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## Research Report

# Corporate sector deleveraging in Macedonia in the aftermath of the crisis: Has it happened at all?

Economic Analysis

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# National Bank of the Republic of Macedonia



## Corporate Sector Deleveraging in Macedonia in the Aftermath of the Crisis - Has it happened at all?

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### Abstract

The study explores the corporate sector debt in the Macedonian economy. It starts by a narrative scrutiny of its evolution using micro and macro data, and proceeds with a further analysis of its main components. The simple data inspection provides no evidence that corporate sector in Macedonia deleveraged after the burst of the global financial and economic crisis. The inference changes somewhat, once the intercompany debt of new foreign companies is controlled for. Without this type of debt, there are signs of downward adjustment of the corporate sector debt. Given this, we proceed with a more formal investigation, to explore the link between corporate debt and GDP, and assess where the corporate debt stands in terms of its equilibrium. Our findings suggest that shocks to the corporate debt cycle affect the economic cycle. In addition, the estimates reveal that the current corporate domestic debt level exceeds the equilibrium level for a considerable period, though the deviation is not large. The findings provide two important notions for the policy makers. First, corporate debt cycle should be an important variable in the policy function, and excessive leverage/deleverage should be detected in a timely manner. Second, as the domestic corporate debt does not exceed the equilibrium level at a large magnitude, it implicitly reveals that the current policy stance is adequate. Yet, given the long time in which the debt level exceeds the fundamentals somewhat, a vigilance is needed in this respect, as well.

**Keywords:** *Deleverage, Corporate Sector, Economic Growth, VAR/VECM estimations*

\*The views expressed herein are those of the authors and do not necessarily represent those of the National Bank of the Republic of Macedonia.

## 1. Introduction and recent literature on the issue

Almost eight years after the onset of the "global recession", the global growth still has the feature of being subdued, with highly uncertain short-term prospects and the "secular stagnation" phenomenon becoming more and more pinpointed as a risk. Researchers do note that the ongoing slow recovery does not deviate much from the growth pattern, intrinsic for an aftermath of a deep systemic financial crisis. Nonetheless, much attention has been put on the causes of the potential secular stagnation, including "secular deficiency in aggregate demand, slowing innovation, adverse demographics, lingering policy uncertainty, post-crisis political fractionalization, debt overhang, insufficient fiscal stimulus, excessive financial regulation, and some mix of all of the above" (Lo and Rogoff, 2015). In this context, one of the points for which, more or less, consensus has been built is the growth-constraining impact of the debt overhang. Consequently, studies on the debt overhang, the pace and the intensity of private and public sector deleveraging, the channels through which deleverage has been taking place, mounted recently.

An important aspect of the leverage/deleverage issue is the state of the corporate sector. In some of the European countries, prior to the crisis, the corporate sector accumulated large amounts of debt. Subdued uncertainty, risk underpricing, loose financing conditions, all of them contributed towards excessive borrowing and build-up of macroeconomic imbalances. When the crisis burst, the pressures to deleverage became strong. Indeed, the corporate sector in many of the European countries deleveraged substantially, and the way deleveraging was done was different. Yet, when some of the corporate sector leverage indicators are being screened, the need for further deleveraging is still visible<sup>1</sup>. As the banks are becoming more prudent, and the private sector more cautious in burdening its balance sheet with debt, deleverage will most probably proceed in the forthcoming period. Given the role of credit in underpinning economic growth, if not pursued orderly, and in particular if done in investment-unfriendly manner, deleveraging can impair growth prospects substantially. The "disorderly" very often refers to an abrupt aggravation of the access to financing, which amidst rising uncertainty and fragile balance sheets of the private sector results in cut of investment, selling of assets and falling assets prices, reduction in the net-worth of the corporates, and again lesser eligibility to borrow. Hence, if all sectors start to deleverage at the same time in an improper way it will hinder growth prospects, and can reignite the adverse feedback loop between the two.

Consequently, much efforts have been put in understanding how the corporate sector leveraged in the past, what is the response when a shock occurs, and hence what can be expected in the period to come.

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<sup>1</sup>If we observe the data for the total private sector debt of the 27 EU countries (Cyprus excluded), the unweighted average indebtedness equals 142% of GDP in 2014, which is an adjustment of close to 10 p.p compared to the peak level in 2009. Yet the level is still above the benchmark of the EC within the MIP scoreboard of 133% of GDP.

The study of the McKinsey Global Institute on debt and deleveraging (2010) notes that though it cannot be said for certain that deleveraging will occur at the current juncture, empirically it is known that deleveraging has followed nearly every major financial crisis in the past half-century. They find 45 episodes of deleveraging since the Great Depression in which the ratio of total debt relative to GDP declined, and 32 of them followed a financial crisis. These include some instances in which deleveraging occurred only in the public sector; others in which the private sector deleveraged; and some in which both the public and private sectors deleveraged simultaneously. The so called austerity (or “belt-tightening”) type of leverage in which credit growth lags behind GDP growth for many years is by far the most common approach, accounting for roughly half of the deleveraging episodes. According to the study if today’s economies were to follow the deleveraging process, they would experience six to seven years of deleveraging, in which the debt-to-GDP ratio declines by around 25 percent. Deleveraging would begin two years after the start of the crisis, and GDP would contract for the first two to three years of deleveraging, and then start growing again.

One of the most comprehensive recent studies exploring the deleveraging issue is the ECB study (2013). It explores several related issues, with specific focus on the structure of corporate sector financing (internal versus external) and its financial situation, screening of the key corporate finance decisions by using firm-level data, and on the link between the state of the corporate sector and the economy as a whole. This theoretical and empirical investigation of the matter points to the need for cautious policy interventions, which will prevent disorderly and disruptive deleveraging, that might act as hurdle to growth.

This link between debt and growth is a highly debatable issue in the economic literature. Most of the studies are focused on revealing a public debt threshold, beyond which further debt accumulation is growth harmful, implying nonlinear relationship between the two. Against the background of the euro area sovereign debt crisis, Baum, Westphal and Rother (2012) investigate the relationship between public debt and economic growth by using a dynamic threshold panel methodology in order to analyze the nonlinear impact of public debt on GDP growth. They focus on 12 Euro area countries for the period 1990 - 2010. Their empirical results suggest that the short-run impact of debt on GDP growth is positive but decreases to around zero and loses significance beyond public debt-to-GDP ratios of around 67%, while for high debt-to-GDP ratios (above 95%), additional debt has a negative impact on economic activity.

The link between private debt and growth has been a less exploited topic. The screening of the more recent literature on the issue, reveals several papers, or studies in which private debt-growth nexus has

been tackled empirically. Cecchetti, Mohanty, and Zampolli (2011), address the question by using a new dataset on 18 OECD countries from 1980 to 2010. They empirically test the hypothesis that moderate debt levels improve welfare and enhance growth, while high level can be growth hurdle. They disentangle among few different types of debt, government, non-financial corporate and household debt. The estimated threshold for the corporate and household debt stands at 90% and 85% of GDP, above which debt becomes a drag on growth.

A study, which explores the debt-growth nexus, and deals with the link between growth and the importance of sequencing debt reductions across sectors for the euro area is the one of Bornhorst and Arranz (2014). It screens the balance sheet position of different sectors in the euro area, the need for debt adjustments, and the debt-growth nexus as well. The study reveals that the negative growth impact of the debt in one sector is conditioned on the level of indebtedness in other sectors. In other words, if all sectors (government, corporates, and households) are over-indebted, and deleverage is not synchronized, or is done without proper strengthening of the balance sheets, its impact on growth might be large. They also suggest that the adjustment of the private sector debt might be more detrimental to growth than the public sector debt.

A paper of Chen et al. (2015), investigates the experience with private-sector leverage cycles across 36 countries over a span of 50 years and assesses how the modalities of deleveraging in the bust-phase of cycles affects subsequent economic growth. Contrary to other studies, they find that larger deleveraging is positively associated with subsequent growth. Specifically, a 10 percentage point reduction in the leverage ratio over the 5 years of the typical episode is associated with an increase in annual growth of about 0.4 percentage points, such that the level of output would be about 2 percentage points higher over the subsequent 5-year period. However, they also find a trade-off against the time spent deleveraging – the more stretched out the time spent deleveraging is, the lower the subsequent growth.

## **2. A Snapshot of the Corporate Sector Leverage in Macedonia – micro data perspective**

This section of the paper focuses on the balance sheet structure of Macedonian companies in the recent years and reviews the level and the dynamics of some of the key financial ratios<sup>2</sup>. The main aim of the section is to illustrate the financial position of Macedonian enterprises, including the structure of firms' financing, their indebtedness, profitability and liquidity during the years of the world financial crisis and the subsequent post-crisis period. All of these aspects are important when assessing the leverage of the corporate sector. However, one should bear in mind that there are several obstacles, which aggravate the analysis. This mainly refers to the quality of financial reports (especially of small and micro entities),

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<sup>2</sup> These ratios are calculated based on aggregated firm level data, obtained from the Central Registry of Republic of Macedonia.

related to the reliability of presented values for different types of assets, the volume of presented revenues and costs, consistency of used accounting policies and other forms of biased reporting. The small and micro entities do not have legal obligation for preparation of audited financial reports and usually outsource their accounting systems to third external parties, which makes their adherence to the international financial reporting standards<sup>3</sup> questionable. Primary motivation of their financial reporting seems to be the preparation of financial reports for taxation purposes or the need of fulfillment of certain legal requirements. Therefore, the objectivity and reliability of the data extracted from their financial statements is an additional reason for caution within the analysis. The non-availability of some of the data, especially data for receivables aging and data from cash flow statements, are also a constraining factor. In addition, the analysis is based on the total population, but on the aggregate data only, while there is notable heterogeneity in different segments of the corporate sector. Hence, the data interpretation should be cautious.

Given the common finding in the literature that firms' size might be an important factor, which influences their capital structure, it is suitable to observe the structure of the Macedonian corporate sector by the relative importance of the size of the firms. The small and micro entities, considered as a number, comprised about 98% of the total number of registered non-financial firms as of the end of 2014. On the other side, they participate with below 40% in the total revenues and total assets, respectively.

The first step when analyzing the position of the domestic corporate sector is the screening of its sources of financing. The structure of the sources points to the important role of the equity and reserves, which makes a dominant part of corporates' financial structure. The share of the equity and reserves in the total sources of financing gravitates around 50%, with no significant shifts during the years whatsoever. Macedonian firms are usually established and subsequently financed by issuing non-listed equity instruments, with major role of the stakes in limited liabilities companies. The proportion of equity instruments, which are exchange-traded, is negligible, implying small role of market financing. This also holds for the debt instruments, as listed debt with quoted prices is nonexistent.

The stability of the structural share of equity instrument in the domestic firm's sources of financing points to an important conclusion, that in the case of Macedonian non-financial sector, there was no significant process of deleveraging, as it was seen in some of the other countries in Europe. The absence of significant deleveraging in the domestic corporate sector might be related to several factors. First, traditionally the share of the debt instruments in the total liabilities of the Macedonian companies is lower, and hence there was more room to leverage further. Second, the domestic banking system did not

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<sup>3</sup>International financial reporting standards are accepted in the Republic of Macedonia as domestic accounting standards.

stop in providing credit when the crisis started, and hence although at a slower pace credit flows continued. Third, one of the most important reasons is probably the fact that the main external source of finance for Macedonian firms, seems to refer to trade credits and inter-company liabilities,<sup>4</sup> which are a mode of financing among the firms that enables continuity of their business relations. The establishments of new companies, through the entrance of foreign direct investments, mostly rely on debt financing through their mother companies can also explain the absence of deleverage.

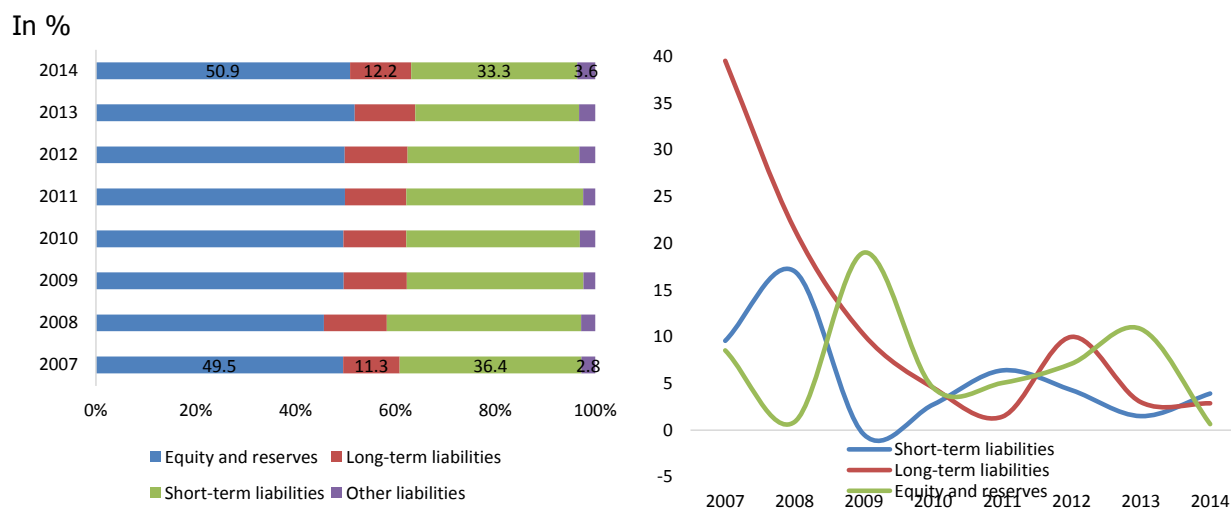
If the growth dynamics of different sources of financing are observed, one can conclude that, apart from 2009, throughout the whole period all the components were rising, although at different pace. Yet, there was noticeable adjustment in the growth of long-term financing, which was rising substantially in the pre-crisis period, and slowed down markedly afterwards. As large part of the long-term financing comes from bank credit, its changes are consistent with the pattern of banking credits to corporates. Before the crisis, it grew fast, because of the low starting basis, and amidst strong lending appetite of domestic banks and increasing propensity to borrow. With the burst of the crisis, adjustment took place. As long-term liabilities, on average grew faster than the short-term, it triggered changes of the liabilities<sup>5</sup> maturity structure, with mild increase of the share of long-term liabilities.

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<sup>4</sup>In this part of the paper, the term "intercompany liabilities" refers to the receivables and payables among companies, regardless whether the transaction is national or cross-border. Also, transactions between related parties are included in the scope of "intercompany liabilities", no matter of the residence of the related party.

<sup>5</sup>For the purpose of this section of the paper, the liabilities are comprised of all the balance-sheet liabilities of non-financial companies, while the debt financing consists of loans, including loans from parent entities; debt securities; issued promissory notes and other payment instruments, provision for pension benefits and other employment benefits and other financial liabilities.

Chart 1: Maturity composition of sources of financing (left) and annual change rate of different types of sources of financing (right)



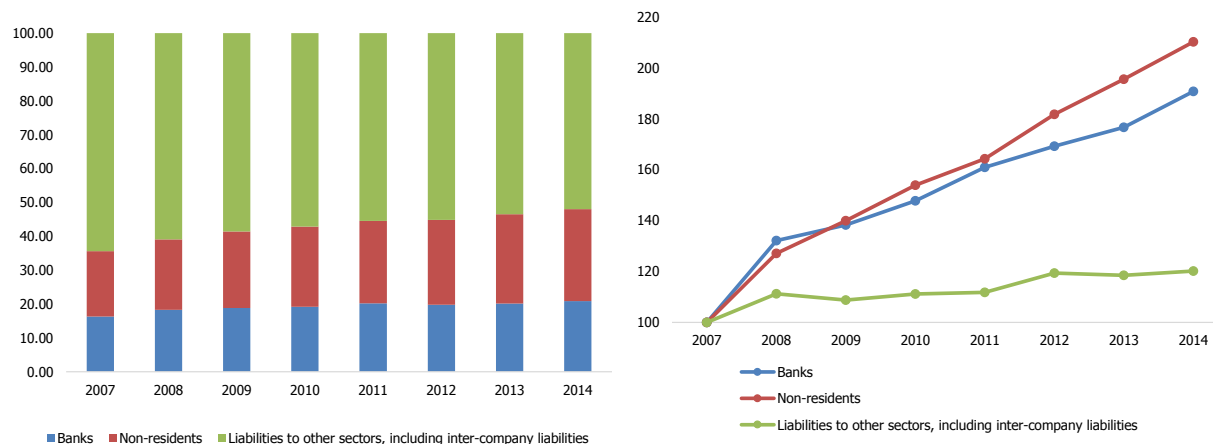
Source: NBRM, calculations based on data from the Central Registry of the Republic of Macedonia - registry of companies' annual accounts submitted for the end of each relevant year.

The analysis of the structure of non-financial companies' liabilities by type of the creditor points to the intercompany lending among domestic firms as dominant source of financing on a standalone basis. Yet its share was declining continuously throughout the years, while the structural share of financing through banks and nonresidents<sup>6</sup> was rising steadily. These changes resulted into a substitution of firms' non-interest bearing financing with financing through different debt instruments. The rise of the share of bank financing was sharp before the crisis, while only mild growth was observed afterwards. Although the growth of banks' credit slowed down, the banking sector remained the most important domestic provider of funds to the firms, given the bank-centric structure of the domestic financial system and the low level of development of other financial institutions. The growth of the share of financing by nonresidents, on the other hand, proceeded at more or less stable pace, reflecting the rise of foreign investments and establishment of new companies in the technological zones. Despite the global financial and economic crisis, the structural changes in the economy, through the entrance of foreign investors, gained momentum, thus changing the financing structure of the corporate sector.

Chart 2: Structure of liabilities by type of creditor, in % of total Index: 2007 =100

<sup>6</sup>In the structure of liabilities by type of creditor, liabilities to nonresidents are all the liabilities of domestic firm to foreign based entities, regardless of the type of the foreign entity or the contractual form of the financing arrangement.





Source: NBRM, calculations based on data received by banks and data from the Central Registry of the Republic of Macedonia - registry of companies' annual accounts submitted for the end of each relevant year.

The debt indicators for the domestic firms, during the analyzed period, in general, remained stable. At a first glance, it indicates that Macedonian corporate sector was relatively successful in maintenance of its level of indebtedness and solvency. This conclusion can be confirmed by observing several leverage ratios - liabilities to equity ratio<sup>7</sup>, the debt financing to equity ratio<sup>8</sup>, as well as, the long-term debt or long-term liabilities to capital ratio<sup>9</sup>. Apart from the stability of these indicators, one can also notice the significant difference in the level of the liabilities to equity ratio and the level of debt financing to equity ratio. This gap points to a very important feature of Macedonian firms – high reliance of the current liabilities, particularly account payables and other trade credits as a source of financing of their activities. The share of companies' debt-to-GDP manifested slight growth, but it has been substantially lower compared with euro area, where this indicator is approximately 100%<sup>10</sup> with wide variation by different countries. However, the level of companies' total liabilities to GDP for Macedonia is over 130%, which is substantially higher level compared with debt-to-GDP ratio. This difference can be explained again with the important role of trade credit and other forms of receivables in the companies' financial structure.

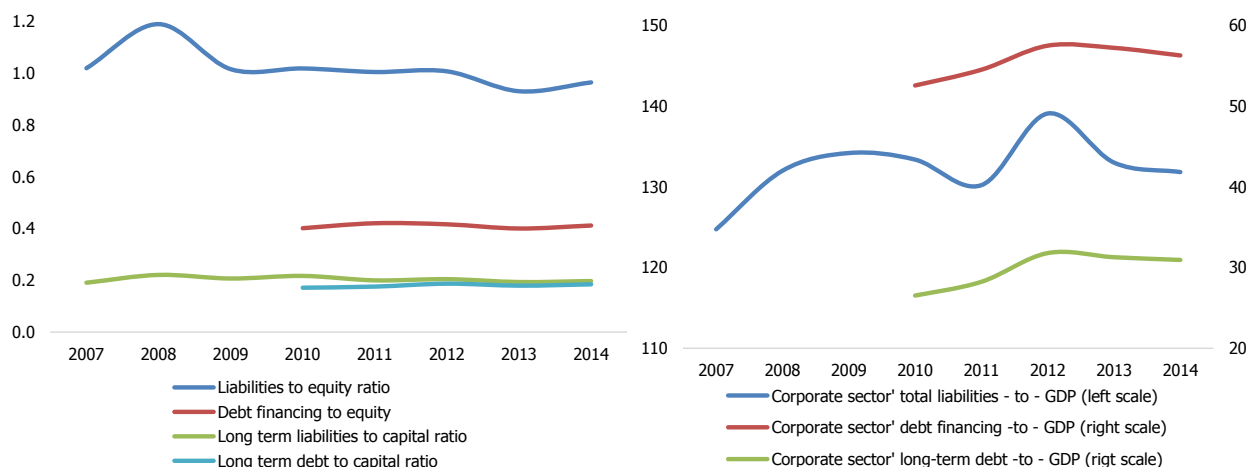
Chart 3: Selected debt indicators for Macedonian corporate sector (left) and the relative importance of its liabilities and debt financing (right), in %

<sup>7</sup>The liability to equity ratio is the ratio of non-financial companies' total liabilities to their equity and reserves.

<sup>8</sup>The debt financing to equity ratio is the ratio of non-financial companies' total debt financing to their equity and reserves.

<sup>9</sup>The long-term debt (liabilities) to capital ratio is the ratio of non-financial companies' long-term debt (liabilities) to their equity and reserves and long-term debt financing.

<sup>10</sup>Source: ECB, Occasional paper 151, corporate finance and economic activity in the Euro area, august 2013.



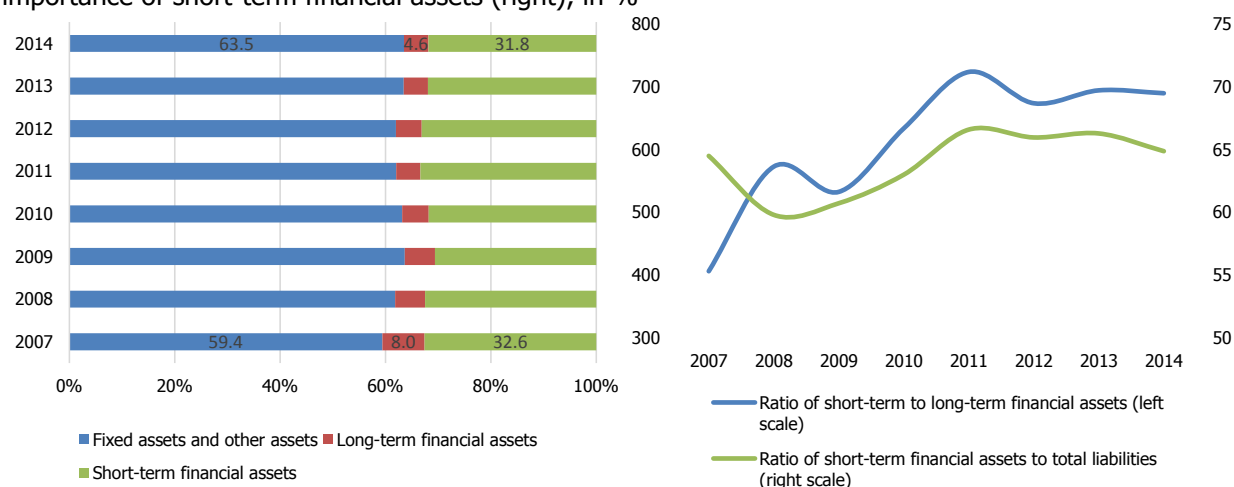
Source: NBRM, calculations based on data from the Central Registry of the Republic of Macedonia - registry of companies' annual accounts submitted for the end of each relevant year. Due to data constraints for the debt, some of the indicators are shown starting with 2010.

The relatively high reliance of Macedonian corporate sector to financing with current liabilities influences the maturity structure of Macedonian non-financial companies' assets. Namely, the high share of intra-company liabilities implies relatively high share of short-term financial assets compared to the holdings of long-term financial assets<sup>11</sup>. The majority of non-financial firms' short-term financial assets, in fact are comprised of accounts receivables and other types of receivables. In addition, this type of structure of financial assets shows that activities related with financial market transactions have minor importance for Macedonian firms, which implies that most of the financial assets are arising from the relationships with their customers and/or with other entities. Due to high share of short-term financial assets and slow pace of maturity transformation on the liability side of the balance sheet, the ratio of non-financial companies' short-term financial assets to total liabilities is relatively high, compared with other European countries<sup>12</sup>.

<sup>11</sup>Short-term financial assets include cash and cash equivalents, short-term account receivables, including receivables from connected entities, short-term loans, including loans to connected entities, short-term debt securities, cheques, received promissory notes and other short-term financial assets. Long-term financial assets include long-term account receivables, long-term loans, including loans to connected entities, long-term debt securities, equity instruments, other securities investments, investments in subsidiaries, associates and joint ventures and other long-term financial assets.

<sup>12</sup>The share of short-term financial assets to total liabilities, in the period after the 2008's global financial crisis, was between 12% and 13% for euro area nonfinancial corporations, Source: ECB, Occasional paper 151, corporate finance and economic activity in the euro area, august 2013, page 13.

Chart 4: Maturity composition of Macedonian non-financial companies' assets (left) and relative importance of short-term financial assets (right), in %

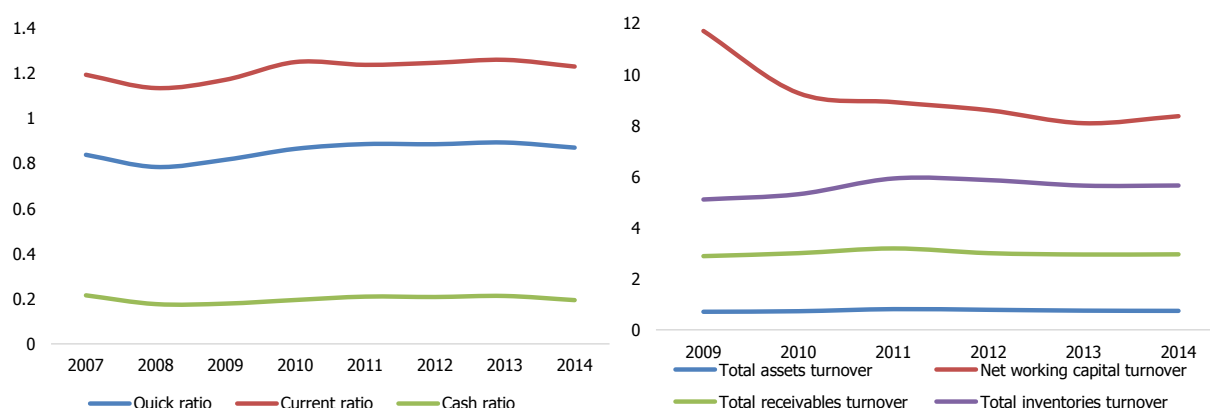


Source: NBRM, calculations based on data from the Central Registry of the Republic of Macedonia - registry of companies' annual accounts submitted for the end of each relevant year.

The described type of business model of "ordinary" Macedonian firm, based on financing through accounts payable and other trade credits, eventually leads to low liquidity ratios and slow turnover of different assets components. Liquidity ratios<sup>13</sup> of the domestic firms in general remained stable, but positioned on a relatively low level. The quick ratio for the corporate sector increased slightly, but it is below the generally accepted threshold of one. During the analyzed period, the difference between current ratio and quick ratio for Macedonian corporate sector remained relatively constant. This might indicate that the inventories valuation manner was with constant impact on liquidity and their operating cycle, and that the assignment of inventory costs to cost of sales was not crucial factor determining changes of companies' profitability. On the other hand, the significant difference between quick ratio and cash ratio, points to the conclusion that the key components of the current assets are accounts receivable and other short-term trade credit claims. Again, explanation for this could be found in the practice of domestic firms to rely on inter-company financing.

<sup>13</sup>Within the analysis, liquidity ratios are observed through three indicators. Current ratio, calculated as a ratio between firms' current assets and current (short-term) liabilities. Quick ratio, calculated as a ratio between firms' current assets less inventories and current (short-term) liabilities. Cash ratio, calculated as a ratio of cash and short-term financial assets to current (short-term) liabilities.

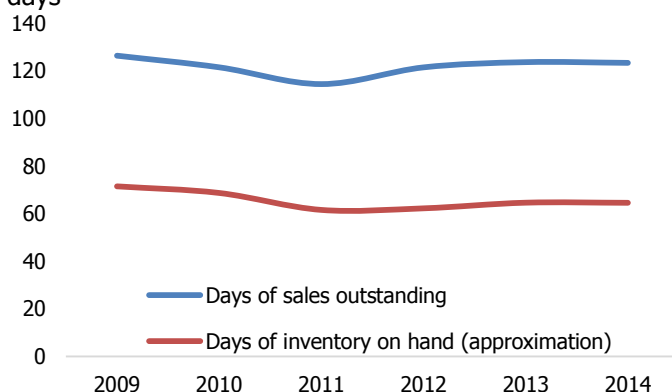
Chart 5: Liquidity indicators and selected turnover ratios for Macedonian non-financial companies



Source: NBRM, calculations based on data from the Central Registry of the Republic of Macedonia - registry of companies' annual accounts submitted for the end of each relevant year.

However, the receivables turnover during analyzed period was relatively low, which perhaps substantiates existence of weaknesses in the companies' credit and collection procedures, and reveals the obscure nature of the content of these accounts, and their timely collection, in particular. This thesis is supported by more than four months of average of sales outstanding during the analyzed period. In absence of thorough data for uncollectable, past due receivables and receivables aging, it is difficult to develop conclusions regarding the possible hidden impairment losses for no collectability and/or appropriate quantification of the receivables' fair value. Therefore, we can only raise concerns about the objectivity of presented receivables, without making explicit qualitative judgment about the magnitude of profit correction and successively, possible overstatement of the equity and debt indicators. Total assets turnover ratio during the analyzed period was on relatively low level, which points to weak efficiency and effectiveness of assets' usage by Macedonian companies, but, on the other hand, net working capital was generating high amount of revenues. This difference might also indicate that the values of the firms' fixed assets, which on its part does not influence the level of firms' working capital, might be overstated and thus, contributing to relatively huge difference of turnover of net working capital and turnover of total assets.

Chart 6: Days of sales outstanding and days of inventories on hand for Macedonian non-financial firms in days

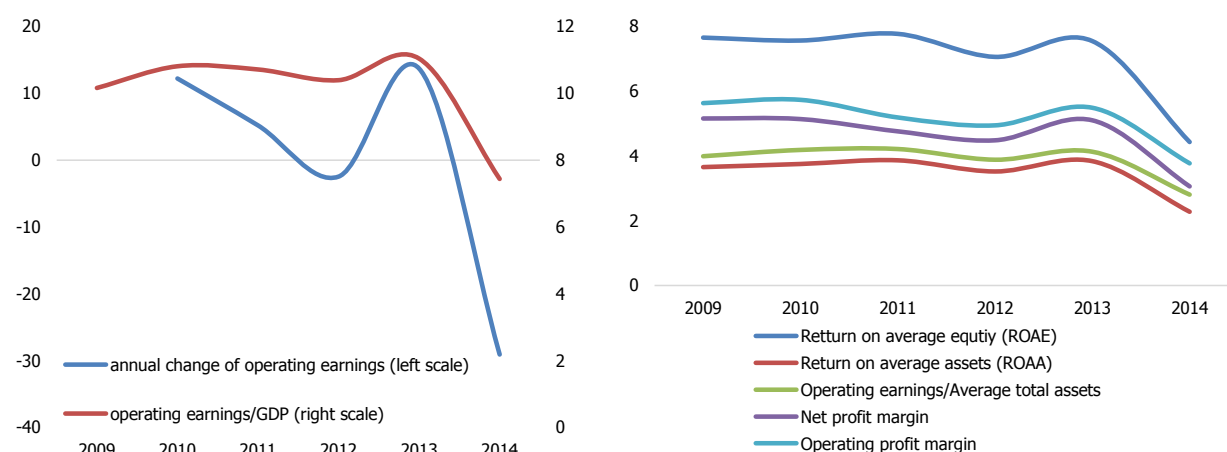


Source: NBRM, calculations based on data from the Central Registry of the Republic of Macedonia - registry of companies' annual accounts submitted for the end of each relevant year.

The profitability of the corporate sector is another important financial indicator, which can significantly affect the leverage of the firm. If profitability is rising, the role of the debt might decrease, as the company has more internal sources for financing. Yet, rising profitability might increase the creditworthiness of the entity and its propensity to borrow. Either way, profitability is an important aspect when discussing the leverage issue. The available data series on firms' profitability points to a profitable corporate sector, with all the indicators being stable until 2014, when the immense drop occurred<sup>14</sup>, but still all of the ratios remained positive. Hence, despite the global crisis and its adverse impact on the domestic economy, through the direct trade and financial channel, expectations and tight financing policies by domestic banks, its impact on the profitability position was not visible. As mentioned before, the only exception is 2014, when due to drop of operating earnings, all the profitability ratios adjusted downwards. The profitability of the Macedonian companies was an important driver of the creation of internal sources of financing, which also contributed for keeping the indebtedness level stable. Therefore, if the decline of the profitability in 2014 becomes a trend in the upcoming years and possibly reinforces itself, that could be key risk factor for the debt servicing capacity and consequently for debt sustainability.

<sup>14</sup>This decline of firms' earnings capacity particularly is driven by the micro entities, which stated operating loss in their income statement for 2014. One possible explanation for such huge decrease of operating earnings during the 2014 could be related to the possible reinforcement of the informal economic activity. Another possible explanation might be the change in the tax regulation. Namely, starting from 2014 the amount of presented taxable profit is used as a tax basis for the Macedonian firms, instead of the taxation only of the amount of non-recognized expenses for tax purposes and deferred income, which served as a tax basis in the period 2009-2013 as an anti-crisis measure.

Chart 7: Operating earnings (left) and movement of selected profitability ratios (right) for Macedonian non-financial firms, in %

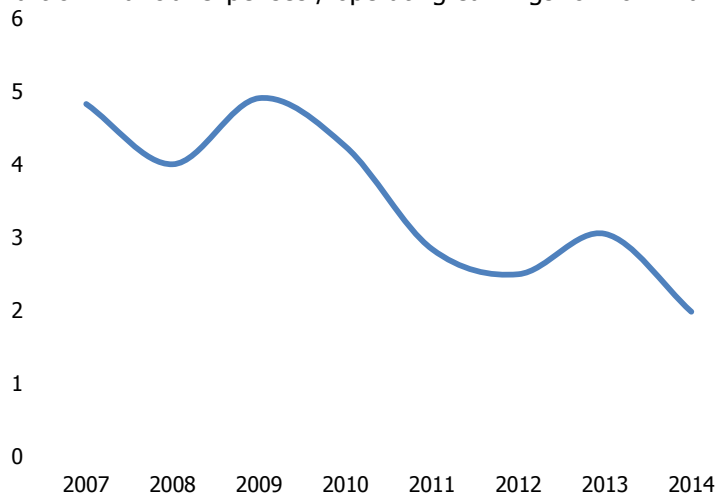


Source: NBRM, calculations based on data from the Central Registry of the Republic of Macedonia - registry of companies' annual accounts submitted for the end of each relevant year.

The coverage of financial expenses with companies' operating earnings<sup>15</sup>, as a key measurement of companies' debt burden, in general followed a downward trend, which indicates deterioration of capacity for additional indebtedness and creates uncertainty for creditors with respect to companies' operating abilities for debt servicing. The trend of decline of this coverage ratio ultimately reduces firms' creditworthiness and the room for higher debt in their sources of financing. The analysis of the drivers of the decrease in the financial expenses coverage ratio shows that until 2010 the main driver was the slight decrease of companies' operating surplus. After 2010, the key contributor to the decline of the coverage ratio is the increased financial expenses.

<sup>15</sup>Operating earnings of companies capture their operating income i.e. gross sales minus all operating expenses. Financial expenses include interest expenses, negative forex differences, unrealized losses from trading activities with financial instruments and other financial expenses.

Chart 8: Financial expenses / operating earnings for non-financial companies, in %



Source: NBRM, calculations based on data from the Central Registry of the Republic of Macedonia - registry of companies' annual accounts submitted for the end of each relevant year.

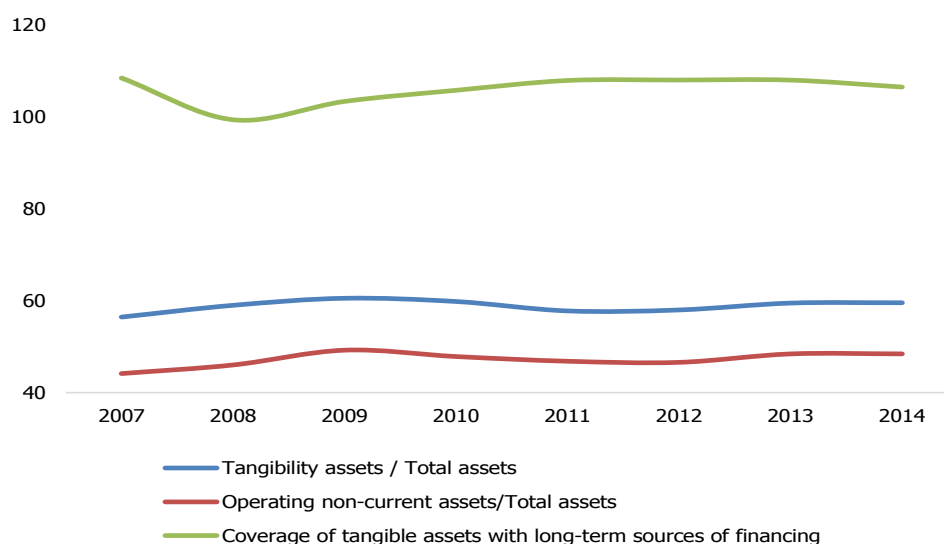
The structure of Macedonian firm's assets is characterized with relatively important role of fixed assets and other non-financial assets, which provides a basis for high share of tangible assets<sup>16</sup> and relatively high share of operating non-current assets<sup>17</sup>. A positive relation between the firm's leverage and the proportion of tangibility of their assets is expected. Typically the greater the proportion of tangible assets on the balance sheet, the larger is the capacity of the firms for borrowing, which is usually explained by the greater availability of collateral for the firms with higher share of tangible assets. In Macedonia markets for different types of tangible assets have limited functionality and low level of efficiency, which creates risk for the way in which fair value is measured and subsequently arises question about the reliability of the presented fair value of the tangible assets. This creates possibility that in the presented value of tangible assets there are some hidden losses, which are still not recognized by the companies. This might hold for the small and micro entities, in particular, that usually do not provide audited financial statements. Another factor that could be related to the tangibility of the assets and might influence the availability of collateral is the quality of the different types of tangible assets, especially property, plant and equipment and their physical or functional obsolescence. Depending on the set of factors related with real estate, particularly age of construction and location, loan to value ratio applied by banks is quite different meaning that the properties are differentiated by the attractiveness and acceptability as collateral. Therefore, the share of tangible assets in Macedonian non-financial assets and its relation with the leverage should be interpreted with caution. The tangible assets of Macedonian non-financial

<sup>16</sup>Tangible assets are comprised of tangible fixed assets, investment property, group of assets held for sale, assets from discontinued operations and inventories.

<sup>17</sup>Operating non-current assets are sum of intangible assets, tangible fixed assets and investment property.

companies on average in the analyzed period from 2007 to 2014 were completely covered with long-term sources of financing<sup>18</sup>.

Chart 9: The level of tangibility of the assets of Macedonian non-financial companies, in %



Source: NBRM, calculations based on data from the Central Registry of the Republic of Macedonia - registry of companies' annual accounts submitted for the end of each relevant year.

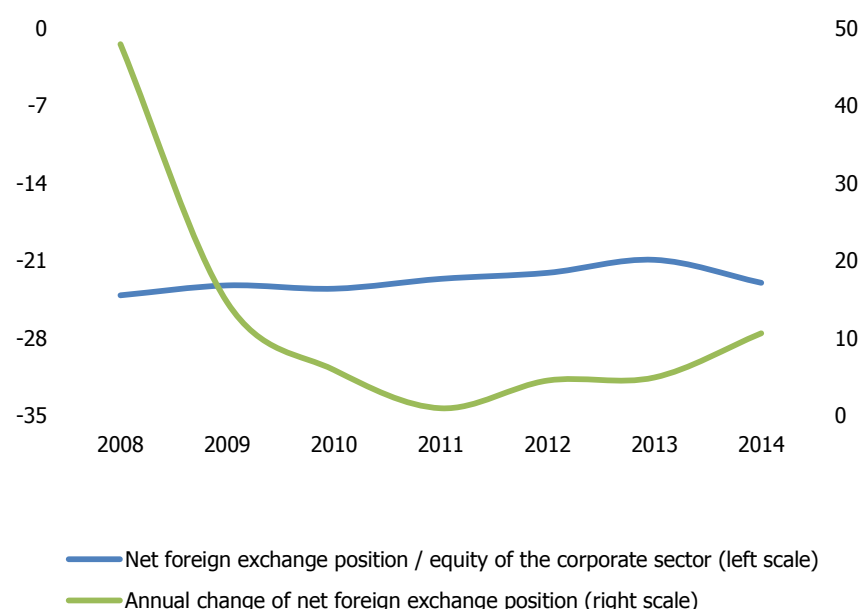
As a part of the small and open economy with limited natural resources, significant level of euroization and de facto pegged exchange rate, the Macedonian non-financial companies need to pay attention on the foreign exchange risk. Foreign exchange risk arises from the necessity for domestic firms to establish business relations and to cooperate with foreign trade partners. Also, as a source of foreign exchange risk for domestic corporate sector might be the presence of external financing, especially for those firms which are subsidiaries of foreign companies or have complete business orientation toward foreign markets. Additionally, the domestic banks often incorporate foreign exchange clauses in the loan contracts, which could be another source of imbalance in currency structure between companies' assets and liabilities. The domestic non-financial firms have negative net foreign exchange position<sup>19</sup> and it is noticeable that in the years after the global financial crisis, net foreign exchange position of domestic corporate sector slowed its growth rate, but as a share of the equity, it remained stable. Given the fact, that exchange rate differentials are included within total financial expenses, any change of the Denar exchange rate towards the Euro, can affect the level of firms' financial leverage.

<sup>18</sup>Long-term sources of financing are consisted of equity, reserves, revalorization reserves, retained earnings and long-term liabilities.

<sup>19</sup>Net foreign exchange position is derived as a difference between all foreign exchange assets and all foreign exchange liabilities of the domestic firms, including assets and liabilities in domestic currency with FX clause.



Chart 10: The foreign exchange risk for Macedonian non-financial companies, in %



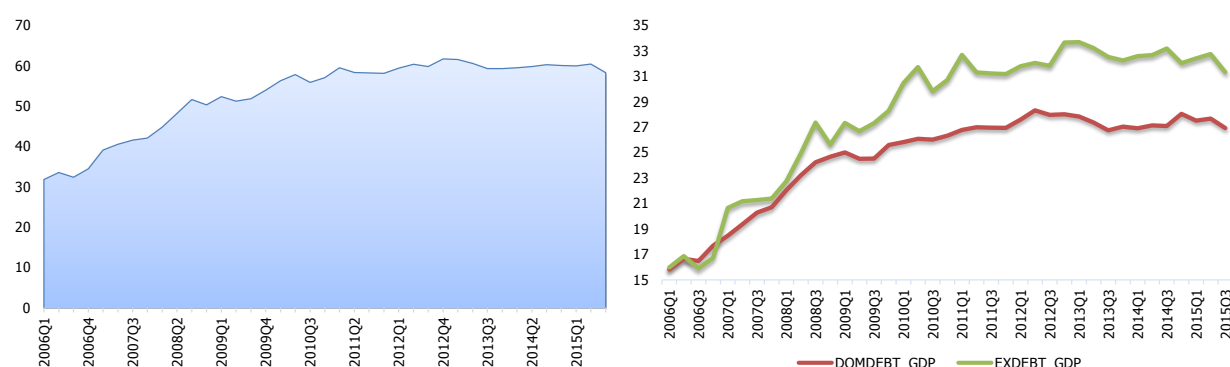
Source: NBRM, calculations based on data from the Central Registry of the Republic of Macedonia - registry of companies' annual accounts submitted for the end of each relevant year.

### 3. A Snapshot of the Corporate Sector Leverage in Macedonia – macro perspective

Opposite to the European case, where the deleveraging process is underway, the screening of the Macedonian corporate sector data does not indicate deleveraging in place. Many factors can explain the absence of deleveraging in Macedonia. The relative lower base compared to the more advanced countries, new entrants on the market through direct investments even amidst the crisis, (which needed finance, and part of it was provided through some form of loans), the sound banking system, which put a brake on credits amidst the crisis, but without opening a credit crunch phase. Yet, on the backdrop of the crisis and the changes through which the economy is undergoing, some alteration in the borrowing pattern was observed. Hence, it is of interest to scrutinize more formally the pattern of corporate sector borrowing, dissecting types of the debt incurred and its behavior in different phases in which the economy was going through.

Observing the corporate debt pattern, one could notice a continuous rise in corporate sector leverage. In a time span of eight years it has doubled as a share of GDP. Yet, what is noticeable at the same time is the difference in the trend growth in the different sub-periods. The debt was growing exponentially until the second half of 2009, after which the growth proceeded at a much slower pace. Apparently, the corporate sector as a whole did not have to respond to the crisis with a debt reduction, but only by slowing the pace of indebtedting its balance sheets.

Chart 11: Corporate debt as percentage of GDP\*



\*Corporate debt is a sum of private external debt (EXDEBT) and credit to corporates extended by domestic banks (DOMDEBT).

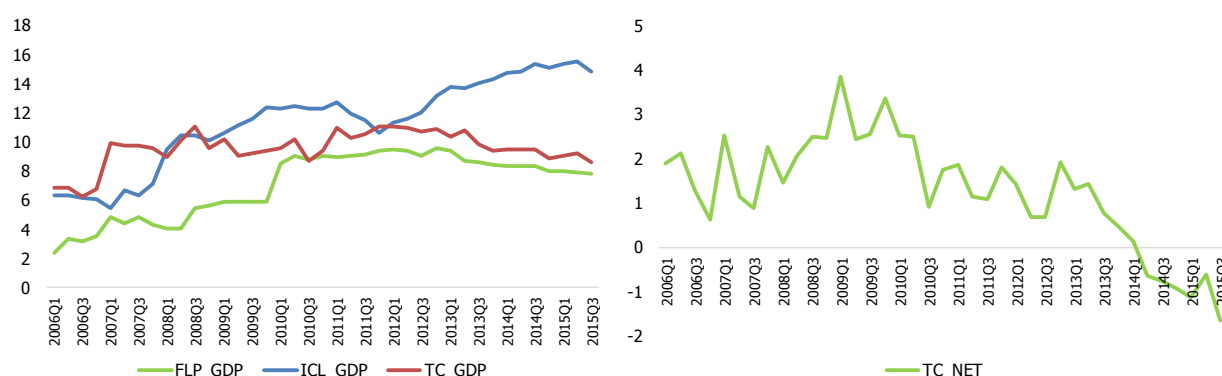
Source: NBRM, SSO, Authors' calculation.

Comparing the pattern of the external borrowing of the corporate sector and its debt exposure to domestic banks, one can conclude that co-movement between these two components exists. This is pronounced in the expansion phase of the economy in particular, i.e. prior to the emergence of the global financial and economic crisis, although the simple correlation between the two even within the whole time span is close to 1. What followed, after the crisis emerged, was a divergence in the trend growth of these two components, with faster growth of the external debt, while the growth of the domestic debt was much more moderate. Although, at a first glance, it might seem that the corporate sector substituted the sources of financing, i.e. domestic with external, yet there are much more issues (structural ones) behind the divergent trend of these two financing sources. The rise of the corporate sector debt before the crisis was a natural refill of financing on the backdrop of rising economic activity. Domestic banking system, after years of muted credit market, became much more aggressive in providing credit to the private sector, amidst stable domestic environment, sufficient sources of financing, optimism with respect to the future income, and hence increasing willingness in the economy to lend and to borrow. Segments of the corporate sector, which were mostly exposed to domestic banking financing were companies with domestic capital or foreign owned companies entrenched in traditional segments (mainly metal or textile industry).

When the crisis hit, divergence in trends of the domestic and external borrowing was observed. The divergence in the financing sources to a certain point can be seen as a reflection of the specific phase that the economy was in, when the impact of the global crisis was felt. Large part of the "incumbent" companies lost their external market, because of the global crisis. As growth prospects of these companies deteriorated, domestic banks reduced the supply of credit, for the purpose of protecting the

quality of their credit portfolio. Contrary to the subdued activity of part of the corporate sector (in the traditional sectors), another segment was on its rise. Several foreign companies entered the market, their operations were rising rapidly, and large part of the financing came through their mother companies. Hence, while the pace of domestic debt growth was slowing down, the external debt continued to rise. The dissection of the private sector external debt points to the fact that the main driver of the growth is the intercompany loans. This is a debt component, which usually rises during crisis period. This type of centralized financing is considered to provide a much easier access to financing, at more attractive financing terms. During the acute phase crisis, in many countries the intercompany loans were on a rising track (Germany being an example, (ECB, 2013)), thus bridging over the financing needs, which could not be covered at favorable terms elsewhere. As for Macedonia, though part of the existing companies used this financing window, yet the largest part of the growth in intercompany financing was related to the newly established foreign entities (from their parent companies from abroad).

Chart 12: Components of corporate external debt as percentage of GDP\*



\*FLP – financial external debt; ICL – Intercompany lending; TC – trade credits; TC\_NET –trade credits net of trade claims

Source: NBRM, SSO, Authors' calculation.

Trade credits, in general are closely related to the external trade, and should be more or less related to the economic cycle, in small and open economies in particular. As well known, going micro, in all of the economies trade credits can be considered as both credit and claims, i.e. they can pertain to both import and export activities. When importing goods and services at one moment, while postponing the payment for the future, the trade partner is extending a credit to the resident. The resident might also export goods and services, while allowing for later payment, i.e. extending credit to its trade partner. Hence, trade credits are considered to be "an easily obtained and relatively informal form of short-term credit, compared with classic forms of bank credit"<sup>20</sup>. In the Macedonian case, trade credits have traditionally

<sup>20</sup> ECB Occasional Paper Series No.151

played an important role in overall external financing.<sup>21</sup> Trade credits seems to exhibit, kind of a pro-cyclical pattern, growing rapidly in the expansion phase and declining after the crisis started. Though they pick up again after the acute phase of the crisis, and their relative importance is quite significant in the external debt portfolio of the corporate sector, still since 2011 their share to GDP is following a declining path. Even more, if trade credits are observed on a net basis (meaning debt net of claims based on trade credits), in the more recent period they are falling into a negative territory (relative to GDP). In a wider time span, Macedonian corporate sector increased its leverage, based on trade credits, in a period when growth momentum was present, and also somewhat at the time when the peak of the crisis was observed. Since then, on the backdrop of economically muted global environment and probable high vigilance among trading partners, the room for trade leverage for Macedonian companies was narrowed. On the other hand, some of domestic companies for the purpose of continuing their business operations, and probably not having negotiating power, started to extend trade credits to their business partners more rapidly. This hypothesis is based on the notion, that on a micro level trade credits usually lead to small firms financing large ones. Hence, given the small size of the Macedonian economy, there is a probability that this notion on small firms, in "bad" times probably also holds for the corporate sector on an aggregate level. Yet, some of the micro evidence reveals that part of the behavior of net-trade debt is again related to the new foreign facilities in the export sector, which are extending trade credits to their suppliers.

Financial loans should more or less observe a pro-cyclical pattern. Indeed, their level increases quite substantially until 2009, after which a stagnation phase starts. If we compare the external financial loans, and the loans extended to companies by the domestic banking system, which in general have the same essence, their trends are quite similar.

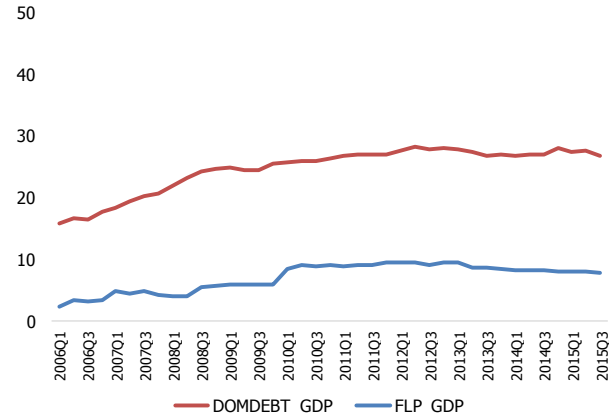
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<sup>21</sup> Trade credit data refer only to credit among companies, which are not interrelated. Hence, trade credits between mother companies and their subsidiaries are included within the intercompany loans.

Chart 13: Corporate debt, net of intercompany lending



Domestic and external financial loans, % of GDP



Source: NBRM, SSO, Authors' calculation.

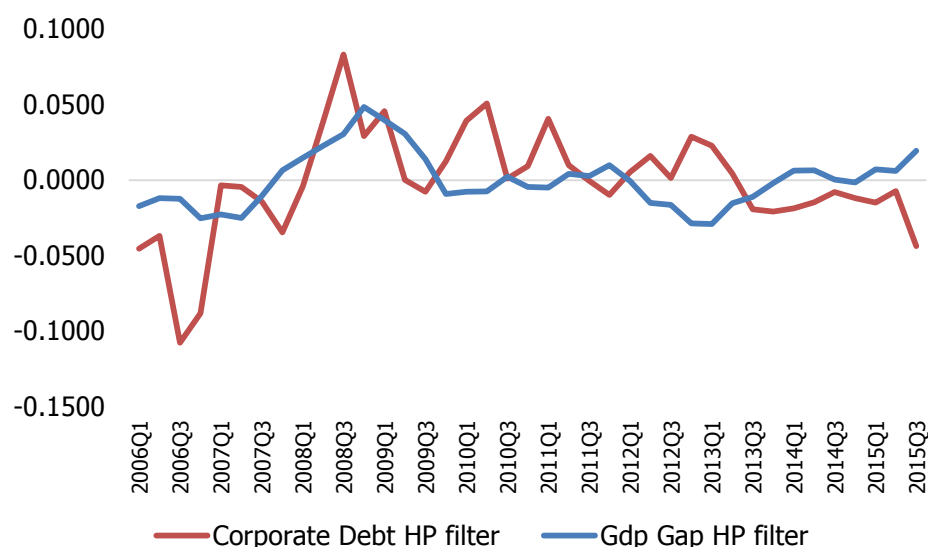
This simple screening of the debt data, does show that corporate sector did not deleverage, but if one observes the data, excluding the impact of the foreign companies and their intra-company lending, signs in the last couple of years of corporate sector deleverage are visible. It might reflect slowdown in the activity in those companies which are exposed to domestic and external financial loans, more difficult access to finance of this corporate segment, and reluctance of it to leverage its balance sheets further, amidst uncertain economic prospects. If it is to recap the corporate debt data screening, it can be noted that several factors prevented massive deleverage at this segment. Yet, the trend of growth slowed down markedly. In addition, if one excludes the impact of foreign investment, and the borrowing implied through this channel (intercompany loans), mild deleverage took place between 2012 and 2013, after which the debt ratio stabilized.

#### 4. Empirical Analysis

Given the already built debt stock in the economy, and hence the lower buffers that the economy has, if another shock hits the economy, there is a probability the depletion of corporate debt will occur. In such a context, it is important to know whether there is a strong link between the indebtedness of the corporate sector and the economic growth. If yes, then if a deleverage process occurs in the future, it can be a potential drag on growth, similarly to the current situation in many of the European economies. Hence, we perform a simple, formal test to check whether shocks to economic growth and corporate leverage, do affect each other. Our focus is not the link between the level of the variables of interest, or their dynamics, but more on the link between the gaps, i.e. between their deviations from the potential level. As a first step, we assess the potential levels and the consequent cyclical component of each of the variables of interest. For this purpose, we are using a rather simple Hodrick Prescott filter. As a second

step, we run a simple VAR, to check the statistical significance of the Impulse Response Functions (IRF's) of debt and growth gaps.

Chart 14: GDP and Corporate debt gap, as percentage of potential



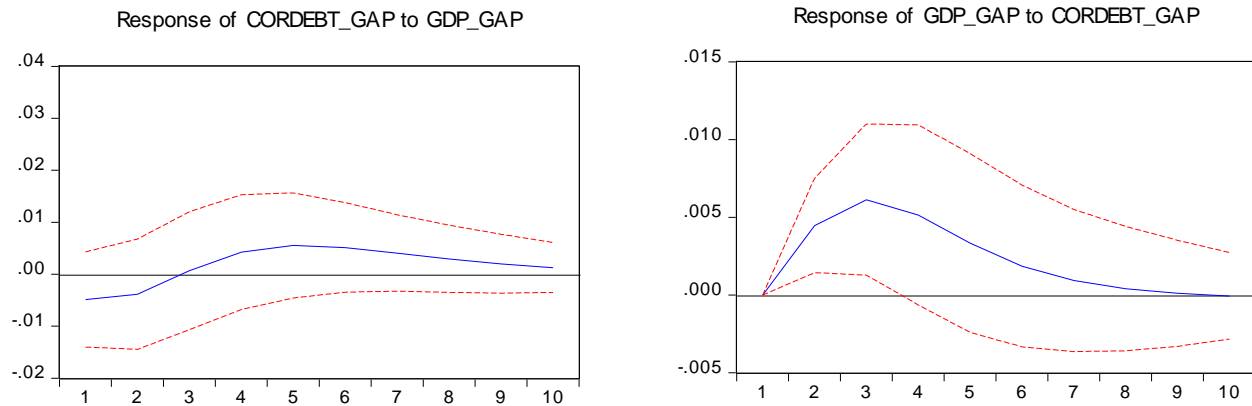
Source: NBRM, SSO, Authors' calculation.

The visual inspection of the total corporate debt gap and the GDP gap show a relatively synchronized movement of the two gaps until the burst of the global crisis. Since then, the economic cycle turned negative in two occasions, while the debt cycle was either positive, or the debt was near its potential, until the end of 2013 when it entered into negative territory. At the end of the analyzed period, this simple filter would suggest a growth, which is slightly exceeding the potential, while the corporate debt is running below the potential level. Yet, inferring on the link between the economic and credit cycle and in particular, assessing where the corporate sector debt stands in terms of its potential requires a more formal investigation.

Within the more formal investigation, we are trying to tackle two main issues. First, we will try to assess whether shocks in the corporate debt gap affect the gap of GDP. Second, we will try to provide more solid empiric grounds to the assessment of the corporate debt gap, given its importance for the policy makers. Given the high risk of endogeneity between the GDP gap and corporate debt gap, we run a simple two variables VAR model, as an approach, which is not structural and hence solves this problem. The VAR estimation is pursued by using quarterly data, for the time period 2006:Q1 2015:Q3. We go through the standard procedure of choosing the lags within the estimation, by consulting the standard lag length criteria, with all of them pointing to a statistical significance of the second lag. Given the importance of

ordering in the VAR estimation, we set the GDP gap as a first variable, treating it as the most exogenous and not contemporaneously affected by the debt gap. The model is subjected to the standard residual autocorrelation LM test, which suggests acceptance of the null hypothesis, meaning an absence of autocorrelation. Hence, we proceed to running the standard Impulse Response Functions, using the Cholesky decomposition to see the dynamic impact of each variable in the model on the other variables.

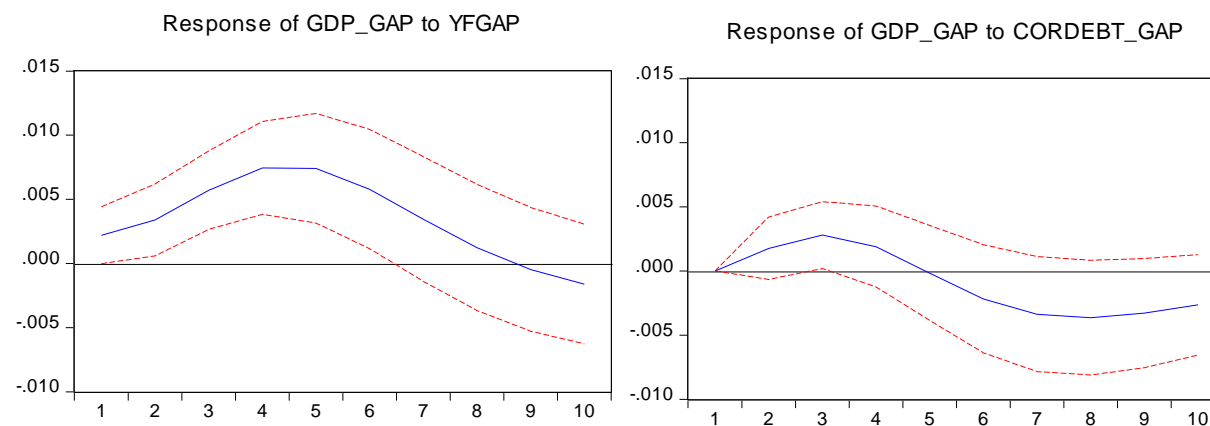
Chart 15: Impulse Response Functions



This simple VAR estimate provides first evidence that a positive shock to the corporate debt gap impacts the GDP gap positively, and the impulse is statistically significant in a time span of a one year. The results of course should be carefully interpreted, as both, the filtration of the data to estimate the gaps, and the estimated VAR model are quite simple. Yet, they provide grounds for further investigation of the matter. What they also indicate is a notion that the corporate debt cycle impacts the GDP cycle, meaning that if positive/negative shocks hit the corporate sector leverage it will be reflected somewhat in the GDP cycle. Hence, if a corporate deleverage occurs, amidst still uncertain economic prospects, it might act as drag on growth.

Since the Macedonian economy is small and open, one of the main growth drivers is the foreign effective demand. To address this notion, we run additional VAR model as a robustness check, where foreign effective demand gap is also used. The lag length criteria again suggest statistical significance of the second lag, and the ordering is done in the following way (foreign effective demand gap, GDP gap, corporate debt gap). The autocorrelation test again rejects the possibility of autocorrelation of residuals. The Impulse Response Functions of the GDP gap to a positive shock in corporate debt gap does not change much, though the impact is slightly smaller. For a convenience, we also present results on the GDP gap reaction to a shock in the foreign effective demand gap, which is positive and statistically significant in a time span of two years.

Chart 16: Impulse Response Functions



YFGAP – foreign effective demand gap

In an effort to strengthen the formal test on the phase in which corporate debt is, we run a simple VECM investigating the relationship between corporate debt and economic activity, as well as the cost of borrowing, proxied by the interest rates on domestic and foreign debt for the 2006-2015 period. Unfortunately, given the short-time span and having only quarterly data, the VECM estimations showed more than one co-integrated relationships, estimations were not stable and the coefficients of the cost of borrowing (domestic and foreign) did not have the expected sign.<sup>22</sup>

To circumvent the data deficiencies, we conducted a second VECM estimation taking a narrower definition of corporate debt<sup>23</sup>, domestic credit to the corporate sector. We estimate the effective demand for corporate credit in real terms, where the volume effect is proxied by economic activity (annualized GDP growth) and the price effect by the interest rate of the domestic corporate sector. The estimation uses quarterly data, available for the 1997:Q1- 2015:Q3 period. The estimated results are as follows:

$$\text{Domestic real corporate credit} = 21.6 + 2.2 \text{ GDP real growth} - 0.04 \text{ corporate interest rate}$$

$$[0.38541] \qquad \qquad \qquad [-0.01345]$$

Johansen co-integration test confirmed that there is a long run relationship between the variables. There exists a stable, positive and statistically significant relationship between the output and domestic corporate credit. If the economic activity increases by 1%, the domestic real corporate credit will increase by 2.2% while the increase of the interest rates will lower the demand for domestic corporate credit by 0.04%.

<sup>22</sup> Estimation results available upon request.

<sup>23</sup> Around half of the total corporate debt.



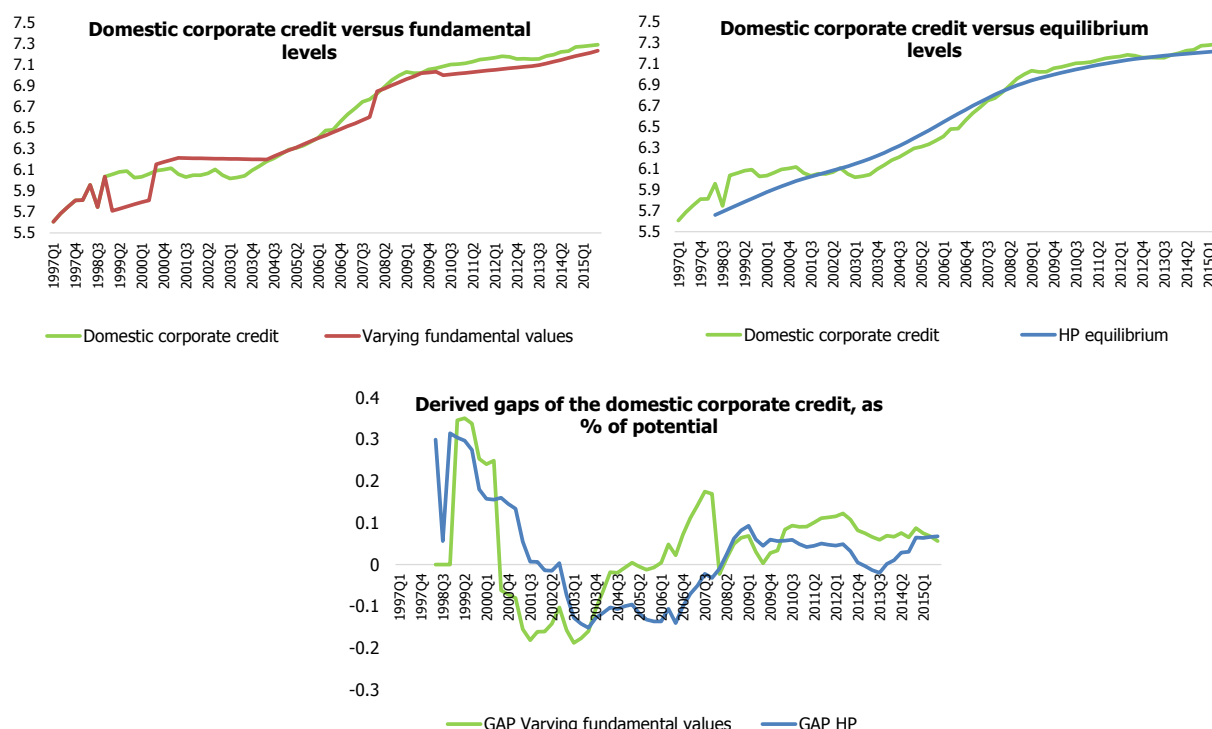
Table 1: Estimation results

Cointegration vector and short run dynamics					
long term relationship	coefficients	standard errors	short run dynamics	coefficients	standard errors
			error correction		
Ln(domestic corporate credit)	1	-	mechanism	-0.07267	(-0.03369)*
Ln(real GDP)	2.2	(0.38541)*	$\Delta$ Ln(domestic corporate credit)	-0.32056	(-0.106)*
Corporate interest rate	-0.04	(-0.01345)*	$\Delta$ Ln(real GDP)	0.866346	(0.5485)*
			$\Delta$ Corporate interest rate	0.007538	(0.00359)*

\*coefficient is statistically significant on 5% level of significance

Next, we continue with the analysis and calculate a fundamental and equilibrium level of the domestic borrowing, with one intention to check whether the current leverage of the corporate sector is in line or above/below its potential or its fundamental values. We derive the fundamental level by applying the VECM long run coefficients to the fundamental values of the explanatory variables. The fundamentals values are varying across the analyzed period, and are approximated by using their average values in different periods that are considered relatively "homogenous" from economic point of view. We have chosen varying fundamentals, as within the time span of the estimation the economy went through many changes, which affected the real GDP and the costs of financing of the corporate sector. The second chart depicts the corporate debt against its equilibrium level, calculated by applying the VECM long run coefficients to HP filtered series of the explanatory variables.

Chart 17: Actual versus fundamental and equilibrium domestic corporate debt levels



The analysis of the gaps derived by the two different estimations reveals several conclusions. The first obvious conclusion is that, apart from the 2005-2007 period both approaches are relatively consistent in terms of the signals they provide – above/below equilibrium. Second, for most of the period the debt of the corporate sector does not deviate largely from the fundamental nor equilibrium values. Third, dynamically, in the period up to 2000 there was a positive gap or the firms were borrowing more than the fundamentals would suggest. Despite the acceleration of the credit growth up to 2008, the equilibrium approach suggested that there was potential for even higher domestic borrowing of the firms. It was a period of solid economic growth and lowering interest rates, which strongly supported the demand for credit. Yet, this changed in the period after the crisis. There was a slowdown in the economic activity, while the growth of credits to the enterprises remained in the positive zone, even though there was a drastic slowdown of the pace. Thus, it is not surprising that the borrowing was higher than the fundamentals would suggest. In fact, starting from 2008, both approaches suggest a level of domestic corporate credit slightly above the equilibrium/fundamental level. Finally, this statement still holds in the latest period of 2014 and 2015, when corporate credits tend to have a positive gap relative to their equilibrium/fundamental level. Of course, the estimates are relatively simple, should be considered as indicative, and as a first empirical glance on the issue. An in-depth view on the soundness of corporate sector balance sheets (on aggregated and disaggregated level) and on the bank exposure to the corporate sector relative to its level of risks should be provided, to conclude whether deleverage will and

should occur. Yet, despite its macro-economic dimension and its simplicity, this approach provides some evidence on how corporate leverage compares to its potential. Our finding is also in line with the estimates of the IMF in their CESEE Regional Economic Issue of Spring 2015, which deals with the private debt in general. Their analysis concludes that post-crisis deleveraging has not been sufficient to align private debt with its fundamentals in a number of CESEE countries. Macedonia is amongst the countries with a positive credit gap (the current debt level exceeds the benchmark level). According to their model, the debt overhangs weigh on credit growth because positive credit gaps must be gradually closed through reduction in debt stocks (IMF CESEE Regional Economic Issue of Spring 2015).

## **Conclusion**

Before the outbreak of the global crisis, a considerable increase of the private sector leverage occurred worldwide. It was the case in the EU as well, where at the current juncture private sector leverage is considered as one of the main vulnerability. Despite the crises, in the last couple of years, on average no significant deleverage occurred, and the debt level is still above the acceptable one, according to some of the metrics. Hence, many efforts have been put to understand the link between the high debt level and economic growth. Given the acknowledged need for private sector deleverage in the period to come, the growth impact of deleverage has been studied extensively in the last couple of years, as well. In this respect, many policy "hints" have been given on how to prevent a disorderly deleverage.

Within this study we have tried to tackle some angles of the leverage/deleverage issue in the Macedonian economy. We are exploring the corporate debt issue in more depth, the evolution of its components, and its link with the economic activity. In addition, we have conducted a simple empirical investigation to assess the alignment of the domestic corporate debt level with its fundamental and equilibrium levels. Our study yields several conclusions. First, unlike some of the cases, in Macedonia the total corporate debt level does not indicate deleverage in place. In other words, in the post-crisis period the share of debt to GDP was rather stable, and even a mild growth was seen. Several factors can explain the after crisis behavior of the corporate debt. The prudence and the soundness of the domestic banking system before and after the occurrence of the crisis, and the entrance of foreign companies can be considered as important determinants of the post-crisis corporate debt behavior. Yet, if one excludes the intercompany debt from abroad from the total corporate debt, signals for corporate deleverage can be observed, which might act as a drag on growth in the period to come. Given this, we proceed with a more formal investigation, to explore the link between domestic corporate debt and GDP. The simple VAR framework provides evidence that shocks to the corporate debt gap can influence the GDP gap. Although rather simple, the investigation can serve as a first evidence for the policy makers that shocks in the cycle of the corporate debt might affect the economic cycle. In that respect we try to assess where the corporate

debt does stand with respect to its potential. Our findings suggest a current debt level, slightly above what the equilibrium level would suggest, but no large and persistent deviations are visible. The findings provide two important notions for the policy makers. First, as the corporate debt cycle affects the economic cycle, it should be an important variable in the policy function, and excessive leverage/deleverage should be detected in a timely manner. Second, as the corporate debt does not exceed the equilibrium level at a large magnitude, it implicitly reveals that the current policy stance is adequate, with no significant adjustment needed. Yet, given the long time in which the debt level slightly exceeds the fundamentals, a vigilance is needed in this respect, as well.

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