The significance of liquidity and indebtedness for the financial state of enterprises in Bulgaria

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Introduction

The survival of the economic organization in the conditions of macroeconomic destabilization is a process of formation of management alternatives and the application of the most effective ones. Macroeconomic instability requires the use of adequate measures in enterprises aimed at overcoming the negative consequences of the crisis. In order to limit the effects of crises on enterprises, to put a certain order in action, to avoid chaos and to take into account all the features, risks and opportunities, it is good to apply a comprehensive and proven model for the analysis of solvency and indebtedness in enterprises in Bulgaria. The main problem that provokes this study is that there is almost no data on the levels of indebtedness and liquidity of enterprises. The National Statistics, represented by the National Statistics Institute, the Ministry of Finance, and the Bulgarian National Bank, does not prepare a summary survey on the levels of these indicators. An exception is a study of the indebtedness of the Bulgarian Industrial Association (BIA, 2014) until 2014, after which it was suspended. Another analysis on the topic is "Indebtedness and macroeconomic equilibria" (G. Minasyan, 2013), which examines the indebtedness of enterprises and households, but to some extent the data used are again from the analysis of BIA. However, key comments have been made, such as the statement that "the level of indebtedness of companies is a key category in studying the opportunities for economic growth. G. Minasyan also concludes that this indicator has no determining force - it has its limiting or stimulating effect when it is in the marginal spectrum of the dynamic scale. Of interest is an analysis that presents data on some poorly researched and neglected endogenous elements of intra-company policies that generate corporate debt, obtained from the 2013 survey of the debt of non-financial corporations in Bulgaria (I. Yankov, 2016). In another study "Estimation of the factor impact of indebtedness and solvency on enterprises efficiency" the author aims to answer the question of whether indebtedness and solvency can be considered as factors for the efficiency of Bulgarian enterprises in a crisis. (S. Trifonova, 2016). Significant analysis on the topic is made in the article "Factors for trade debts of companies and opportunities to reduce intercompany indebtedness" (G. Taseva, 2012). Internationally, such a study is entitled "The Impact of Debt Restructuring on Firm Investment: Evidence from China" (Jiang, Jinglu & Liu, Bo & Yang, Jinqiang, 2019). On the issues of corporate liquidity, the analysis "Liquidity Analysis of key Bulgarian Economic Sectors during and after Economic Crisis Periods" is important (N. Nikolova, Y. Hristozov, 2015).

The relevance of the topic is indisputable due to the fact that such a study would give a detailed idea of what are the levels of liquidity and indebtedness in enterprises of the Bulgarian economy and whether there are significant changes in these indicators. Economic growth in recent years and the momentum gained in some cases can lead to the neglect of several factors and problems, which has certainly led to gaps in the management of the solvency of enterprises in Bulgaria. In support of this fact are the high values of corporate indebtedness.

The connection between liquidity and indebtedness should be sought, because more and more often Bulgarian companies deal with their liquidity problems, increasing short-term liabilities to staff, suppliers, government, banks. For this reason, in addition to establishing liquidity levels, the change in these liabilities in recent years will be monitored. The main argument in favor of the study is the possibility to prepare average industry values of the financial indicators of enterprises in Bulgaria. Sector A is used as the object of analysis as one of the most developing in recent years. This sector includes the use of plant and animal natural

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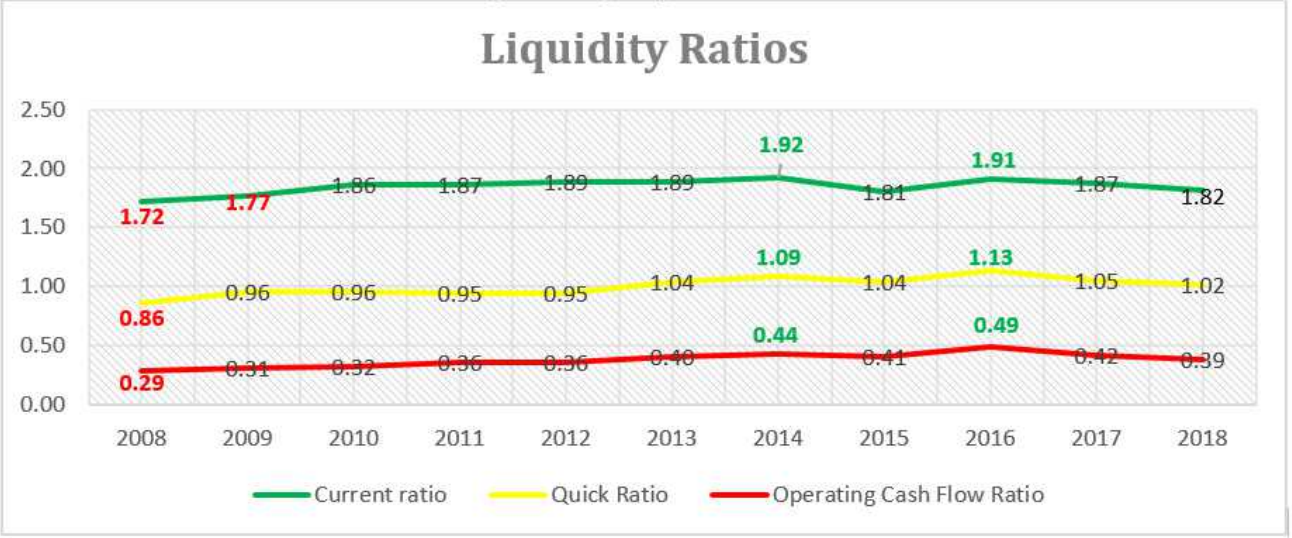
resources. It includes activities such as: crop production, animal husbandry, logging, extraction of plant and animal products from farms or from nature (their natural environment). Includes production of plant products and production of animal products. It also covers organic agriculture (plant growing, animal husbandry), the cultivation of genetically modified plants and animals, as well as the cultivation of crops in open areas or in greenhouses. Ancillary activities accompanying agriculture, hunting and related activities are included. In the table. 1, the number of enterprises included in the survey is doubled.

Tab. 1. Number of enterprises in sector A. participating in the analysis

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Number	6576	7744	8407	9738	10712	11256	11713	12431	13018	13003

1. Liquidity
1.1. Structural Liquidity

Fig. 1.1. Liquidity Ratios, sector A.



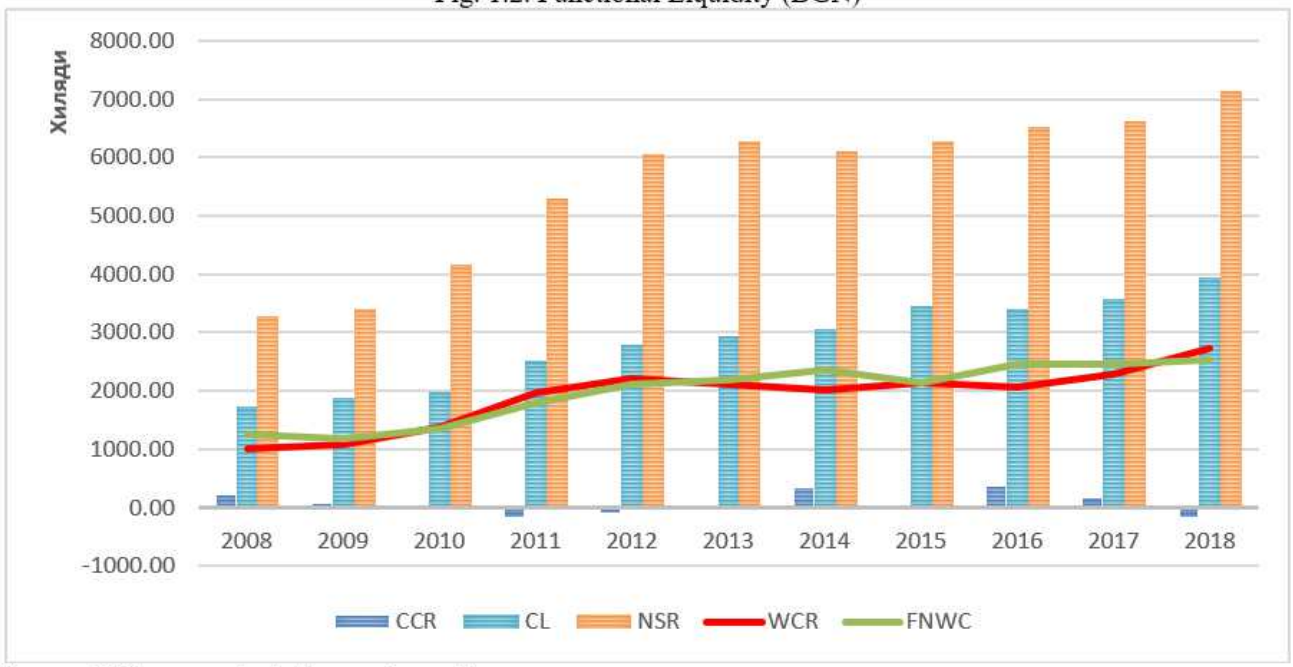
Source: NSI, own calculations and graphics

In Figure 1.1. the condition of the liquidity ratios during the study period can be traced. It is noteworthy that they are in relatively high limits, i.e. there are no worrying indicators of solvency in the sector. The current liquidity for all years is over 1.5 and the highest value is observed in 2014, and by the end of the period there is a decrease of 10 percentage points. Thus, the current liquidity levels in 2018 are among the lowest. The lowest value is 1.72 in the base year, and by the end of the period the increase of this coefficient is by 10 percentage points. This means that the value of current assets in sector A. increases by 10 percentage points more than the value of current liabilities. The value of current assets as of 31.12.2008 is 2.97 billion BGN, and as of 31.12.2018 7.17 billion BGN, which is more than double the growth. Short-term liabilities for the same years increased from 1.72 billion to 3.94 billion BGN. The quick liquidity ratio increases with each following year until 2015, when for one year there is a decrease, followed by an increase and decrease again in the last two years. Overall, the change from the base year to the last year is plus 16 percentage points. The conclusions that can be drawn are that according to this indicator the sector has a better solvency compared to 2008, which has its lowest value of 0.86. It is also evident that the share of inventories as part of current assets decreases as the quick liquidity ratio increases. As of 2008, inventories represent 50% of all current assets, while in 2018 they are 44%. This is a significant decline for 11 years. Given that inventories are the weakest liquid current asset, the decrease in their size clearly indicates better

liquidity in the periods after 2008. The operating cash flow ratio was the lowest in 2008. - 0.29. In 2018, its values rise to 0.39. The highest values are reported in 2014 and 2016. Receivables in the sector rose from 976 million BGN to 2.23 billion BGN. An important point is how much of these receivables are overdue because this would affect solvency. It turns out that the enterprises in the sector covered 29% of their liabilities with cash in 2008, as this percentage reached 50% in 2016 and 39% in 2017. Operating cash flow liquidity ratio levels are high, higher than normal. The principle in practice is to keep 10-30% of cash to repay current liabilities, but 50% as in 2016 is too high a value. In this way, money freezes in the form of an asset and is not invested, does not bring additional income. In 2008 the sector had at its disposal 501 million BGN in cash and bank accounts, in 2016 almost three times more than 1.66 billion BGN. These differences may be due to government policy in this sector and the payment of subsidies and European funds for agricultural development projects, especially crop and livestock production. The structural liquidity indicators do not show that the financial and economic crisis has a significant impact on the sector, which is visible. The conclusions to be drawn are that the best years in terms of structural liquidity indicators are 2014 and 2016, and the riskiest is the base year 2008.

1.2. Functional Liquidity

Fig. 1.2. Functional Liquidity (BGN)



Source: NSI, own calculations and graphics

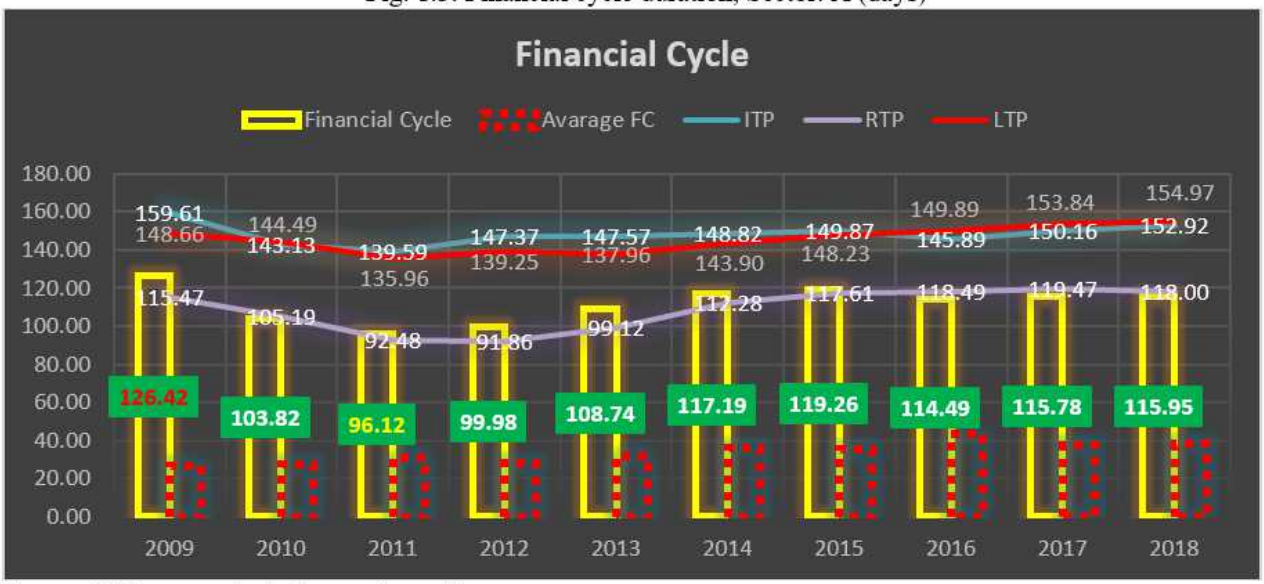
Functional liquidity gives us another type of information about the solvency of enterprises in the sector. The object of research is the need for working capital (Working Capital Requirement), functionally net working capital (Functional net Working Capital) and the need for cash (Cash Capital Requirement). The analysis looks for a link between the need for cash on the one hand and net sales revenue and indebtedness on the other. The hypothesis is that the need for cash increases when there is increased indebtedness at the expense of less increased or decreased sales revenue. When the green line (FNWC) is higher, the red line (WCR) is a surplus of cash. In the figure, the need for working capital and functionally net working capital almost all the time overlap as values, which at first glance leads to low levels of cash needs. A more in-depth analysis of the change in indicators over the years will show that this is not the case. The number of inventories and receivables minus long-term liabilities (WCR) increased during the period from 1.02 billion BGN in 2008 to 2.71 billion BGN in

2018, which indicates a double difference between the sources to be financed (inventories and receivables) and long-term liabilities as a source of funding. Equity and long-term liabilities managed to cover the value of fixed assets throughout the study period, which is why FNWC is a positive value. In almost all years there is a surplus of cash (CCR) in the sector, the largest being in 2014 and 2016, in the base year 2008 and 2017 there is almost the same surplus of cash, about 200 million BGN as this value is not essentially seen as an absolute result, but rather is used for historical comparison. In 2018, a deficit on the indicator was registered again. The sector experienced liquidity problems on this indicator in the years after the crisis, in 2010, and it is even more noticeable in 2011 and 2012 and 2018. Net sales revenues in the sector increase in absolute terms in each subsequent period, which may to some extent be due to the larger number of enterprises included in the statistical sample over the years, but this impact is also reflected in the value of obligations, i.e. is reciprocal. The hypothesis can be tested most easily in 2011, when there was the largest deficit in the CCR indicator, liabilities increased by 725 million BGN, while net sales revenues increased by 1.12 billion BGN compared to the previous year.

1.1. Financial Cycle

In Figure 1.3. can be traced the duration of the financial cycle in the enterprise, and this is the period from the purchase and payment of the raw materials to their sale and payment by the buyers. There is no information for 2008, because the measurement of Inventory turnover period (ITP), Receivables turnover period (RTP) and Liabilities turnover period (LTP) takes the average data of 2 years, current and previous, and the authors do not have data for 2007. The shorter this period, the better this affects solvency because it means that companies can sell their products and receive money for them in a shorter time.

Fig. 1.3. Financial cycle duration, Sector. A (days)



Source: NSI, own calculations and graphics

The financial cycle is the longest in 2009, nearly 126 days and in the years of crisis it decreased to 103 days, 96 days in 2011, which turned out to be the best indicator and 100 days in 2012. Since 2013 by the end of the study period this indicator increases, except for the last two years and still the values are lower than the base year 2009. In 2011 the duration of the financial cycle is the shortest because the periods of turnover of material inventories, receivables, and payables from previous years. If the LTP increased, this would lead to a further shortening of the cycle. The longer the LTP, the better it affects the financial cycle. But one should not speculate too much on the payment of debts by companies, as this may give rise to other negative factors. This means that companies in sector A manage to make more turnover of inventories in a shorter time and to collect their receivables in a shorter time than in previous years. And backwards in the years in which there is an increase. There are

no drastic differences in this indicator, which give grounds for deteriorating liquidity, but the most interesting thing is that 2011, which in terms of functional liquidity was assessed as the most worrying, in terms of duration of the financial cycle is the best. In the case of 2014 and 2016, which were the best in terms of structural liquidity, this is not the case through the prism of the financial cycle. The red dashed line (Average FC) indicates the average value of the financial cycle based on the 17 non-financial sectors. This average is growing at a negligible rate. It is noteworthy that according to this indicator, sector A. has higher indebtedness, due to the longer duration of the financial cycle.

2. Indebtedness

2.1. Term and structural allocation of liabilities in sector A.

Tab. 2.1. Debt change according to its maturity, compared to the previous year (pp)

Sector A.	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total Liabilities	**11,0%**	**2,8%**	**20,1%**	**11,7%**	**6,2%**	**8,6%**	**9,5%**	**-0,1%**	**5,1%**	**6,3%**
Current Liabilities	8,7%	5,1%	27,7%	11,4%	4,6%	4,5%	12,7%	-1,6%	5,1%	10,4%
Long-term Liabilities	13,7%	0,1%	10,9%	12,2%	8,4%	14,1%	5,6%	1,8%	5,1%	1,1%

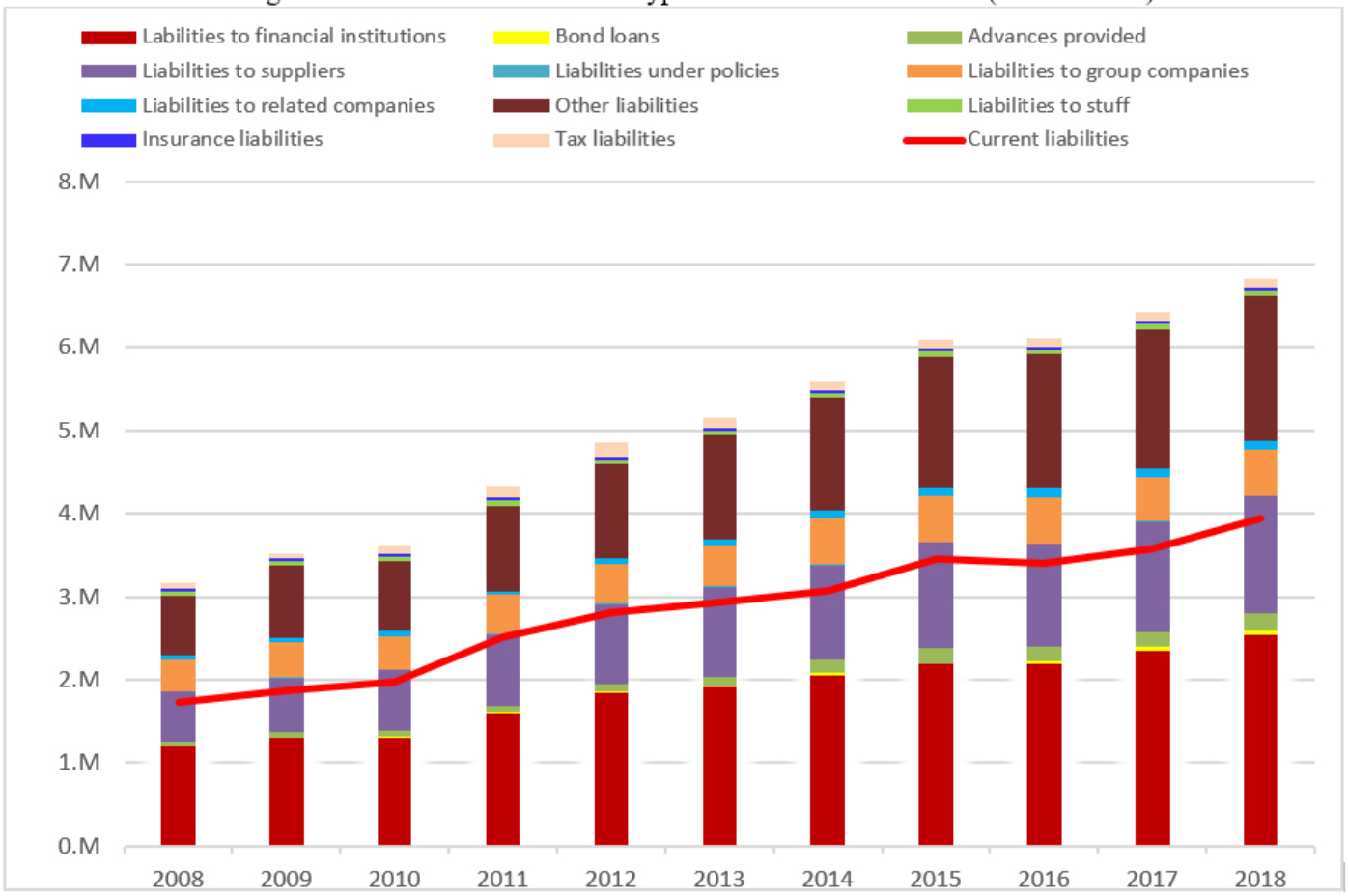
Source: NSI, own calculations and graphics

At the beginning of the study period, long-term indebtedness increased at a faster rate than short-term indebtedness, but subsequently, this changed. The most significant difference is observed in 2011, when total liabilities increased by 20%, current liabilities by nearly 28% compared to the previous year, and long-term liabilities by 11%. It will be interesting to look for the connection with the change in operating expenses and net sales revenues and the dynamics of their values in these years, in order to look for the reason for the significant increase in liabilities (725 million BGN compared to 2010). It turns out that the growth of net sales revenue for 2011 was 27% and operating expenses 24%. The enterprises in the sector finance this growth at the expense of the increased liabilities, mostly short-term or at the expense of their net profit from the previous year, which is 21% compared to the revenues (profitability of sales). It depends on how much of it remains unallocated, but these values explain to some extent the sharp increase in liabilities. In 2016, there was a decline in total indebtedness compared to the previous year. The largest increase compared to the previous year was recorded by the total indebtedness in 2011-2012.

In Figure 2.1. the levels of indebtedness in sector A can be clearly traced. Total liabilities increased from 3.17 billion BGN more than double to 6.8 billion BGN in 2018. Excluding 2016, in each period the liabilities of enterprises in the sector increase. A more significant increase is observed in the post-crisis years. The main conclusions regarding the structure of liabilities are several: the largest share is represented by liabilities to financial companies, other liabilities, liabilities to suppliers and liabilities to group companies. Other types of liabilities are insignificant compared to those listed.

The red line shows the levels of short-term indebtedness, and the value above it are those of long-term indebtedness. In the sector, the structure between them is almost balanced, but short-term indebtedness still exceeds long-term indebtedness, especially in recent years. This means that companies in the sector resort more to the accumulation of liabilities that finance their operating activities.

Fig. 2.1. Structural distribution of types of liabilities in sector A (Billion BGN)



Source: NSI, own calculations and graphics

Short-term liabilities increase approximately with the growth rate of total liabilities, which is more clearly seen in Table 2.2. The change in the short-term, long-term, and total liabilities compared to the base year 2008 is monitored. The tax and insurance liabilities are 3.36 pp. of the total liabilities in 2008, reach 4,33 pp. in 2011 and decrease to 2.17 pp. in 2015 and 2.34 pp. in 2017, which values are the lowest for the entire study period. Liabilities to staff are the highest as a share in 2008 - 1.82 pp. but decreased significantly to 1.02% in 2018 - the lowest value during the study period. remuneration, which as of December 31 of the respective year has not been paid, which may be since in most cases the salaries are paid after the 5th day.

b. 2.2. Debt change according to its maturity, compared to the base year (pp)

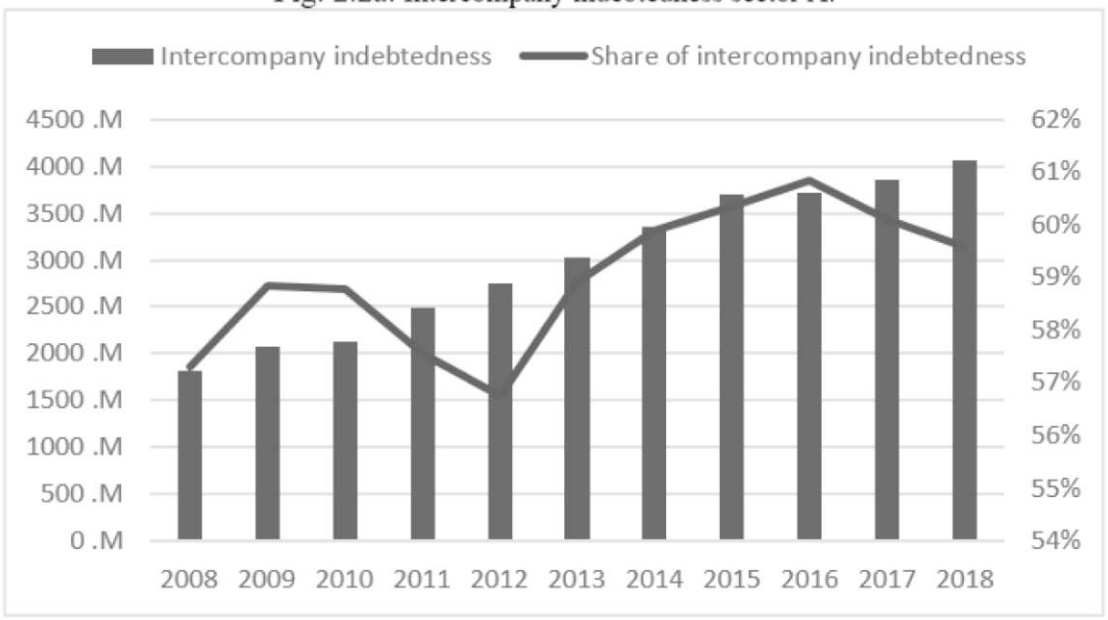
Sector A.	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total Liabilities	**11,0%**	**14,1%**	**37,0%**	**53,0%**	**62,5%**	**76,5%**	**93,2%**	**93,0%**	**102,8%**	**115,6%**
Current Liabilities	8,7%	14,3%	45,9%	62,5%	70,0%	77,6%	100,1%	96,9%	106,9%	128,52%
Long-term Liabilities	13,7%	13,9%	26,3%	41,7%	53,6%	75,1%	85,0%	88,3%	97,9%	100,1%

Source: NSI, own calculations and graphics

The growth of the total indebtedness for the period is nearly 115 percentage points (pp), as the short-term liabilities increase to a greater extent compared to the long-term ones 128 pp. compared to 100 pp. In general, the results are almost balanced. As already commented, the most noticeable difference is in the first three years (years of crisis), in which the sector owes nearly 40% more.

2.2. Intercompany Indebtedness

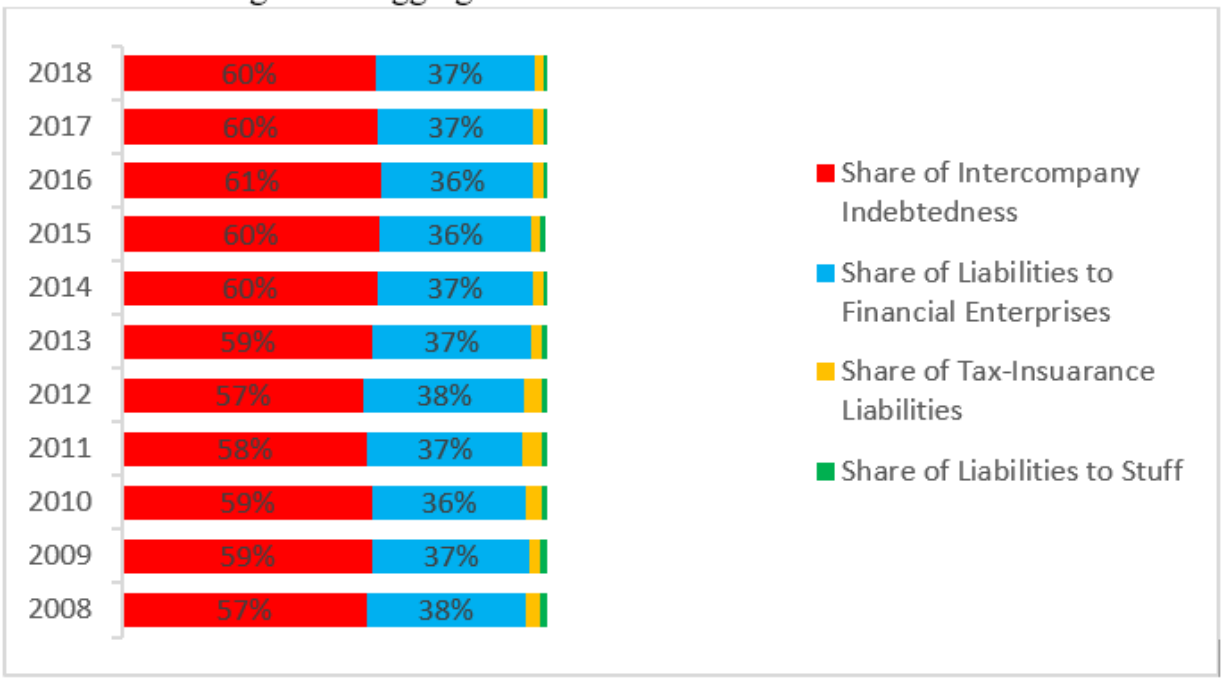
Fig. 2.2a. Intercompany indebtedness sector A.



Source: NSI, own calculations and graphics

The values of the intercompany indebtedness in Figure 2.2a. are observed, which increase from 1.6 billion BGN to nearly 4 billion BGN in 2018, which is a jump of over 100 pp. for 11 years. This number resembles the growth of total indebtedness. This increase is mainly due to increased liabilities to suppliers and other debtors and creditors. However, it is important that intercompany indebtedness grows weakly as a share. The line shows the change in their share relative to total debt. A significant decline in the share of intercompany indebtedness was observed in 2012. The annual growth fluctuated between 100 and 350 million BGN but was generally balanced. In 2018, it has the highest value, but with a lower share compared to total liabilities in previous years.

Fig. 2.2b. Aggregate structure of liabilities in sector A.

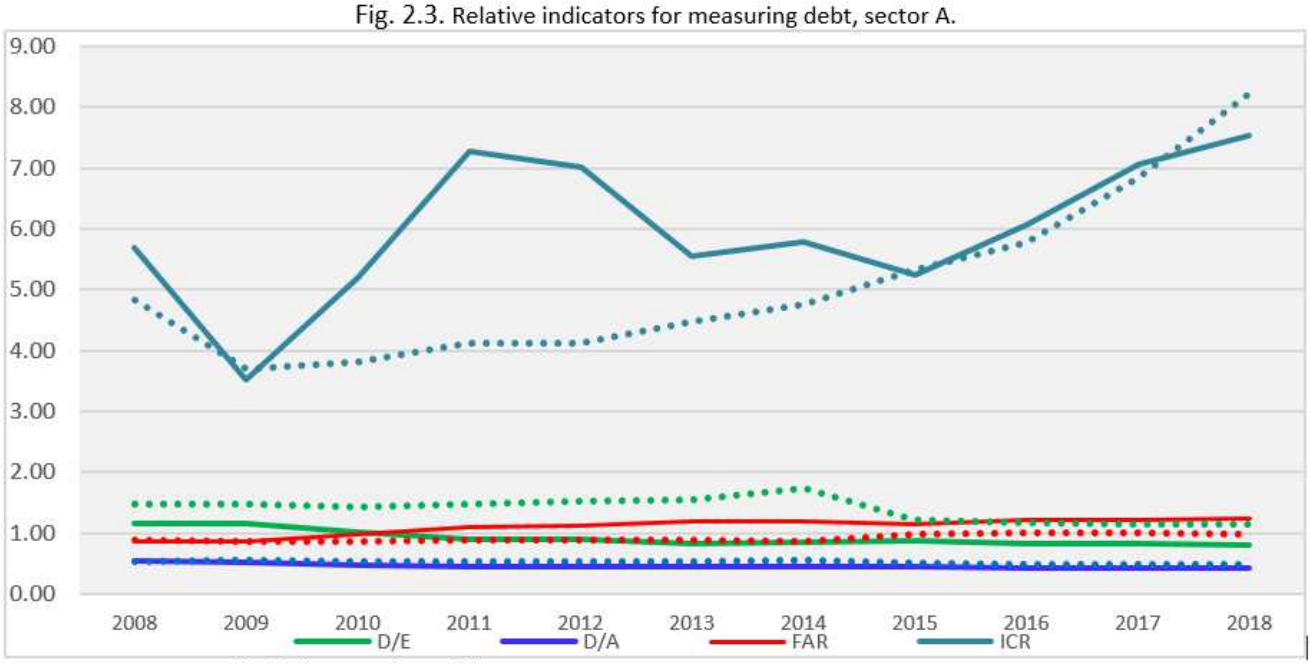


Source: NSI, own calculations and graphics

From 57% this share in 2008 increased to 60% in 2018. The observed growth is not significant. As a share in intercompany liabilities, other liabilities (the so-called liabilities to other creditors and debtors) are the most significant, followed by those to suppliers and liabilities to related companies. Outside the intercompany liabilities around and over one third are the liabilities to financial enterprises. Commitments to the budget and staff are insignificant against this background. It should be borne in mind that double entries and arrangements between undertakings cannot be considered. That is, if one company owes money to others and vice versa, but there is no tool to establish these arrangements for offsetting funds. These liabilities remain in the balance sheets of enterprises, but can be deducted, which would reduce intercompany indebtedness.

2.3. Relative indicators for measuring the firm Indebtedness

Fig. 2.3. Relative indicators for measuring debt, sector A.



Source: NSI, own calculations and graphics

The purpose of measuring relative indicators for the sectors is to track significant changes over the years, to derive sectoral values of these indicators for comparative analysis with other sectors. The graph clearly shows that there are no significant changes in the values of these ratios, except for the interest coverage ratio. The lines show the change in the Debt to Equity ratios; Debt to Assets; Financial autonomy Ratio and Interest Coverage Ratio. The dashed lines show the average indicators for these ratios for all 17 non-financial sectors according to the NSI classifier. The aim is to compare the sector with all others.

The debt-to-equity (D/E) ratio is over 1 in the first three years, after which it decreased to 0.83 in 2016 and 2017 and 0.81 in 2018. At the beginning of the study period, the sector was financed mainly with debt and less with attracted capital. In general, in some sectors the high data for this ratio are normal due to the specifics of the sector. Given that the companies in the sector use expensive equipment for cultivating agricultural land and because in the years 2008 to 2010 aggressively invested in equipment, the results obtained for the ratio are justified. In the following years, in connection with the introduction of European programs and the realization of production, the sector began to be financed to a greater extent with equity. Financial leverage and financial risk are reduced. The average industry value of D/E is 0.92. Only 6 sectors have indicators below 1, i.e. risk levels are lower. The average score for all 17 sectors is 1.40 and for some it is over 2.

The debt to assets (D/A) ratio is less than one throughout the period. The values are 0.54 in 2008 and 0.43 in 2018, there is a decrease of 11 percentage points. Companies in the sector have more assets than debt. The reduction of the ratio

indicates a decrease in risk. The average value for the whole period is 0.46. Only 5 sectors have lower values of this indicator.

The financial autonomy ratio (FAR) is over one after 2011, which speaks of shows greater financial independence for the sector. Given that it is reciprocal to the D / SC, these results are justified. The highest value is in 2018 - 1.24. Equity exceeds the sector's debt. Existing liabilities in the first three years alone are not sufficiently secured by equity. The average size of the sector for the period is 1.1, while for all sectors it is 0.92.

The only significant differences are observed in terms of the interest coverage ratio. Throughout the period, it is above one, i.e. gross profit can cover interest rates more than 7 times in 2011 and 2017, 2018. The highest value is in 2018, and the lowest levels of the indicator in 2009, but quite sufficient for the sector to cope with the payment of interest. The average sector value is 6.0.

The relative indicators provide very accurate information and after a thorough analysis it can be concluded that there are no worrying levels of these indicators, on the contrary, the sector is among the best covering its liabilities with assets and equity. In general, the levels of indebtedness in the sector are not excessively high. The fact that they doubled is not so worrying, however, it should be borne in mind that the number of surveyed companies is twice as large, in addition, the growth of assets and equity is almost threefold.

The assets in 2008 were 5.9 billion BGN, and in 2017 1.5 billion BGN, and the equity increased from 2.7 to 7.7 billion levs. The net sales revenues from 3.3 billion levs reached 6.6 billion BGN for the studied period. The levels of intercompany indebtedness, in my opinion, are in the range, about 50-55% of all liabilities. Rather, the fact that the intercompany is increasing is one from which conclusions should be drawn. A link should be sought with solvency and whether companies are starting to delay repayment to finance themselves and improve their liquidity.

Conclusion

In terms of structural liquidity, the sector is performing well. The total liquidity is in the range between 1.72 and 1.92. These values are high and fully cover the short-term liabilities of companies in the sector. The lowest indicator was in 2008 and the highest in 2014 and 2016.

The obtained results for the functional liquidity again define 2014 and 2016 as the years with the highest cash surplus. According to this indicator, the riskiest are 2011 and 2018.

As an indicator of liquidity, the financial cycle of sector A. has a relatively long duration compared to other non-financial sectors. The highest duration was observed in 2008 and the lowest in 2011. With this indicator, 2014 and 2016 do not stand out as the best in terms of liquidity.

Liabilities in the sector increased by 111 percentage points. for the 11-year study period. This number ranks the sector among the most indebted. In absolute terms, the total debt is over 4 billion, but it is relatively low compared to other sectors, which, however, include more companies. Intercompany indebtedness is about 60% of total debt. Against the background of sectors where this value is over 80%, it can be concluded that this most dangerous indebtedness has moderate levels.

Relative indebtedness indicators do not give rise to financial turmoil over the years. The D/ E ratio is at risk in the first three years but is improving. The other indicators have low-risk values and do not give rise to risk situations from the point of view of indebtedness. As the most acceptable from the point of view of finances are the values of the indicators in 2018.

There is no significant link between the increase in liquidity ratios in 2014 and 2016 and the increase in indebtedness, because it grows with each passing year at a moderate pace, but these two years do not differ in any way from the others. The same is true for 2011, which has the highest values of the financial cycle, but this year again there is no significant increase in indebtedness, measured by various possible indicators. The statement formulated as a thesis is not proven in terms of the results obtained for this sector, but in the analysis of other sectors it is valid in full force.

For this reason, it is necessary to conduct a comprehensive analysis for all non-financial sectors and to make comparisons with key macroeconomic indicators such as GDP, investment, etc., which the author plans to implement in the future.

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This article contains results of a study funded by a targeted subsidy of the University of National and World Economy under contract NID NI-4/2018, led by Yanko Hristozov.