The Distorted Corporate Capital Structure: Ukrainian Case

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Abstract

Debt and capital are two possible alternative forms of business financing. So the debt and equity ratio shows the choice of management of an enterprise between available financial instruments, taking into account the risk and expected capital expenditures. In this paper the trends in the capital structure of the non-financial corporations in Ukraine are considered. It is argued that the corporate capital structure in Ukraine is distorted. The following specific capital structure features are determined: excessive aggregate NFC indebtedness, excessive share of non-financial debt in total capital, low bank loans’ share in the capital structure (less than 15%), abnormally high small business indebtedness, weak investment activity. We proved that the deepening of the government indebtedness on the background of low monetization level caused structural changes in the financing of business in Ukraine. We also show that the deleverage process caused by the intentional or forced reduction of bank lending was partly compensated by the inflows of capital and loans from offshore companies and shadow economy.

Keywords: bank loans, corporate debt, corporate finance, crowding-out effect, equity, government debt, interest rate.

1. Introduction

The corporate finance theories explain the influence of tax shield, information and agency costs on the capital structure choice differently. The debt level may rise unrestricted due to the Modigliani and Miller theorem [6] about the irrelevance of the enterprise value to the capital structure. According to the pecking order theory [8] enterprise will follow a financing hierarchy to minimize the problem of information asymmetry between managers and shareholders. The basic points of the pecking order theory are the self-financing preference over external finance and debt. If own funds are not sufficient to finance investment opportunities, enterprises may or may not acquire external financing, and if they do, they will choose among the different external finance sources in such a way as to minimize additional costs of asymmetric information.

The static trade-off approach by Myers (1984) affirms the optimal capital structure is determined taking into account costs and benefits of the debt and equity financing. The main debt disadvantage is accounted for the potential financial distress costs in the case of excessive debt financing. According to this approach the debt level will rise till the point when financial distress costs will exceed the tax shield effect according to compromises approach). In a case, when target leverage deviates from its optimal one the enterprises will adjust the capital structure to avoid the excessive distress costs. The empirical evidence supports both the pecking order and the trade-offs theories. The empirical tests made to check whether the pecking order or the trade-off theory is a better predictor of observed corporate structures find support for both theories. However, recent studies have shown a focus shift from the trade-off theory to the pecking order theory. In the article, we investigate corporate capital structure trends in Ukraine and try to explain them with the existing theoretical approaches.

At first we investigated the key trends in the capital structure of non-financial corporations on the basis of aggregated balance non-consolidated reports (table 1). This enabled detecting a noticeable long-term trends in a in the corporate capital structure change.

| Table 1: The aggregate corporate capital structure of enterprises of the corporate sector of Ukraine's economy, 2009-2016 (% at the end of the year) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Equity | 44,8 | 42,0 | 39,5 | 35,6 | 33,6 | 33,7 | 34,4 | 33,4 | 29,4 | 29,0 | 24,1 |
| Bank credit | 9,2 | 11,4 | 14,8 | 14,0 | 13,4 | 15,5 | 12,1 | 14,3 | 13,5 | 10,3 | 8,5 |
| % of total debt | 16,7 | 19,4 | 23,2 | 25,6 | 20,7 | 23,4 | 18,4 | 21,9 | 19,1 | 14,1 | 7,5 |
| Other liabilities | 46,1 | 46,7 | 48,7 | 50,4 | 53,1 | 52,9 | 53,8 | 51,2 | 57,1 | 60,2 | 67,3 |
| long term | 7,1 | 7,6 | 9,3 | 8,8 | 8,7 | 9,2 | 12,7 | 11,6 | 14,0 | 15,3 | 11,3 |
| short term | 39,0 | 39,1 | 41,6 | 44,4 | 43,7 | 41,1 | 39,6 | 43,4 | 44,9 | 56,0 |
| Debt to equity ratio | 1,2 | 1,4 | 1,7 | 2,0 | 2,3 | 2,0 | 1,9 | 1,9 | 2,4 | 2,4 | 3,1 |
| NFC Debt to GDP Ratio(Ukraine) | 1,70 | 1,79 | 1,92 | 2,24 | 2,30 | 2,18 | 2,34 | 2,16 | 2,57 | 2,70 | 3,08 |
| NFC Debt Relation to GDP (euro area) | 1,19 | 1,23 | 1,27 | 1,30 | 1,31 | 1,34 | 1,35 | 1,32 | 1,34 | 1,36 | 1,36 |

2. Empirical findings from macro level data and international comparisons

During the last ten years the share of equity in the corporate capital structure in Ukraine decreased from 44.8% to 24.1% against the backdrop of a low share of bank loans in capital structure which diminished from 9.2% to 8.5%. These indicators were

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compared with the average indicators of the euro area countries - for the period from 2000 to 2008, where the share of equity amounted to 51.9% and decreased to 49.6% by the end of 2012. The share of other liabilities in the corporate capital structure in Ukraine significantly exceeds its amount in the Euro zone. In particular, in 2012 this share in Ukraine was 53.8% - more than thrice than in the Euro zone countries (14.1%). So the main credit risks of Ukraine NFC sector are resulted from the interfirm debt. This means that in Ukraine the maturities of payables and other current liabilities are longer. One of the reasons for this is that large enterprises have greater economic power than SMEs and put in agreements with the latter favourable terms for themselves. In other words, small businesses are lending large enterprises. Such discrimination is also typical for developed countries, but in Ukraine the financial conditions for small businesses are at times more discriminatory. After the credit boom of 2007-2008, the level of debt dependence of NFC has not been reduced and remains high, at the same time we see the fast growth of other sources of financing (another debt), which in 2010 exceeded 50% of the total funding sources.

In the post-crisis period (2010-2013), disproportions in the corporate capital structure deepened sharply, the corporate sector indebtedness (calculated as total unconsolidated debt to equity ratio) did not decrease to the pre-crisis level and amounted to 1.9 by the end of 2013 (Table 1). During 2014-2016, the largest corporate sector financial potential «squeezing» since the 1990s happened. The corporate finance model turned out to be supersensitive to the growing risks and it triggered the capital withdrawal to «shadow».

In the beginning of 2017 the whole corporate sector indebtedness exceeded 3.1 and was substantially higher than a proper level for emerging markets, which in 2013 stated from 0.8 (CSE countries) to 1.2 (PRC), IMF [4] and Euro area countries - 1.03 (from 0.51 in Belgium to 1.74 in Greece at the end of 2012). The abnormally growth of debt share in corporate capital structure in Ukraine does not fit the corporate finance theoretical approaches. We assume that the aggregate credit risks generated by NFC in Ukraine are thrice higher than in foreign countries. The fast growth of debt dependence on the aggregate corporate sector during 2014-2016 was caused by an abnormally high increase in the debts of small enterprises. Small business is more vulnerable to macro-financial shocks and unfavourable business environment and institutional environment. In accordance with the regularities of the financial markets functioning and the findings of P.Bolton and H. Frejhas [1] the restrictive monetary policy does not cause a uniform compression of lending to all borrowers, but primarily small businesses. In the periods of credit crunch, access to bank loans should theoretically lose small, highly risky (marginally) firms that find empirical evidence of curtailing their lending during the periods of the monetary recession. In Ukraine, the manifestation of such a pattern in terms of credit compression, we consider the rapid growth of non-financial debt (payable and other liabilities) of small businesses. We estimated the aggregate small business indebtedness at the beginning of 2017 at level 10.0 or more then three higher than average for NFC. The growing of the corporate sector debt-to-equity ratio results in the sharpening of the equity shortage. The latter had been calculated as an additional equity amount needed to reduce the excessive indebtedness to its normal level estimated as 1.5. The calculated equity shortage skyrocketed from UAH 200-250 bln before the war to UAH 1,15 trln at the beginning of 2017. Hence, it increased by more than 5 times. The enterprises’ substantial losses estimated at UAH 1.5 trln during 2014-2015 were the main reason for the exaggerating of NFC’s capital shortage. The losses could be explained mainly by the impact of two exogenous factors – the 3-fold national currency depreciation and the liquidity losses in insolvent banks. At the same time, the negative impact of endogenous factors (tax evasions, financial statements deformations, profits hiding) was not diminished. As the result of the so-called banking sector «cleaning» campaign, the corporate sector direct capital losses estimated at UAH 270 bln. They have exceeded the corporate sector current accounts balances at the beginning of 2014 and the annual capital investments volumes. The last estimations of the banking system “cleaning” impact on the corporate losses amounts UAH 453 billion during 2014-2016 (GDP 7.6%). The National Bank’s wrong prudential banking supervision policy and its failure in financial system stability maintaining resulted in the loss of the corporate sector annual investment potential.

In order to make international comparisons we estimate the level of the corporate sector debt burden, we also calculated the ratio of the aggregate debt of NFC non-financial corporations to GDP. On the eve of the financial crisis (beginning of 2007) in Ukraine the amount was 1.70 and increased by the end of 2016 to 3.1. Before the beginning of the military aggression of the former strategic partner during the post-crisis period of 2010-2013 the corporate debt in Ukraine grew much faster than GDP - from 1.7 in 2006 to 2.16 in 2013 (fig 1). The sensitivity of the indicator to the financial crisis in Ukraine is significantly higher than in developed countries. In particular, in the Euro area countries over the same period, the ratio of NFC debts to GDP increased from 1.18 to 1.32. In the long run, the gap between the relative debt burden on enterprises of the corporate sector of Ukraine and the Euro area countries is growing.

![Fig. 1: The ratio of aggregated unconsolidated debt to the NFC sector to GDP in Ukraine and the Euro area countries in 2006-2016.](image-url)

Compared to the corporate capital structure in developed countries, in particular the EU, the two main differences of Ukrainian enterprises are followed: 1) significantly higher and increasing levels of debt dependence and 2) twice lower the share of bank loans in the corporate capital structure. The corporate capital structure in Ukraine could hardly be explained with the traditional corporate finance frameworks which the trading-off or pecking order approaches included. In particular, we draw attention to the excessive level of the corporate sector indebtedness which cannot be explained with the capital structure theoretical approaches. We can suggest the application of the pecking order theoretical approach for figuring out the excessive indebtedness at the aggregate corporate sector level in Ukraine after 2010. Because of the poor operational cash flows the enterprises with low profits lost an access to funding from financial markets and now they give preference to the financing through alternative debt channels (accounts payables and other current liabilities). On this background since 2009 the role of bank credit in the corporate sector financing has been weakening – its share in capital structure diminished from 1.7 in the beginning of 2009 to 5.8% in the beginning of 2017. The short and even negative equity and excessive indebtedness are the specific features of the corporate capital structure in Ukraine. This has resulted in a weak bank loans demand. The rapid growth of system risks slowed down the development of financial relations between enterprises and banks substantially and initiated the demand-side credit squeezing. We also take into account the supply-side factors of the credit squeezing generated mainly by the enormously rapid growth of the government expenditures. The macroeconomic background for the financial system functional destruction had been laid over in 2010-2013 because of excessive government expenditures not backed by the relevant revenues. Over this period, the general cumulative government deficit exceeded UAH 200 bln or 4% of GDP. Over 2014-2015, the total government debt (direct and guaranteed) to GDP ratio had risen from 39.9% to 79.4% against growing inability of its financing.
The specific feature of the investment activity of the vast majority of enterprises in Ukraine is the prevalence of own funds (equity) in the sources structure of capital investments (69.9% in 2017). The domination of own funds in the structure of capital investment is a constant trend caused by the high interest rates resulted from weak development of financial markets and financial resources supply. The bank credit interest rates level is excessive for most corporate sector enterprises. So, if the average profitability of the Ukrainian economy in 2017 amounted to 8.9% (by industry 6.6%), then the average weighted interest rates in the national currency was 17.1%.

Considering the significant losses of enterprises during 2013-2016 their equity artificially grew as a result of the fixed assets revaluation booked as the additional capital invested. During 2013-2016 the share of additional capital invested item in the equity of enterprises increased by 30.8 pp, to 72.9%. At the same time the share of uncovered losses in equity increased 3.5 times and by the end of 2016 amounted to 889.1 bln UAH. Significant losses incurred by enterprises during the crisis period led to their financial exhaustion and the impossibility of net self-financing.

Another source of self-financing of enterprises is depreciation. Theoretically, the amount of accrued depreciation by enterprises can fully cover the volume of capital investments carried out with own sources funding. Instead, during 2012-2016 depreciation in the structure of their own sources of financing of capital investments in general on the economy did not exceed 18.4% or less than 20% of the accrued depreciation. Depreciation acquires a monetary form only after receipt of funds from buyers of manufactured goods (works, services). At the same time, at the end of 2016, NFC accounts receivable amounted to UAH 3945.6 bln, which is equivalent to 68.3% of the book value of their current assets. In 2016, the operating year receivables increased by 1536.6 billion UAH, and during 2008-2016 it increased by 3.9 times. Significant amounts of receivables show that the process of obtaining depreciation of the monetary form is slowing down, which significantly diminish the depreciation role in financing capital investments. Another specification of the corporate finances in Ukraine is a significant excess of current debt on long-term liabilities (3.5 times by the end of 2016). This indicates the limited access of enterprises to long-term financing sources, which reduces their investment opportunities.

So, the corporate sector investments self-financing rate reached 81% in 2009 and exceeded 100% in 2014-2015. It means that under the pressure of deleveraging and the credit channel of fund raising shrinking the shadow and offshore capital reinvestments took place. The internal financial imbalances that negatively affect investment activity, were partly compensated by foreign direct investment inflows though the volume of attracted foreign direct investment does not have a significant impact on the total capital investments in Ukraine. The share of FDI in 2004-2017 did not exceed 5% of total investments and tended to decrease, by the end of 2017 it amounted only 1.4%.

At the same time, more than one third of FDI can be considered as national capital, which in previous years was expelled abroad. As of December 31, 2017, the cumulative volume of FDI attracted to the Ukrainian economy from countries which, according to the current legislation of Ukraine, are considered as offshore, amounted to 37.3% of total FDI.

Based on the shadow capital support, the Ukrainian corporate finance model is partly consistent with the global investment financing trends: the legal sources of financing are being substituted by the shadow dirty money injections. The global trend of the offshore investment capital inflows was estimated by UNIDO at USD 221 bln in 2015. This financing model includes the special purpose entities as the points of the liquid capital accumulation and its further reinvestment in the native country. The spreading of such investment round-tripping caused lack of free funds in
the national financial systems due to the capital outflows in offshore jurisdictions. The return of liquid capital in the legal financial market leads to its strengthening and brings positive consequences for the investment activity. So, the support of the corporate sector investment process by the shadow market resources was crucially significant for Ukraine.

The outlined trends in corporate sector finances indicate a deep crisis in investment activity and a significant lack of financial resources for upgrading production. Despite the fact that in recent years the volume of investments has slightly increased, systemic deficiencies inherent in the investment activity of enterprises have not been resolved and continue to impede their development. Considering growing corporate sector’s finances autonomy and under the crowding-out effect’s pressure, the investment decisions are being made independently from an access to funds on the financial market. We can assume the diminishment of the interest rates channel impact on the capital reallocation process. Legal and shadow financial markets are interrelated channel impact on the capital reallocation process. Legal and shadow financial markets are interrelated–the deterioration of financing conditions on the legal market leads to the outflow of the liquid capital to the shadow markets which are not accessible to the financial regulators. Thus, the shadow capital financial capacity’s strengthening takes place.

3. Empirical findings from micro data

3.1. Data

For in-depth study of distorted capital structure, a firm-level analysis of 231 companies aggregated by 11 sectors for the last 13 years period from 2006 to 2018. List of analyzed sectors is given as follows: A1 – agriculture, B – mining, C10 - food, C19 – coke industry, C20 – chemicals, C24 – metallurgical industry, C26-30 – machinery, D35 – electric power, F - construction, G – trade, HJ - transport, logistics and telecommunications sectors.

3.2. Variables

In order to analyze the debt structure, debt burden, and identify the key features of selected industries, the following indicators were used: DER – debt-to-equity ratio, d_share – debt share in total assets, CL_share – share of current assets in total debt, LT_share – share of long-term liabilities in total debt, TAP_share – trade accounts payable share in total debt, ShTB_share – short-term borrowings share in current liabilities, LT_share – long-term borrowings share in total long-term liabilities.

3.3. Methodology

To obtain a comprehensive picture of the main disproportions, time series and cross sectional approaches of chosen sample analysis were used. For debt burden analysis in dynamics retrospective descriptive investigation of debt share ratio was carried out. For cross sectional analysis median values of chosen variables for each sector were calculated for a period of 13 years.

3.4. Leverage dynamics

Thus, there is an increase in debt pressure of the analyzed sample of NFC, which coincides with the general trend given in Table 1. This indicates that the sample is representative and reflects the general systemic problem of increasing debt burden of Ukrainian non-financial corporations.

During the investigated period, there was an increase in the debt burden according to debt share in the total assets indicator. During the economic boom of 2005-2008, the debt burden increased from 40% to 55%. The increase in the debt burden in 2009 is related to the revaluation of foreign currency loans due to with the revaluation of domestic currency, while the actual deleveraging was happening. During the period of 2010-2013, there was a slight decrease in the share of debt in the capital structure down to 53%. The financial and economic crisis of 2014-2015 led the debt share up to 70%, which is caused by: 1) the reduction of equity capital due to a fall in production and accumulation of losses, 2) a revaluation of liabilities nominated in foreign currency. It should be noted that even after the crisis, the situation has not improved significantly.

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<th>KVED</th>
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<th>CL_share</th>
<th>LT_share</th>
<th>TAP_share</th>
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Fig. 2: Dynamics of debt ratio during 2006-2018, %

Fig. 3: Key debt indicators (medians) breakdown by sectors for firm-level data sample during 2006-2018

It should be noted that there is a heterogeneity of debt burden among the industries. The maximum median values of distorted capital structure indicators are concentrated in such sectors as coke production, chemicals production, construction and wholesale and retail trade. The debt-to-equity ratio for a sample of chemical industry companies is not informative, since most of the NFC in the sample are characterized by negative equity. This sector companies are among of the most injured during the last financial crisis due to: 1) loss of traditional export directions to Russia; 2) upward trend of oil and electricity prices which are the main elements of COGS in this sector; 3) abnormally high level of book losses and debts were formed intentionally for profit generat-
ing entities with the aim of tax optimisation and protection from hostile acquisition.

For trading companies, the volume of borrowed capital is 5 times higher than the volume of equity, for construction companies - almost 4 times. High debt indicators are often attributable to the specifics of the industry, in particular, it has traditionally high level of trade short-term financing.

At the same time, the smallest disparities are in agriculture, mining and food production, transport, logistics and telecommunication sectors. Also, the moderate level of debt is attributable to electricity power sector. For the export-oriented agrarian sector and the food industry, the influence of financial crisis turned out to be positive, since devaluation of the hryvnia contributed to the decrease of COGS and the increase of currency earnings. This situation positively influenced the creditworthiness of companies and made them attractive objects for long-term bank lending, as opposed to heavy industry and chemical manufacturing companies.

4. Conclusions

The distorted corporate capital structure in Ukraine can only partly be explained with the modern theoretical approaches. In particular, the preference to the financing through alternative debt channels is consistent with the pecking order theoretical approach. Such a distorted structure resulted from and developed as an answer on the high institutional barriers and macrofinancial unpredictability. This model is rigid to the internal and external financial shocks accounting for the shadow provisions accumulation. There are two main channels of the shadow capital support – the liquidity support through the fund raising from off-shores and shadow sector and the investment round-tripping – turning out the previously extracted funds in the form of foreign direct investments from off-shores. The failed banking system policy in Ukraine has resulted in highly negative consequences for the capital reallocation process through the financial markets. The further decline in the demand for money and its supply respectively lead to the disintegration of the financial system and to the corporate finance autonomy. On the one hand, we have a weak credit supply ability caused by the excessive government debt ("crowding-out" effect). On the other hand, we have the poor financial performance of corporate sector caused by the exploitation of the debt channel to support current liquidity and the investments.

Firm-level analysis indicates sectors with most distorted capital structures, which are: coke, chemicals and metallurgical industries. The common feature of these sectors in Ukraine is low operational efficiency caused by high monopolisation, high level of depreciation, low innovative activity, high level of liabilities nominated in foreign currency; loss of traditional export markets and high prices of raw materials from traditional sources. The outcomes of described situation are lack of internal financing, equity shrinkage and growth of debt.

On the other hand export oriented sectors as agriculture and food industry are characterised by higher quality of capital structure (high level of long term debt financing, including bank loans and fixed income securities). The main reasons of high credit worthiness which caused better capital structure are: more constant export demands, low prices of raw materials, low level of insolvency.

References


