the entire analysed period are practically half what is necessary to ensure a structural liquidity position. The telecommunications sector is in the worst position. In the transportation sector the situation is slightly better, and it is best in the energy sector, although still far from being considered acceptable in normal circumstances.

Although the structural liquidity position is not good, we must not forget that the subject of this analysis is the infrastructure segment of the economy, a segment that is characterized by intense capital investment in fixed assets, especially property, plants, and equipment. In the analysed period fixed assets constitute, on average, between 75% and 85% of the total investment in business assets in all sectors. The energy, transportation, and telecommunications sectors do not require large current assets, high inventories, or long periods of buyer credit affecting accumulated receivables for normal functioning. Therefore our earlier expectations in terms of indicator value regarding the structural liquidity position must be relaxed to a certain degree.

Table 3: Indicators of short-term risks

Sectors	2007	2008	2009	2010	2011
ENERGY					
Current Ratio	1.08	1.00	1.10	0.89	0.89
Quick Ratio	0.81	0.79	0.89	0.74	0.75
Cash Flow from Operations Ratio	(0.70)	0.21	0.10	0.18	0.22
Average No. Days Inventory in Stock	38	33	33	27	26
Average No. Days Receivables Outstanding	93	98	117	109	120
Average No. Days Payables Outstanding	95	100	124	120	144
Cash Cycles	35	31	26	16	2
TRANSPORTATION					
Current Ratio	0.88	0.84	0.79	0.92	0.88
Quick Ratio	0.69	0.67	0.62	0.71	0.66
Cash Flow from Operations Ratio	0.18	(0.15)	(0.02)	(0.10)	0.04
Average No. Days Inventory in Stock	28	25	29	32	38
Average No. Days Receivables Outstanding	63	61	78	79	82
Average No. Days Payables Outstanding	133	110	135	116	119
Cash Cycles	(43)	(24)	(27)	(5)	1
TELECOMMUNICATIONS					
Current Ratio	0.94	0.66	0.78	0.82	0.68
Quick Ratio	0.63	0.46	0.57	0.60	0.51
Cash Flow from Operations Ratio	0.77	0.07	0.34	0.34	0.53
Average No. Days Inventory in Stock	37	39	38	39	42
Average No. Days Receivables Outstanding	52	59	67	69	66
Average No. Days Payables Outstanding	187	207	194	184	206
Cash Cycles	(98)	(109)	(89)	(76)	(98)
ECONOMY					
Current Ratio	1.02	0.98	0.97	0.97	0.96
Quick Ratio	0.62	0.60	0.60	0.61	0.60
Cash Flow from Operations Ratio	0.02	(0.07)	(0.00)	(0.03)	0.05
Average No. Days Inventory in Stock	67	72	84	80	78
Average No. Days Receivables Outstanding	79	81	98	96	93
Average No. Days Payables Outstanding	132	134	163	153	148
Cash Cycles	14	18	19	22	23

Source: Author's calculation

However, regardless of this proviso, the acceptability of the basic liquidity ratio values is additionally burdened by the fact that inventory management and receivables collection in the key infrastructure sectors are inefficient. This can be partially explained by the reported declining values of inventory turnover ratio (except in the energy sector), and the value of the receivables turnover ratio having a tendency to decline in all sectors. However the inefficiency of current asset management and management of its parts reveals the reduced capacity of the sector to create not only net cash inflow but also expected i.e. targeted income levels.

Some other details also spoil the picture of an acceptable structural liquidity position. First of all, in the analysed period for all sectors we report faster short-term (current) liability growth compared to growth of investments in current assets. Furthermore, except in energy, and only in the first few years, the analysed sectors do not manage to provide long-term financing for any part of current assets. This is why the entire infrastructure segment of the economy is characterized by negative Net Working Capital (NWC) and financial imbalance, raising the risk of both long-term and short-term financial instability.

Finally, we should also pay attention to the fact that the average number of days of receivables outstanding to suppliers is steadily growing (Boer, 1999). In the last analysed year it unexpectedly reached almost seven months in the telecommunications sector, almost five months in the energy sector, and 'only' four months in the transportation sector. The epilogue of this story is a negative cash cycle in the transportation and telecommunications sectors, while energy does better owing to a longer number of days of receivables outstanding. At this point we may conclude that the infrastructure sectors follow the achievements of the rest of the economy: along with growing short-term liabilities the transportation and energy sectors transfer the financing cash cycle, and thus most of the load of maintaining liquidity, to their suppliers. Since in such circumstances many suppliers will not be able to close their cash cycle by usual (mostly short-term) borrowing, the illiquidity problem in our economy creates the effect of a spiral, taking downwards all the companies in the business chain. It is transferred from buyer companies to suppliers, and then from suppliers to subcontractors, and so on, with the illiquidity problem usually most apparent in the last one in the sequence (Malinić & Milićević, 2011).

The current structural liquidity position is not a bright feature of the key infrastructure sectors. However this fact still does not mean that these sectors are basically illiquid. We cannot grasp the final liquidity position of this economic segment before the analysis of cash inflow and outflow compatibility. To this end we give a brief comparative review of cash flows in Table 4.

In order to maintain liquidity in the long term (and this is the case here since our analysis includes five business years in sequence), companies should generate cash excess in the part of the cash-flow statement regarding business operations. This is present in the energy and telecommunications sectors in all analysed years except 2007. Released cash excess from business operations in these sectors has been rising from year to year. Therefore it is no wonder that there are decent achievements reported in the energy and telecommunications sectors regarding

coverage of current and total liabilities on the one hand, and coverage of interest costs by realised net cash flow from operations on the other hand. Regarding all parameters, the transportation sector lags behind. Only in the first and last examined years did it manage to achieve a cash excess from business operations; inbetween the transportation sector reported net outflow, which, combined with the damaged structural liquidity position previously discussed, distinguishes this sector in terms of a slightly higher burden of short-term risk.

Table 4: Statements of cash flow

Sectors	2007	2008	2009	2010	2011
ENERGY					
I Cash flow from operating activities	(58,579)	21,304	12,120	32,011	56,140
1. Cash flow from income statement	(51,366)	16,434	19,497	7,412	50,064
2. Cash flow for changes in working capital	(7,213)	4,869	(7,376)	24,599	6,076
II Cash flow from investing activities	(167,855)	(42,975)	(20,308)	(374,532)	(602,526)
III Cash flow from financing activities	225,246	22,424	11,062	344,447	545,499
IV Net cash flow	(1,188)	752	2,874	1,926	(886)
TRANSPORTATION					
I Cash flow from operating activities	21,389	(20,534)	(3,063)	(20,788)	9,467
1. Cash flow from income statement	20,334	(13,975)	7,005	(7,347)	14,737
2. Cash flow for changes in working capital	1,055	(6,559)	(10,068)	(13,441)	(5,270)
II Cash flow from investing activities	(42,540)	(32,772)	(18,965)	11,423	(104,779)
III Cash flow from financing activities	30,946	40,158	19,829	11,511	95,023
IV Net cash flow	9,795	(13,148)	(2,199)	2,145	(289)
TELECOMMUNICATIONS					
I Cash flow from operating activities	31,887	4,588	26,658	28,223	55,649
1. Cash flow from income statement	27,459	10,343	26,154	25,833	45,718
2. Cash flow for changes in working capital	4,428	(5,755)	504	2,391	9,931
II Cash flow from investing activities	(126,270)	(28,459)	(25,156)	(26,566)	(17,935)
III Cash flow from financing activities	94,580	23,704	3,424	496	(25,484)
IV Net cash flow	198	(167)	4,926	2,154	12,230
ECONOMY					
I Cash flow from operating activities	40,888	(198,984)	(1,696)	(117,219)	211,472
II Cash flow from investing activities	(987,596)	(560,809)	(371,961)	(191,609)	(1,341,923)
III Cash flow from financing activities	1,006,545	753,172	398,655	327,776	1,189,796
IV Net cash flow	59,836	(6,621)	24,998	18,948	59,345

Source: Author's calculation

We will understand the importance of these achievements of the infrastructure sectors if we compare them to the level in the entire economy, in order to see their relative position. In earlier research we established that the entire economy creates only huge net outflows from business operations, so that there is no coverage of debts and interest costs (Malinić & Milićević, 2012). This dramatically raises the short-term and long-term risks, not only of existing but also of potential investors, which is a very bleak indication of our economy's prospects in the near

future. However, not all sectors are doomed. Energy and telecommunications are among those rare sectors which can boast of harmony regarding operational cash inflow and outflow.

A deeper analysis of the structure of operational cash inflow and outflow provides more facts important to drawing final conclusions. Firstly, most of the cash flow from operations in the energy and telecommunications sectors derives from income statements, i.e., it is mostly realized by selling products and services in the market. Although at first it may seem that these two sectors are equally successful in this field, we should underline that the telecommunications sector achieves these results in a fairly liberalized market, while the energy sector works in a closed state-controlled market. The transportation sector lags behind energy and telecommunications in this field as well. The transportation sector did not manage to achieve a positive cash flow from income statements during 2008 when the economic crisis struck hardest. It was similar in 2010, but there was a certain recovery in 2011. However, our analysis will show that the hint of improvement is more the effect of 'playing' with the dinar exchange rate than of real business achievement.

Significantly worse results are reported in the segment where there are cash inflows and outflows based on changes in current assets and current liabilities. The energy and telecommunications sectors are ahead again, while, especially in this segment, the transportation sector reports quite high net outflows. Unfortunately the general impression is that net inflows in this field are not the effect of good inventory and receivables management, but of willful prolongation regarding payment of liabilities to suppliers. Prolonging payment of liabilities to suppliers manifoldly improved the segment of cash flows in accounting terms but essentially hides negligence, which these sectors show in terms of liquidity to their own suppliers. There is no need to waste more words explaining how expensive this is in the long term. However, in all the fields, these sectors do not lag behind the recent general trend in our economy of bridging the illiquidity problem at the expense of suppliers.

Previous analysis of cash flow from operations reveals more important details indicating the long-term risk overload of key infrastructure sectors. Owing to net inflow from operations, energy and telecommunications, unlike other sectors in our economy, manage to ensure partial growth financing from so-called internal sources during the whole analysed period. This becomes obvious when we compare the net cash effects of business and investment operations. As expected, the final effect in all sectors regarding investment operations is negative and

results in net cash outflows. However, it is particularly important to note that, in the last three years, the telecommunications sector managed to completely cover net outflow from investment operations with realized cash excess from business operations, where this excess more than tripled in the last year. Having in mind the experience of other economic sectors, these achievements of the telecommunications sector could be characterized as extremely good. However, let us point out that we should still be very cautious with such a conclusion, since the stated achievements can indicate a problem of inadequate investment in modernization of existing equipment and purchase of new equipment, which could have a negative effect in the near future on the business operations of companies embracing that practice (Malinić & Milićević, 2012).

In all the mentioned segments, the energy sector lags behind due to extremely high net outflows based on investment operations, particularly in the last few analysed years. In the following discussion we will deal some more with the nature of these intense investment operations, hoping to reveal where they refer to actual investments in modernization and extending capacities, and where they are the result of pseudo investments coming from revaluation. Following earlier explanations it is clear that the transportation sector will be last in this discipline as well, but it reported considerably higher cash outflow based on investment operations in the last two years. Having in mind 'the situation in the field', our expressed concern regarding pseudo investments in the energy sector remains.

All the aforementioned undoubtedly leads to the final conclusion that key infrastructure sectors share the destiny of the rest of the economy in terms of structural liquidity position. This is mostly the consequence of accelerated short-term indebtedness under extremely inconvenient conditions that this part of economy has also not managed to escape, bringing into question its short-term financial stability. However, owing to the distinctiveness of the core business, energy and telecommunications manage to alleviate short-term risks considerably through adjusting cash flows, particularly those from business operations, which is why this segment of our economy is still not attractive to new investment.

5. ANALYSIS OF LONG-TERM RISK

The next question we want to discuss is what investors and creditors may expect in the long term regarding key infrastructure sectors. Knowing that the level of long-term risk burden is primarily determined by property structure, financing source structure, level of indebtedness, and yield power, it is logical

to continue investigating these areas, considering first the calculated values of typical indicators given in Table 5. We chose only indicators of indebtedness and debt load since they can partially serve as the basis for sector achievement interpretation.

Table 5: Indicators of long-term risks

Sectors	2007	2008	2009	2010	2011
ENERGY					
Fixed Assets Coverage Ratio	0.88	0.86	0.88	0.82	0.85
Fixed Assets and Inventories Coverage Ratio	0.93	0.92	0.94	0.91	0.90
Debt to Equity	0.32	0.40	0.43	0.49	0.37
Cash Flow from Operating to Debt	(0.39)	0.12	0.06	0.11	0.13
Cash Flow from Operations / Interest Expenses	(25.02)	(1.34)	(0.48)	0.50	3.02
Interest Coverage Ratio	(15.64)	1.61	1.32	1.31	4.67
Assets Turnover	0.37	0.39	0.41	0.47	0.36
Capital Turnover	0.50	0.53	0.58	0.69	0.51
TRANSPORTATION					
Fixed Assets Coverage Ratio	0.74	0.72	0.69	0.63	0.66
Fixed Assets and Inventories Coverage Ratio	0.92	0.90	0.86	0.87	0.86
Debt to Equity	0.65	0.73	0.89	1.27	1.07
Cash Flow from Operating to Debt	0.10	(0.08)	(0.01)	(0.06)	0.02
Cash Flow from Operations / Interest Expenses	1.18	0.49	0.91	0.62	1.50
Interest Coverage Ratio	1.65	(0.60)	(0.11)	(0.57)	0.35
Assets Turnover	0.53	0.59	0.56	0.66	0.63
Capital Turnover	0.87	1.00	1.02	1.37	1.37
TELECOMMUNICATIONS					
Fixed Assets Coverage Ratio	0.55	0.48	0.47	0.45	0.40
Fixed Assets and Inventories Coverage Ratio	0.93	0.85	0.89	0.89	0.80
Debt to Equity	1.14	1.45	1.58	1.77	2.22
Cash Flow from Operating to Debt	0.29	0.02	0.13	0.13	0.23
Cash Flow from Operations / Interest Expenses	2.97	0.95	1.38	1.28	3.78
Interest Coverage Ratio	5.00	0.14	1.28	1.20	5.22
Assets Turnover	0.48	0.45	0.45	0.46	0.49
Capital Turnover	0.84	1.02	1.13	1.23	1.45
ECONOMY					
Debt to Equity	1.12	1.40	1.59	1.83	1.51
Cash Flow from Operating to Debt	0.01	(0.04)	(0.00)	(0.02)	0.03
Cash Flow from Operations / Interest Expenses	1.19	0.87	0.71	0.77	1.19
Interest Coverage Ratio	0.20	(0.42)	(0.00)	(0.22)	0.50

Source: Author's calculation

First and foremost, as regards property structure, investments in fixed assets dominate, primarily in property, plants, and equipment, due to the distinctiveness of the infrastructure sector core business. We have already stated that the share of these investments in total investments in operating assets in all sectors is

between 75% and 85%. Since we are talking about long-term assets, financing from ownership capital and/or long-term liabilities is required in order to maintain financial balance and reduce long-term risk, which we will discuss further on. Also, we may note that in the analysed period investment in fixed assets rises in all sectors. This growth is most apparent in the energy sector, which increased the value of fixed assets by 3.5 times in the analysed period. In the last two examined years this sector almost doubled investment in property, plants, and equipment. However, this is not the result of extending and modernizing production capacities but of an accounting maneuver, i.e., revaluation, which ostensibly also increased the value of this sector's capital. Transportation and telecommunications are characterized by a considerably smaller growth of fixed asset investment. Therefore there is obviously not enough investment in purchase of new equipment and modernization of existing equipment in key infrastructure sectors. This situation is not just damaging to the sectors themselves but threatens the entire economy. By contrast, the developed world has for years been steadily improving infrastructure in terms of innovation, quality, range, content, and a continuous decline in the cost of providing a wide range of infrastructure services, with concentrated investment in up-to-date technology and know-how on the one hand, and stimulation and protection of competitors on the other hand.

The structure of financing sources, i.e., the relation between ownership capital and liabilities, most closely defines long-term financial safety. Looking at the debt to equity ratio of the infrastructure sectors, we can draw some useful conclusions. Firstly, growth of indebtedness is noticeable in all sectors. However there are considerable differences among the analysed sectors in terms of debt to equity ratio, and different abilities to bear the load of current and future indebtedness. Our analysis shows that the energy sector is the least indebted. It is interesting to notice that, in all analysed years, debt to equity was considerably below the average indebtedness of the economy. The transportation sector is more indebted than the energy sector, but it is also below the average achievement of the total economy. The telecommunications sector is by far the most indebted and very close to the average indebtedness of the economy. Within the growing indebtedness of the telecommunications sector there is an accelerated reduction of ownership capital value, and accordingly of long-term safety. Taking into consideration all cumulated losses in this sector, the share of net ownership capital compared to total capital value fell from almost 47% in 2007 to a worrying 32% at the end of the analysed period. However, due to high excess Cash Flow from Operating activities (CFO), especially in the last few years, the telecommunications sector provided considerable coverage of current and total liabilities, as well as of interest costs. There is a similar situation with coverage of interest costs by Earnings

Before Interest and Tax (EBIT), which in the last analysed year reached a level acceptable even for much more developed economies than the Serbian economy. It seems that the telecommunications sector deals much better with indebtedness than the other two sectors, where the share of ownership capital in total capital is more than 50%.

In order to complete the picture of the relative position of disposable ownership capital in key infrastructure sectors it is necessary to look at the first items of the net working capital statement given in Table 6.

Table 6: Statements of net working capital

Sectors	2007	2008	2009	2010	2011
ENERGY					
1. Capital	676,588	686,752	666,250	991,755	1,512,401
2. Cumulated losses	176,513	199,985	177,198	239,354	248,966
3. Net capital (1-2)	500,075	486,767	489,052	752,401	1,263,435
4. Fixed assets	568,332	568,744	555,727	913,868	1,479,703
5. Own net working capital (3-4)	(68,256)	(81,978)	(66,675)	(161,467)	(216,268)
6. Long-term provisions and liabilities	75,083	82,366	79,211	136,158	184,448
7. Net working capital - NWC (5+6)	6,826	388	12,537	(25,309)	(31,820)
8. Inventories and similar current assets	23,007	24,616	26,881	35,267	38,826
9. Excess (deficiency) NWC (7-8)	(16,181)	(24,228)	(14,344)	(60,576)	(70,646)
TRANSPORTATION					
1. Capital	495,259	524,148	520,680	509,793	604,557
2. Cumulated losses	138,346	164,918	173,147	213,364	224,328
3. Net capital (1-2)	356,913	359,230	347,533	296,429	380,229
4. Fixed assets	479,466	497,138	507,315	472,014	576,747
5. Own net working capital (3-4)	(122,553)	(137,908)	(159,782)	(175,585)	(196,517)
6. Long-term provisions and liabilities	107,665	113,608	120,694	157,481	167,730
7. Net working capital - NWC (5+6)	(14,888)	(24,300)	(39,088)	(18,104)	(28,787)
8. Inventories and similar current assets	22,871	25,595	31,870	44,574	52,118
9. Excess (deficiency) NWC (7-8)	(37,759)	(49,894)	(70,958)	(62,678)	(80,905)
TELECOMMUNICATIONS					
1. Capital	155,510	160,929	174,069	183,077	173,514
2. Cumulated losses	7,803	23,351	38,565	53,262	57,771
3. Net capital (1-2)	147,708	137,577	135,504	129,815	115,743
4. Fixed assets	269,456	284,252	287,660	290,498	286,976
5. Own net working capital (3-4)	(121,748)	(146,674)	(152,156)	(160,683)	(171,233)
6. Long-term provisions and liabilities	118,498	119,580	134,850	145,261	131,106
7. Net working capital - NWC (5+6)	(3,250)	(27,094)	(17,306)	(15,422)	(40,127)
8. Inventories and similar current assets	15,250	15,870	16,563	18,589	22,234
9. Excess (deficiency) NWC (7-8)	(18,501)	(42,965)	(33,869)	(34,012)	(62,361)

Source: Author's calculation

In this table we can see that cumulated losses grew year on year in all sectors. We are especially concerned by results in the telecommunications sector where cumulated losses grew by almost 7.5 times from 2007 on. In the last two years

losses in this sector alone absorbed almost one third of ownership capital. In the transportation and energy sectors cumulated losses rose by 1.6 and 1.4 times respectively. In the transportation sector, on average, a third of ownership capital vanished each year through losses, while in the energy sector it was one quarter. Compared to the beginning of the analysed period, i.e., 2007, net capital value in the telecommunications sector was reduced by slightly more than 22%, in the transportation sector it practically stayed the same, while in the energy sector it rose by more than 250%, which 'growth' is due to the effects of revaluation of tangible assets implemented in 2011.

In the above short review of the abridged balance sheet, on the assets side we show the position of loss above the value of capital in order to indicate that there are some companies within the analysed sectors which lost their total ownership capital through business operations. If we start again from 2007, the amount of such losses rose by 9.5 times in the telecommunications sector, by 6 times in energy, and by 1.5 times in transportation. By pointing out these losses we only want to enforce our previous statements regarding the absolute and relative decrease of ownership capital where many long-term creditors traditionally see protection for their receivables.

The logical consequence of all the aforementioned is the fact that the value of net ownership capital was not enough, in any year, to cover long-term or risky investments in fixed assets. In other words, there is a negative own NWC in all key infrastructure sectors. The sectors first tried to compensate for the lack of own NWC by long-term indebtedness. However, due to high long-term investor risk, it was not enough to bridge the gap in financing fixed assets. Therefore negative NWC is typical for the analysed sectors, except energy, which, until 2010, managed to use a small part of long-term capital to finance current assets. The sectors provided a missing part of capital for financing fixed assets by short-term indebtedness which was particularly the case in the last two analysed years. To make things worse, all sectors aimed much more for short-term than for long-term indebtedness, thus additionally increasing the cost of total capital use.

In addition the key infrastructure sectors use the obtained capital very inefficiently, in the previously described way. Indicators of total asset turnover on the one hand, and of ownership capital on the other hand, speak very persuasively of this. Indeed, they increase slightly, but generally speaking their values are very low. This is particularly apparent in the energy sector, although the situation is not any better in the other two sectors. This undoubtedly speaks not only of the inadequate efficiency of asset and capital management, but of inadequate revenue

capacity within the sectors. For example, in 2011 the energy sector managed to increase revenues by about 20% compared to 2010, the telecommunications sector by 9%, and the transportation sector by only 5%. Bearing in mind the growth of direct and indirect costs, the high cost of using borrowed capital, and the growth of the dinar exchange rate and the resulting foreign exchange losses, it is obvious that the current level of operating activities cannot provide an adequate level of revenue profitability.

The damaged financial structure of the key infrastructure sectors is the source of numerous short-term and long-term risks. However, we must not forget that one of the main features of the infrastructure sectors is the domination of fixed assets. This means that it will be hard to provide adequate capital for financing our economy even in conditions radically better than current ones. Even then, indebtedness is the likeliest option. However, since the growth of indebtedness itself does not mean a priori the decline in infrastructure sector performance, it is necessary to fit a few more important details into our mosaic in order to arrive at a final conclusion: the analysis of profitability, of the effects of financial leverage, and of investment possibilities.

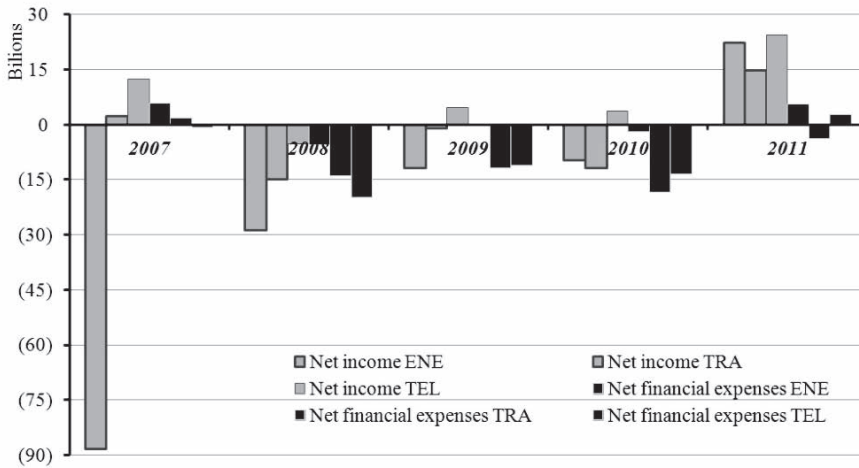
6. PROFITABILITY ANALYSIS

Profitability is one of the key determinants of the success of business entities, branches, sectors, and the national economy. It is one of the indicators of the capacity to create return for owners, and as such it represents the driving force in market-oriented economies. The fact that reporting income is possible only after providing real expenses coverage indicates that profitable companies (branches, sectors) automatically provide maintenance of previously invested capital as a minimum prerequisite for survival. At the same time profitability is a basis for growth, since internally created sources provide financing of profitable projects on a sound basis. Profitability determines the attractiveness of the company to potential investors (owners and creditors). Satisfactory profitability provides safety to creditors and a desired return to owners. By recognizing profitable companies, branches, and sectors, the risk of negative selection (which investors are exposed to if they sell their equity inadequately) is reduced (Malinić, 2007, pp. 19-27).

Income, as one indicator of profitability, represents the foundation and framework for the growth of national economic wealth, and vice versa. The appearance of losses denies the opportunity for growth, conditions financial

and structural problems, brings survival into question, increases investment risk, and discourages investors. Hence the analyses of income and loss structure shown in Fig. 1 represent the basis for a thorough analysis of the profitability of infrastructure sectors. We chose a graphical display because absolute amounts of certain result concepts are already contained in the previously displayed abridged income statements.

Figure 1: Analysis of income structure



Source: Author's calculation

The displayed analysis of result structure reveals a few worrying facts. Firstly, net income (loss), as a final success indicator, is very often negative, especially in the sectors of energy (ENE) and transportation (TRA). Unlike the telecommunications sector (TEL) where financial crisis effects pushed the sector towards the zone of losses only in 2008, the other two sectors show losses in 2008 and 2009. The energy and transportation sectors only started producing income in 2011, although with modest amounts compared to the assets level. Secondly, net financial expense/revenue is usually negative, as expected, except in the sectors of energy and transportation in 2007 and energy and telecommunications in 2011. This is logical since these are sectors where long-term and short-term investments are conditioned by the existent cash excess, while interest, as the cost of financing operating activity, is always present to a certain degree. For now, we set aside the issue of their amount, i.e., the sectors' ability to bear such financial expense. Thirdly, operating losses in the energy and transportation sectors in 2007 and 2008 are very worrying, as well as very modest operating incomes (compared to

the level of revenues) in the other analysed years. A particular problem is that in 2011 operating income falls in both sectors, despite the growth of operating revenues. The unprofitability of the core business is very worrying. It may result from an inadequate level of operations, inadequate prices, or inefficient cost management. Having in mind the characteristics of these sectors, we believe it is the result of a joint action of all these factors. Finally, the profit performances of the telecommunications sector are better than in the other two analysed sectors. However, we should not forget that the potential for success is greatest in the telecommunications sector. Again, it poses the question of the sufficiency of reported incomes in this sector, which we will discuss later.

A comparative analysis of these sectors' proportions (measured by number of companies and employees, operating assets and operating incomes) and their profit achievements will help to get a bigger picture of the importance and position of the analysed sectors in the national economy. The analysis is given in Table 7.

The information given in the previous review confirms once again the heterogeneity of the analysed sectors, regarding both their size and their performance. The telecommunications sector's share in the number of companies (0.48% on average for the whole period), number of employees (1.52% on average), operating assets (3.81% on average), and operating revenues (2.43% on average) is very modest and in the same proportions as in the economy as a whole. However, the reported profit potential of this sector is the biggest. Its share in total operating income is 11.56% on average, and share in total net income of the economy (in the years when the economy did not report net losses) is as high as 24.71% in 2007 and 28.71% in 2008.

On the other hand the energy and transportation sectors' share in the number of employees, operating assets, and operating revenues are in the same proportions as the Serbian economy, and are considerably higher than in the telecommunications sector. The problem is that the situation is completely the opposite when it comes to share in operating income and net income. Although in 2007 and 2008 both sectors reported operating losses, in the following three years that are the object of our analysis, the share of the telecommunications sector in the operating income of the economy is on average 3.4 times higher than in the energy sector, or 4.9 times higher than in the transportation sector. Therefore we should not worry about differences in profitability among sectors. Different profitability potential is indisputable. More worrying are the reported losses and small incomes when the sectors are in the income zone.

Table 7: Positioning of infrastructure sectors in Serbian economy

	2007	2008	2009	2010	2011	Average
1. Participation in number of companies						
Energy	0.17	0.19	0.25	0.34	0.47	0.28
Transportation	5.11	5.12	5.11	5.24	5.37	5.19
Telecommunications	0.43	0.46	0.49	0.51	0.49	0.48
Economy	87,550	92,577	94,573	90,985	91,901	91,517
2. Participation in number of employees						
Energy	2.69	2.67	2.78	2.98	2.92	2.81
Transportation	9.04	8.88	9.13	9.15	9.28	9.10
Telecommunications	1.38	1.42	1.53	1.62	1.67	1.52
Economy	1,113,659	1,124,036	1,072,605	1,001,913	1,011,531	1,064,749
3. Participation in total assets						
Energy	8.82	7.94	7.68	11.63	15.46	10.30
Transportation	7.89	7.25	7.22	6.99	7.01	7.27
Telecommunications	4.22	3.92	3.83	3.74	3.32	3.81
Economy	7,498,124	8,613,979	9,117,220	9,648,489	11,230,092	9,221,581
4. Participation in operating revenues						
Energy	4.09	4.22	4.77	6.43	6.95	5.29
Transportation	5.70	5.78	6.12	6.64	6.21	6.09
Telecommunications	2.30	2.34	2.62	2.47	2.40	2.43
Economy	5,323,857	6,208,956	5,888,981	6,637,999	7,445,079	6,300,975
5. Participating in operating income						
Energy	(9.44)	(8.22)	2.29	3.99	3.36	(1.60)
Transportation	(0.23)	(3.30)	3.12	3.07	0.53	0.64
Telecommunications	10.92	13.93	13.09	9.46	10.41	11.56
Economy	162,852	193,461	187,737	282,503	296,502	224,611
6. Participation in net income						
Energy	(177.05)	65.94*	11.65*	10.82	26.19	-
Transportation	4.50	34.14*	0.96*	13.09	17.49	-
Telecommunications	24.71	12.13*	-	-	28.71	-
Economy	49,867	(43,507)	(102,204)	(89,698)	84,838	-

*Share in losses

Source: Author's calculation

We will get a better picture of the profitability of the analysed sectors if we relate achieved incomes to the level of used capital. This is important for at least two reasons. Firstly, having in mind the considerable differences present among these sectors (for example, level of used capital and profit potential), their comparison is possible only if we apply relative indicators. Secondly, the previously mentioned problem of profit achievement sufficiency will be more visible if we apply the analysis of return rate. For the purpose of this paper we chose to relate profit and used capital (i.e., assets) by means of the two most widespread return measures:

Return On Assets (ROA), as the ratio between Earnings Before Interest and Tax (EBIT) and average operating assets, and Return On Equity (ROE), representing the ratio between net income and average equity. The first represents the measure of total asset profitability, independent of ownership structure of financing sources, being an indicator regarding servicing of credit liabilities. The second is a reflection of achieving ownership interests. Movement of these return rates among sectors and in the economy as a whole in their decomposed versions (as a result of proper income profit margin and turnover ratio) is shown in Table 8.

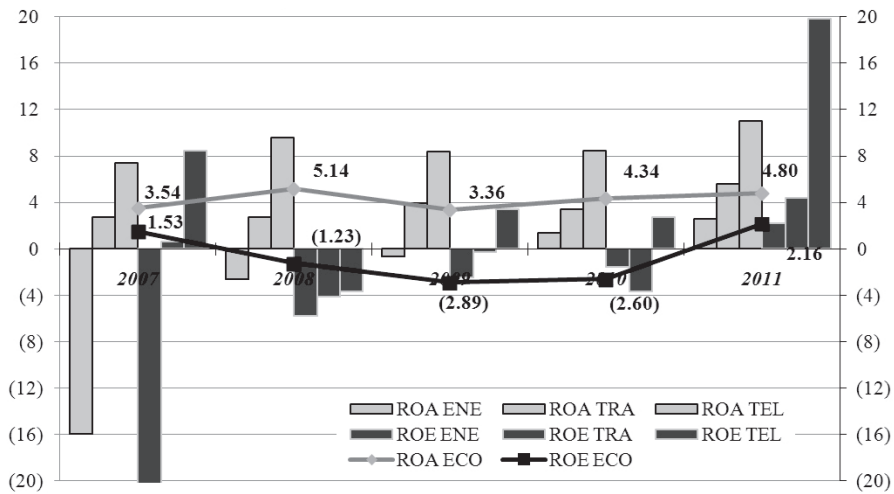
Table 8: Quantitative analysis of return rates

	2007	2008	2009	2010	2011
ENERGY					
EBIT Margin	(42.98)	(6.74)	(1.58)	2.86	7.00
Assets Turnover	0.37	0.39	0.41	0.47	0.36
Return on Assets - ROA	(15.91)	(2.63)	(0.64)	1.34	2.54
Profit Margin	(40.51)	(10.96)	(4.23)	(2.28)	4.29
Capital Turnover	0.50	0.53	0.58	0.69	0.51
Return on Equity - ROE	(20.20)	(5.81)	(2.44)	(1.56)	2.20
TRANSPORTATION					
EBIT Margin	5.06	4.64	7.06	5.14	8.87
Assets Turnover	0.53	0.59	0.56	0.66	0.63
Return on Assets - ROA	2.71	2.75	3.97	3.41	5.62
Profit Margin	0.74	(4.14)	(0.27)	(2.66)	3.21
Capital Turnover	0.87	1.00	1.02	1.37	1.37
Return on Equity - ROE	0.64	(4.15)	(0.28)	(3.65)	4.39
TELECOMMUNICATIONS					
EBIT Margin	15.41	21.44	18.59	18.30	22.58
Assets Turnover	0.48	0.45	0.45	0.46	0.49
Return on Assets - ROA	7.37	9.55	8.36	8.45	11.00
Profit Margin	10.05	(3.63)	2.99	2.20	13.64
Capital Turnover	0.84	1.02	1.13	1.23	1.45
Return on Equity - ROE	8.47	(3.70)	3.38	2.72	19.84
ECONOMY					
EBIT Margin	4.57	6.71	5.05	6.12	6.73
Assets Turnover	0.78	0.77	0.67	0.71	0.71
Return on Assets - ROA	3.54	5.14	3.36	4.34	4.80
Profit Margin	0.94	(0.71)	(1.74)	(1.36)	1.15
Capital Turnover	1.62	1.73	1.66	1.92	1.89
Return on Equity - ROE	1.53	(1.23)	(2.89)	(2.60)	2.16

Source: Author's calculation

We will get a better picture regarding the position of the various sectors within the achievements of the total economy by using a graphical display of ROE and ROA movement (Fig. 2). On the one side we will follow the movement of ROE and ROA among sectors (in the form of studs), while on the right side we will follow the movement of return rates in the entire economy.

Figure 2: The Analysis of ROA and ROE



Source: Author's calculation

From this information background several important conclusions can be drawn. The profitability of the Serbian economy is unsatisfactory. Return on equity is less than zero in the three analysed years, while it is slightly more than zero (1.62 and 2.16) in 2007 and 2008. The average rate of return on assets is more than modest and equals 4.24%. The telecommunications sector is above average profitability: both return rates are above the performances of the other two analysed sectors and above the average performance of the Serbian economy. Return on assets is more than twice higher than the return on assets of the economy in general, while, compared to the average of the economy, return on equity, the measure of ownership returns, was 5.5 times higher in 2007 and 9.2 times higher in 2011 (Malinić & Milićević, 2012, pp. 136-145). On the other hand the profitability of the energy and transportation sectors lags behind the average of the economy. Although the profitability of the transportation sector is much lower than acceptable, negative returns in the energy sector are especially worrying. As such

it can hardly be a serious support to growth and development of the other sectors and the Serbian economy as a whole.

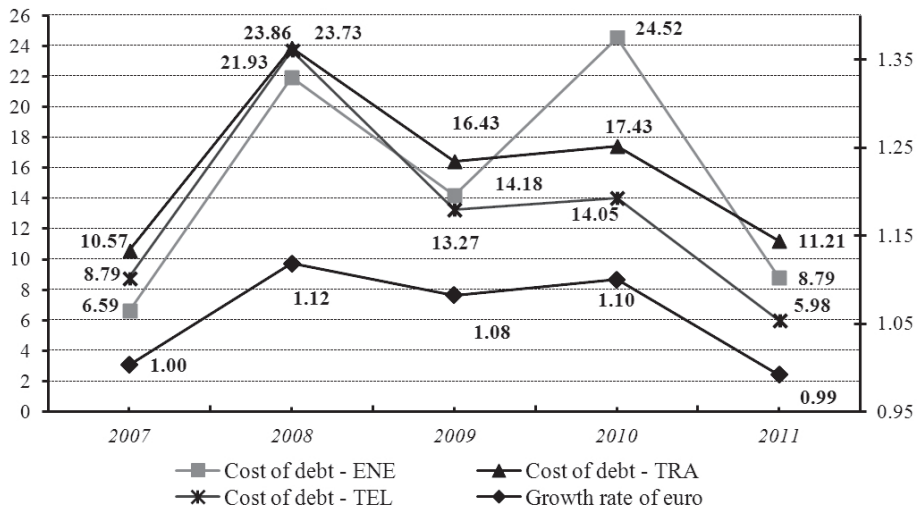
The inefficiency of asset and capital management is common in all sectors, which is indicated by very low turnover ratios. In all sectors asset turnover and equity turnover are below the average of the economy. This is particularly the case in the energy sector where the average asset turnover for the whole analysed period is only 0.4, and the average equity turnover is 0.56. It is obvious that existing assets do not create enough revenue to increase the turnover and profit margin, and thus a return on assets. Things are not any better at the efficiency level. Gross operating margins (after coverage of direct material costs and cost of merchandise sold) are very modest in the transportation and energy sectors. On average the share of direct material costs and the cost value of sold goods is almost 52% in the transportation sector, while at 67% it is even more unfavourable in the energy sector. Expanding the range of activities and more efficient cost management is necessary. A deeper analysis of return on equity will follow later.

7. COST OF CAPITAL AND FINANCIAL LEVERAGE

To evaluate the financial performance of the infrastructure sectors it is very important to recognize the controllable and uncontrollable elements determining performance. Profitability of the core business is dominantly determined by the level of the sale price of products and services on the one hand, and by the efficiency of cost management on the other. The energy sector is in the most unfavourable position due to strong state control over prices. However there are strong controls over prices in the telecommunications sector as well, imposed by the current regulatory body for electronic communications. The difference is still relevant. In the case of energy, prices are determined by social rather than economic factors, while in the telecommunications sector prices are economically determined and the regulatory body is there to prevent monopolistic behaviour and provide acceptable prices to cover justified costs and bring considerable profit. The analysis shows dramatically different ranges between prices on the one hand and direct material costs and cost of merchandise sold. The average gross operating profit margin in the analysed five-year period is almost 90% in the telecommunications sector, while it is about 34% in the energy sector. The level and structure of costs in these sectors are different, but one fact is indisputable: energy, as a capital intensive sector, cannot be a profitable business with such a low operating profit margin. The problem could be decreased by efficient cost management, but it could not be completely solved.

Another important element, which is for the most part uncontrollable but has a considerable influence on performance, is the cost of debt. Positive results in the core business are often converted into net losses due to the high cost of debt. The analysis of these expenses' movement in certain years is very interesting. Since we are analysing one sector, we will calculate cost of debt from the ratio between financial expenses and average long-term and short-term financial liabilities. Interest costs will be included in these calculations, as well as the effects of exchange differences and the currency clause. Fig. 3 shows the cost of debt (on the left) and of the dinar exchange rate (on the right).

Figure 3: Cost of debt analysis



Source: Author's calculation

In the analysed period we have years with a stable exchange rate (at least on 31/12) and years when the value of the dinar decreases. Following the exchange movement and movement of cost of debt rate reveals some very interesting details. The cost of debt rises considerably with the fall of dinar value. In periods of a stable exchange rate, the years 2007 and 2011 in the RS, the cost of debt in all sectors was lowest. On the other hand when the dinar is weaker the cost of debt rises dramatically. This situation, with slight fluctuations, is characteristic of all sectors. The reason for this movement of capital costs is that they include exchange differences and the effects of the currency clause, as well as interest costs. The decrease of dinar value increases the cost of debt (as we see, often exceeding 20%), which even stronger economies could not support.

The analysis shows that in 2011 the reported net incomes were not the result of a considerable improvement of core business profitability in any sector. The greatest influence on performance improvement within some sectors was the decrease of financial expenses. In the telecommunications and energy sectors they are 50% lower than in 2010 and in the transportation sector 25% lower. Without discussing the reality of the reported dinar stability in 2011, it is clear that net incomes as the result of decreasing financial expenses in 2011 are unsustainable. The performance of all the analysed sectors must suffer a great shock in 2012, especially in terms of exchange differences and the effects of the currency clause. It is obvious that monetary stability and the related cost of the debt level are serious problems to which economic policy creators should pay more attention.

The complexity of the influence of cost of debt on financial performance becomes even greater if we consider the option given by the Ministry of Finance (the opposite of the requirements in International Accounting Standards and International Financial Reporting Standards) that exchange losses can be accruable. The effects of these accruals are not immediately seen in balances, but, inevitably, they will at first unduly reduce the pressure on income statements before reappearing in income statements with the expiration of the loan they refer to. It is also inevitable that this action will additionally blur the picture of the real performance of individual sectors, since the balance sheet will contain hidden losses.

Such pressure, along with insufficient profitability of the core business, means that ownership returns are small or nonexistent. It is particularly important to emphasize this in light of the fact that the capability to create returns for owners is crucial in attracting new investors. A more explicit understanding of the causes of the mostly insufficient return on equity demands its deeper disaggregation, for which the four-component rate of return on equity given in Fig. 4, provides a sound information base.

A disaggregated ROE rate provides wider options for drawing conclusions. Here there are some very important relevant issues.

Firstly, the energy and transportation sectors, as we pointed out earlier, are less profitable compared to the average of the Serbian economy, and are at an intolerable level (negative in three out of the five analysed years). On the other hand, the telecommunications sector shows an above-average profitability, which does not have to mean it is satisfactory.

Figure 4: Four-component disaggregation of ROE

ROE								
Solvency (Leverage)	x	Turnover assets	x	Profitability	x	Interest burden	=	ROE
Total assets / Equity	x	Sales / Total assets	x	EBIT / Sales	x	Net income / EBIT	=	ROE
ENERGY								
2007	1.35	x	0.37	x	(42.98)	x	0.94	= (20.20)
2008	1.36	x	0.39	x	(6.74)	x	1.63	= (5.81)
2009	1.41	x	0.41	x	(1.58)	x	2.68	= (2.44)
2010	1.46	x	0.47	x	2.86	x	(0.80)	= (1.56)
2011	1.41	x	0.36	x	7.00	x	0.61	= 2.20
TRANSPORTATION								
2007	1.62	x	0.53	x	5.06	x	0.15	= 0.64
2008	1.69	x	0.59	x	4.64	x	(0.89)	= (4.15)
2009	1.81	x	0.56	x	7.06	x	(0.04)	= (0.28)
2010	2.07	x	0.66	x	5.14	x	(0.52)	= (3.65)
2011	2.16	x	0.63	x	8.87	x	0.36	= 4.39
TELECOMMUNICATIONS								
2007	1.76	x	0.48	x	15.41	x	0.65	= 8.47
2008	2.29	x	0.45	x	21.44	x	(0.17)	= (3.70)
2009	2.51	x	0.45	x	18.59	x	0.16	= 3.38
2010	2.67	x	0.46	x	18.30	x	0.12	= 2.72
2011	2.99	x	0.49	x	22.58	x	0.60	= 19.84
ECONOMY								
2007	2.08	x	0.78	x	4.57	x	0.21	= 1.53
2008	2.26	x	0.77	x	6.71	x	(0.11)	= (1.23)
2009	2.49	x	0.67	x	5.05	x	(0.35)	= (2.89)
2010	2.71	x	0.71	x	6.12	x	(0.22)	= (2.60)
2011	2.65	x	0.71	x	6.73	x	0.17	= 2.16

Source: Author's calculation

Secondly, two medium components of return on equity represent return on assets. This is the return dominantly dependent on the sector's operating capabilities. ROA is influenced by environment factors and strategic choices that companies make. However, ROA ignores the cost of debt. That is why the EBIT concept is free

of the influence of financing effects. Since the cost of debt is put aside, it is logical that ROA is dominantly determined by operating and investment activities, and accordingly by business risk. Therefore business risk is determined by potential variations in return on assets. Accordingly it is related to the variations in asset turnover and profit margin.

Thirdly, extremely low ratios of asset turnover (much lower than the average of the economy in every sector) confirm that these sectors are capital-intense. As a rule, fixed costs are high in such sectors (in this case the telecommunications sector is a good example), meaning that we should look for a profitability increase in expanding the range and consequently in unit fixed cost decrease. It is known that profit margins are more sensitive to changes in sale levels in places where the share of fixed costs is higher. In other words, high fixed costs direct us to the presence of greater operating leverage (Stickney et al., 2007, pp. 207-211). The problem is even more evident in sectors with higher asset inflexibility (it cannot be diminished easily with a fall in activity). In that case stagnation or a decrease in revenues, by means of low turnover and small margins, prevents a considerable increase in profitability. One solution is new investment, which will have a much higher return strength.

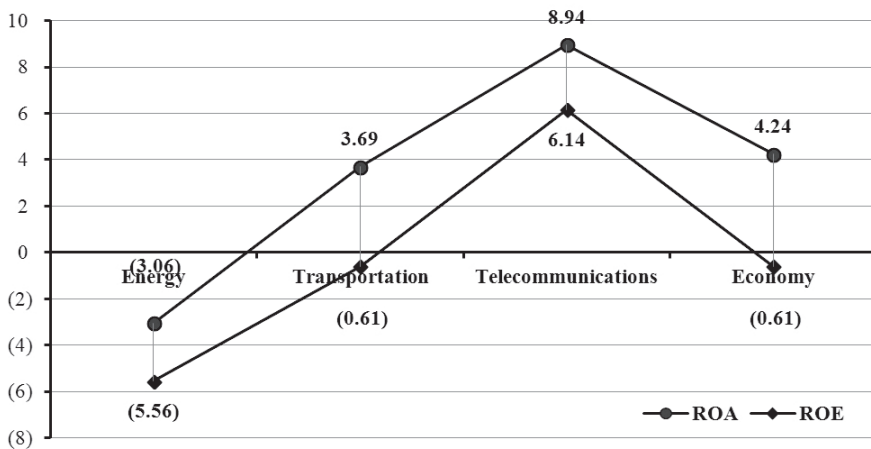
Fourth, high capital intensity limits competition, which, according to economic theory, should lead to higher income rates (Seling & Stickney, 1989). In the case of infrastructure sectors we have a rather specific situation. On the one hand there is the telecommunications sector where there has been considerable improvement in opening markets and raising competition. However, profit margins are relatively high due to high profit potential. On the other hand there is the energy sector with a typical monopolistic position, but with a negative EBIT margin in the first three years. A part of the problem is efficiency, but we believe that the bigger problem is price.

Fifth, the first and fourth components of ROE are directly involved with borrowing. Theoretically, if there were no borrowing, meaning that the multiplication of indebtedness and interest burden equalled zero, ROA would equal ROE. However, the analysis shows that, in all years, a certain level of indebtedness exists and that it increased year on year (except for the energy sector in 2011). On the other hand, the results confirm an extremely high interest burden within sectors (ratio between net income and EBIT). It is clear that financial expenses could not be covered from the achieved operating incomes in segments where these quantities are negative. In segments where the results are positive, they show what proportion of 100 dinars of EBIT belongs to owners only. Results (except

partially in 2007 and 2011 in the telecommunications sector and in 2011 in the energy sector) are more than modest. The high cost of debt is a key determinant of financial risk. Therefore if financial expenses fluctuate, financial risk is higher. Rapid increase of these expenses reduces return, and vice versa. That is the case in the Serbian economy. Due to exchange differences and the currency clause, financial expenses fluctuate, which leads to higher financial risk.

We will draw a final conclusion concerning the analysed sectors' profitability by considering the effects of indebtedness. It is known that profitable companies are characterised by ROE exceeding ROA. This is a sign that ROA is higher than cost of capital and that excess in return overflows to ROE. Hence, it is normal that ROE is higher than ROA. In order to get a general impression of the real (un)profitability of all analysed sectors, in Fig. 5 we display the relation between average ROA and ROE in the analysed five-year period, for each sector individually and for the economy as a whole.

Figure 5: The Analysis of financial leverage



Source: Author's calculation

From previous information we conclude that the relation between ROE and ROA comes from the indebtedness effect. Interest in borrowing exists when ROA is higher than the cost of debt. As in this situation, when excess over cost of debt belongs to the owners, negative effects also belong to owners when cost of debt is higher than the achieved return. Such indebtedness effects are known as effects of financial leverage. In this sense, financial leverage is the result of

present financial risks. Unfortunately the previous graph shows clearly that in the analysed five-year period, in each sector and in the Serbian economy as a whole, there are negative effects of financial leverage. In each sector ROA is higher than ROE, meaning that ownership returns are reduced proportionally to the negative indebtedness effect. The smallest range between ROA and ROE exists in the telecommunications sector. However, as ROE is lower than ROA, besides the fact that profitability within this sector is above average, we must state that it is unsatisfactory.

8. EVALUATION OF INVESTMENT POSSIBILITIES OF INFRASTRUCTURE SECTORS

Strategical segments of the real sector, such as agriculture, mining, the processing industry, construction, etc. (Malinić & Milićević, 2011), have a serious problem with insufficient level of economic activity. This could also be said about the key infrastructure sectors which are the object of our analysis and also have a strategic character - energy, transportation, and telecommunications. Strengthening the competitiveness of these sectors and thus of the national economy always implies considerable investment. Investment in infrastructure sectors is expected not only to increase their performance but, by creating demand in other sectors, to increase the level of operations in other strategically important (in terms of the national economy's development) sectors as well.

Serious investment always raises the question of financing growth. We will direct the attention in this paper especially to the evaluation of the capabilities of the analysed infrastructure sectors to bear the load of extensive capital investment, i.e., to provide, by means of disposable cash flows, part of the funds necessary for their financing. Since sustainable growth implies maintaining the targeted capital structure, the problem of financing growth will also raise the question of providing additional external sources of finance.

The increase of assets is a prerequisite of growth. However, we must point out that not every asset increase provides real growth. Take, for example, the energy sector. In 2011 operating assets rose by 1.55 times more than 2010. At first glance this looks impressive. The value of assets rose by almost 615 billion dinars. However a more thorough analysis reveals that the growth is mostly the result of asset revaluation, since, in the same period, revaluation reserves rose by almost 488 billion dinars. If we reduced operating assets for the amount of this increase we would find that asset growth is about five times smaller than we

first thought. By growth we mean new investment in revitalization of existing capacity and building new capacity that will considerably increase the current level of operations, investment in renewable energy sources, in the environment, and so on. Thus this is about serious capital investment requiring real sources of finance.

We will base our evaluation of investment capability in the infrastructure sectors on the analysis of Free Cash Flow (FCF), ratio between Cash Flow from Operations (CFO) and Capital Expenditure (CAPEX ratio), as well as on understanding Internal Growth Rate (IGR) and Sustainable Growth Rate (SGR) for each sector. Movements of these indicators are displayed in Table 9.

Table 9: Analysis of investment possibilities

	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>
ENERGY					
FCF	(240,355)	(28,856)	(15,729)	(31,049)	(557,107)
CAPEX	(32.23)	42.47	43.52	50.76	9.15
Internal growth rate	(0.14)	(0.99)	0.24	0.35	2.23
Sustainable growth rate	(0.20)	(1.35)	0.34	0.52	3.15
TRANSPORTATION					
FCF	(27,652)	(62,571)	(30,246)	(65,668)	(90,503)
CAPEX	43.61	(48.85)	(11.27)	(46.32)	9.47
Internal growth rate	0.33	0.59	0.23	2.74	2.55
Sustainable growth rate	0.53	1.00	0.41	5.65	5.50
TELECOMMUNICATIONS					
FCF	(39,402)	(35,316)	(5,608)	(5,312)	28,016
CAPEX	44.73	11.50	82.62	84.16	201.39
Internal growth rate	0.36	0.47	2.83	2.25	3.31
Sustainable growth rate	0.64	1.08	7.11	6.02	9.87
ECONOMY					
FCF	(823,784)	(872,392)	(425,884)	(519,778)	(1,273,761)
CAPEX	4.73	(29.55)	(0.40)	(29.12)	14.24
Internal growth rate	0.24	(1.83)	(1.47)	(1.76)	0.15
Sustainable growth rate	0.49	(4.14)	(3.66)	(4.77)	0.41

Source: Author's calculation

Free cash flow, as the difference between cash flow from operations and capital expenses, represents an important indicator of capacity to finance from internal sources, besides capital investment, returns for owners, equity repurchase, debt repayment or its withdrawal before maturity. In all analysed years and in all sectors (except in the telecommunications sector in 2011) free cash flow is negative. This means that capital investment must be financed from external sources. Since these sectors are capital-intense this is understandable.

In order to better understand the proportion of capital expenditures financed from internal sources (White et al., 2003, pp. 147-148), we will use the previously mentioned CAPEX ratio to help us understand the percentage of coverage of capital expenses by cash flow from operations. The analysis shows that from 2008 to 2010 a considerable amount of investment in the energy sector was financed from internal sources (between 42% and 51%). The dramatic fall of the CAPEX ratio in 2011 to only 9.15% is not alarming because it was mostly caused by increase of assets based on revaluation and not by real outflow based on capital investment. However, we should have in mind two facts here. Firstly, a large increase in range of activities will require much more capital investment, and, accordingly, bigger sources of financing. Secondly, if it is necessary to maintain the current capital structure (ratio between debt and capital was on average 28.5% : 71.5% in the last five years) a bigger share of own sources is required. So, in both cases, there will be the problem of finding additional financing sources.

The transportation sector is in the most unfavourable position to finance new investment from internally generated cash flow. Cash flow from operations was negative from 2008 to 2010, meaning that values of the CAPEX ratio were below zero, and only in 2011 did the CAPEX ratio have a modest value of 9.47%. Since according to the existent capital structure (on average, the ratio of debt to capital is 47.1% : 52.9%) more than half of total investment must be financed from internal sources, with current performance the investment possibilities of this sector are very low.

At least at first sight the situation is most favourable in the telecommunications sector, where values of the CAPEX ratio are very high, especially in the last three analysed years. In 2011 the value of this indicator was twice higher than capital investment. However these results should be relativized as well. This sector also has very high demands in terms of new investment, which will, at least at the beginning, reduce the value of the CAPEX ratio. In addition the telecommunications sector is burdened by credit liabilities, so a great deal of generated cash flow must be used for repayment and less money will be available for investment.

The growth of the analysed sectors is definitely at risk, since there is a probability that the common equity value will not increase as expected (Penman, 2007, pp. 694-696). Therefore growth is dependent on the increase of asset investment, while asset growth depends on the increase of sales and reported income. Insufficient sales result in modest investment and low profitability. In this situation investors are reluctant to invest heavily which results in growth of financing costs.

To evaluate growth capabilities we use the internal growth rate and the sustainable growth rate. Internal growth rate, the relation between retained earnings and average total assets, implies the potential pace of a sector's growth if only internal financing sources are used. In all of the sectors these growth rates are often negative or very modest, confirming that investment in the past few years has been insufficient, and that the occasional high values of the CAPEX ratio are more the result of insufficient investment than of financial strength. Sustainable growth rate, the relation between retained profit and average capital, implies growth capabilities when internal and external sources of financing are used. It is logical that SGR is higher than IGR, since the sources of financing expand, and the obtained results confirm this. But in this case as well the obtained values are modest, except partially in the telecommunications sector. Let us add to all this the fact that, in calculating these growth rates, retained earnings was not reduced by potential coverage of accumulated losses. We supposed that total retained earnings are reinvested in profitable projects, which is acceptable for the companies without losses on their balance sheets. If we acted differently, and there are some arguments in favour of that, values would be even more modest.

To sum up: a) all sectors are capital intense, especially energy and telecommunications, b) to date investment has been insufficient, c) greater capital investment is needed for serious improvement in all sectors' performances d) internal financing sources are not enough to reach the target capital structure. In these circumstances the question is how to provide additional financing sources. Even if it were possible to find credit sources this would not be good, because debt growth would increase the exposure of the sectors to financial risk. Borrowing capacity, which is not at an enviable level even now, would continue to fall, the cost of debt would rise, while the negative effects of financial leverage would be inevitable.

Financing the growth of these sectors implies combining various sources of financing. Here we make a few suggestions for providing sustainable growth. Firstly, for less financially demanding projects we should use internal sources together with credit sources in the proportion suited to the target capital structure. Secondly, when capital requirements are higher and internal sources are insufficient to provide adequate sustainable growth, it is necessary to resort to recapitalization. In some strategically important companies we should not exclude the State as an investor. Recapitalization by strategic partners could also be a good solution to deal with financial and structural problems and provide sustainable growth. Thirdly, we should open space for public-private partnerships which could be a way of obtaining necessary fresh capital, and

where infrastructure sectors are very attractive. Fourth, providing own sources by means of recapitalization should also be followed by proper debt financing, in order to maintain the target capital structure and provide as low financing costs as possible. Apart from credit instruments we should also lean on long-term debt instruments, primarily corporate bonds. This necessitates the development of a capital market. Differentiation of financing sources is necessary. We should not forget that the crisis can only be overcome by means of cheap, rather than expensive, financing sources.

9. CONCLUSION

Sectors like agriculture, water management, mining, the processing industry, and construction are often characterized as strategically important sectors for the development of the national economy. Sectors like energy, transportation, and telecommunications are not any less strategically important. Apart from affecting GDP growth by their achievements they provide energy, logistics, information, and communication support to all other sectors. Therefore the key infrastructure sectors of energy, transportation, and telecommunications are pillars of development in the national economy and society as a whole. The development of infrastructure sectors implies extensive investment. Only financially healthy companies can support such investment.

The entire economy is burdened by a liquidity problem, and the analysed sectors are no exception. A faster growth of short-term liabilities compared to current assets and liquidity indicators falling below the usual values both demonstrate the seriousness of the problem. The functioning of these sectors demands efficient cash flow synchronization. The fact that this is usually dealt with by prolonging payment of liabilities to suppliers is a serious problem. It is not sustainable in the long term and leads to deeper crisis.

The indebtedness of each sector is different. Compared to the total economy, energy and transportation have less than average indebtedness, while telecommunications are somewhere around the average. Although indebtedness is at its highest level in the telecommunications sector, this sector deals best with the liability load, primarily due to higher profit potential and higher profit margins. However it is worrying that short-term borrowing is growing steadily, damaging financing maturity and increasing the missing net of working capital. The sustainable growth of these sectors requires an improved financial position and decreased long-term financial risks.

The profitability of the infrastructure sectors is unsatisfactory. This is also true for the telecommunications sector, which has an above average profitability compared to the economy, but a negative effect of financial leverage (ROA is higher than ROE). There are also problems of low turnover and low margins (except partially in the telecommunications sector). What is especially worrying is the insufficient profitability of the core business. This is particularly evident in the energy and transportation sectors. There is an insufficient level of operations in all sectors, and costs need to be managed more efficiently. The energy sector is additionally burdened by unrealistically low prices.

These sectors are capital-intensive. Their financing demands both internal and external sources, resulting in at least two problems. The first is that certain companies belonging to these sectors have low profitability of their core business and cannot bear their financial expenses. The second is that, due to exchange differences and the currency clause, financial expenses fluctuate. In conditions of monetary instability they rise considerably, which reduces returns. It indicates the presence of high financial risk and the dependence of performance on exchange rate stability.

Serious capital investment demands differentiation of financing sources. Maintaining the target capital structure requires combining internal and borrowed sources. Internal sources should partially come from internally generated cash flow, while the for the remainder companies should look to recapitalization. Strategic partners and public-private partnerships could play an important role here. However, borrowed sources should also be differentiated. Apart from credit sources we should also lean on long-term debt instruments, primarily corporate bonds. This assumes the development of a capital market.

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