

## PRIMARY SOURCES OF CORPORATE INVESTMENT IN HUNGARY

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### Abstract

This research aims to reveal how Hungarian companies have financed investments over the last two decades. Which financing strategy characterized them: was internal capital accumulation or external resources, such as bank loans or foreign capital the primary source of corporate investments? The study gives an overview of the conditions typical in the Hungarian financing and capital market over the last 25 years through an empirical analysis. Using a linear regression model, the paper examines the main investments sources among the top 5000 Hungarian firms according to revenues between 1996 and 2014. The model proved that the effect of loans in financing investments was significant and positive in all examined firms, independently from their ownership in the whole period. The rate of indebtedness of foreign companies was mainly attributable to local bank credits and not loans granted by mother companies.

**Keywords:** investment, financial system, FDI, Hungary

**JEL classification:** F20, G30

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### 1. INTRODUCTION

Entrepreneurs can finance their investments and production from internal sources and – if they are not sufficient – they can obtain the required funds from the financial and capital market. In the model developed by Modigliani and Miller (1958), financing decisions are irrelevant and can be separated from the investment decisions, assuming a perfect capital and financial market and a tax-free competitive economy without financial difficulties.

In practice, however – due to market imperfections, possible tax savings and the costs of financial difficulties – corporate capital structure and financing decisions play a decisive role in shaping a company's value. It is essential for corporations to be able to access an effective financial and/or capital market which can contribute to their financial resources and – in the long run – to their growth. Developed financial and capital markets can provide resources for firms to finance investments of the required amount and cost, if their internal corporate resources are not sufficient. Lack of external resources can block the growth of firms.

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A developed financial market has many channels through which the system can impact the growth of companies. The financial sector can improve corporate liquidity and facilitate their investments by accumulating capital and allocating resources (Levine *et al.*, 2000). Financial intermediation can contribute not only to the growth of corporations but it also decreases the volatility of investments (Aghion *et al.*, 2007; Larrain, 2006). The financial market can reduce the costs of monitoring and valuing companies. It is too expensive for every stakeholder to check the management of a firm. They can delegate this task to the financial sector. Banks undertake this control (“delegated monitoring”: Diamond, 1984). Financial intermediation decreases the cost of information as well, because without it all individuals would have to pay this cost in all transactions. Risk management is also an important task of the financial intermediary sector, not only because it helps to accumulate the capital, but it also encourages the technological development (Levine, 1997).

By contrast, if the financial market is not developed, it will be unable to meet the financing requirements of firms because of the lack of volume and choice opportunities in the supply of financing.

The other external alternative or potential source from which firms can finance their investments is the capital market, which can also provide resources. In the capital market, we have to differentiate between portfolio and (foreign and domestic) direct investment as financing possibilities, but only the latter (direct investment) is regarded a stable and long-term form of financing by definition. Foreign direct investment (FDI) can supplement or substitute domestic resources depending on the volume of domestic savings and level of the internal capital market. FDI may further increase the financing basis for investments indirectly through activating domestic savings and channeling domestic funds to the capital market. When FDI inflows stimulate domestic investments it is called the “crowding in” effect of foreign investments (Harrison *et al.*, 2004). However FDI may push domestic investors out of the capital market in certain cases – when large and vital domestic firms are lacking – and cause domestic firms to exit. This is called the “crowding out” effect (Driffield and Hughes, 2003).

Those companies which operate in economies where the level of domestic financial and capital markets is low and access to international financial networks is limited have a competitive disadvantage.

Hungary – as any other former socialist country – had to face an underdeveloped domestic financial and capital market and limited foreign resources during its transition from a planned economy to a market economy. A successful transition to a developed market economy and a high volume of foreign direct investment was essential to finance investments and increase the competitiveness of firms.

This paper aims to reveal the correlation between the development of financial and capital markets and corporate investments in Hungary by giving an overview of the progress of these markets after the system change and by investigating the effect of different sources of financing on investments using a linear regression model. The study attempted to identify the primary source of the growth in Hungarian firms.

The [second section](#) of the paper will summarize the literature concerning the reasons for using potential alternatives of financing by firms, especially among multinational corporations (MNCs); the [third section](#) reviews the trends and periods in the capital and financial market over the last decades in Hungary with a special view of corporate loans and foreign direct investment. Following this, the method and database will be presented in [section four](#), while the [fifth section](#) analyses the results of the regression model and the effects of financial structure on investment; the [sixth and final section](#) contains conclusions.

## 2. POSSIBLE REASONS FOR DIFFERENT FINANCIAL ALTERNATIVES. EMPIRICAL EVIDENCES FOR MULTINATIONAL COMPANIES

Firms have a choice of financing their investments and production using internal resources (reinvested revenues), by issuing new shares or bonds, by owners' loans and by (local) bank loans as well. According to the pecking order theory (Myers, 1984), companies prefer internal resources in the financing decisions, because of lower transaction costs and higher dividend prospects for shareholders, and lower financial difficulties and risks. As a result of these factors, companies tend to use external capital only when their internal resources proved insufficient to carry out their investment. In this case, management prefer debt rather than equity increase (Jensen, 1986; Stulz, 1990).

One reason for this is the higher cost of equity finance compared to that of debt finance. Any issue regarding equity sends a negative signal about the firm's quality of management to investors. Another reason which supports debt financing is the possibility of tax savings (Modigliani and Miller, 1963). An increase in interest rates decreases the company's corporate income tax base, and therefore the tax liability of the company. The smaller the amount payable to the state, the more return there would be to share among investors in the enterprise (Brealey and Myers, 1996).

Another important benefit of debt for the owners is the so-called leverage effect: if the investment generates higher profits than the interest paid on the loans financing the investment, the difference between such profits and interest wanders into the owners' pockets. The owners' return thus increases through others' capital.

On the other hand, business risk and the possibility of financial difficulties (insolvency, bankruptcy) increase proportionally with the indebtedness and financial leverage of the company. The occurrence of financial distress is always associated with a significant increase in the financial expenses of the company and reducing its field of action. If the company gets into debt, it undertakes to repay the loan, including the interest on it.

Overall, provided the tax savings and increasing return can compensate or exceed the increasing risks and costs due to financial difficulties, it is worth getting into debt to finance investments.

Debt can be bank credit, bonds, or owners' loan. In continental Europe and especially in Hungary, bonds are not a prevailing form in corporate finance.

The financing option chosen by firms, between bank credit and owners' loans, equity or reinvested revenues, has a special relevance for multinational companies. (The last three alternative financing sources are forms of FDI<sup>1</sup>). MNCs make decisions in a multinational environment. They use their access to multinational financial networks to fund their foreign affiliates. MNCs have a strategic advantage resulting from this multinational financial network (Aggarwal and Kyaw, 2008). Affiliates may offset their external debt with parent debt in countries with poor institutional features and when local financing is costly or not easily available. This financial flexibility is an important source of competitive advantage for MNCs and their affiliates.

Foreign funding would also have an essential role in financing investments in the host economy during economic and financial crises, because it is easier and faster to receive money from (foreign) owners than from the financial market. Crises have a different impact on creditors' and investors' decisions. A study made by Deutsche Bundesbank (2003) pointed out that bank lending-related decisions showed the highest volatility during a crisis. FDI investments proved less unpredictable. Contessi and De Pace (2012) found evidence

that the industries in the United States that are more financially vulnerable experienced significant shifts in FDI (equity and parent's loan) inflows during the latest financial crisis, following the changes in the cost of capital that occurred in the source economies. The relative independence of FDI from times of crisis can offset the problems caused by the drying up of other sources of financing. FDI is a more reliable source of financing than other forms of fundraising in the long-term. However, [Lall and Streeten \(1977\)](#) emphasised that FDI is a more expensive form than a loan, as the operating risk premium has to be guaranteed by the expected return.

[Marin and Schnitzer \(2011\)](#) handle the decision on financing investments as a microeconomic governance problem. They identified two managerial incentive problems: first, the manager has to make an effort to increase the probability of the project being successful, which they called the effort problem. On the other hand, the manager can hide the returns of the project, which they called the repayment problem. They found that projects tend to be financed locally if the incentive problem is rather large. The larger the repayment or effort problem, the more likely local bank financing is to be chosen, as opposed to global internal financing. If, the incentive problems are moderate instead, global financing through the headquarters is preferred, leading to a capital flow to the host country. They also found that affiliates rely more on internal financing from parents than on external financing if they are located in countries with underdeveloped credit markets and weak creditor protection.

[Forssbäck and Oxelheim \(2011\)](#) proved that a firm is more likely to engage in FDI when it has more highly valued equity, lower debt costs, a higher credit rating, higher internal financing, and when it has cross-listed its stock in a larger and more liquid equity market. Moreover, FDI determinants are more important for firms with high knowledge intensity and for firms resident in relatively less financially developed countries.

[Hooper \(2004\)](#) provides evidence from survey data on UK and US-based multinationals and shows that companies investing in countries with high political risk have a greater preference for local sources of financing rather than international sources. [Kesternich and Schnitzer \(2010\)](#) explore theoretically and empirically how multinational firms choose the capital structure of their foreign affiliates in response to different forms of political risk.

Summarizing the consequences of the above detailed empirical research, the choices between possible forms of financing depend on the following factors:

- amount of internal resources,
- chance for tax savings,
- risks and costs due to financial difficulties,
- access to multinational financial networks,
- financial crises, political risk,
- effectiveness of local financial and capital market,
- level of managerial incentive problems.

The following paragraph analyses the validity of these factors in the Hungarian financial and capital market over the last decades.

### **3. FINANCIAL AND CAPITAL MARKET IN HUNGARY OVER THE PAST DECADES**

We can distinguish three main periods in the development of the Hungarian financial and capital market after the system change. These periods reflect the essential political and economic processes of the country, which induced special and different changes in these

markets. The first period is between 1990 and 1997, when the economic, political and legal transition to a full market economy took place in Hungary. The second period, between 1998 and 2008, when Hungary acceded to the EU (in 2004) was the most prosperous, characterized by an increasing credit supply, increasing FDI and investments. The financial crisis in 2008 resulted in a steep fall in both the credit supply and FDI volume in Hungary. These volumes have lagged behind their pre-crisis level ever since.

### Period between 1990 and 1997

By international comparison, for 1990, the Hungarian financial intermediary level was comparable to those of middle-income countries (Mérő, 2003). Following the political transition, the first years of the nineties showed essential marked decline in bank lending, and corporate crediting suffered the most during this period. Many explanations can be identified for the early nineties credit shortfall: the shock of the transition, lack of expertise, risky portfolios, bad corporate loans, the collapse of the socialist planned economy (1991) and non-competitive corporate performance as well as a strict bankruptcy law in Hungary, all of which resulted in corporate bankruptcies and liquidations and a lack of risk appetite.

All of these processes affected the functioning of the banking system, and corporate bankruptcies were followed by bank failures. The worsening situation necessitated the consolidation of financial markets and privatisation of banks. The commercial banks with their increased capital were mainly obtained by foreign owners. By 1998, Hungary had practically completed the privatisation of the banks. By the end of the nineties, the structure of domestic banking had been formed, with the key actors and owners remaining unchanged in their most important characteristics until the present day. Along with the consolidation and privatization processes, a definite growth in corporate credit also started from 1996 onwards.

Table no. 1 – Corporate loans in Hungary between 1989 and 1997

	1989	1999	1991	1992	1993	1994	1995	1996	1997
Corporate loans from domestic banks / GDP	26.10%	28.20%	29.90%	23.30%	20.70%	20.20%	18.70%	18.70%	20.60%
Index of corporate loans	100	104.5	97.3	73.6	64.9	65.2	61.4	63.5	72.9

Source: Csermely and Vincz (1999); Csermely and Vincz (1999)

Despite these positive changes, the Hungarian financial intermediary sectors did not keep up with the strongly deepening trend characterizing middle-income countries, it had adopted a size more typical of lower income countries by the end of '90s. The role of domestic bank credit in financing the economy has remained low by international comparison. Data on the depth of intermediation reflect a “neither banks, nor capital market” type of intermediary system. Both banking and capital market intermediation was significantly lower than those values of the reference EMU countries or developed countries (Mérő, 2003).

Because of the underdeveloped financial system, the lack of corporate credit and low domestic savings, the role and importance of foreign direct investment (FDI) had special significance in Hungary, because without foreign capital and knowledge the market economy could not have evolved.

In this period, right after the transition, Hungary attracted an outstanding amount of FDI – compared to other countries in the Central-Eastern European region. Due to the FDI-friendly policies and legal regulations, and the possibility of cash down privatisation, the volume of foreign investments soared in Hungary. While in 1992 the share of foreign ownership in the

Hungarian economy was only 11%, this value raced to 41% by 1998 (Árva *et al.*, 2003). The volume of income from privatisation drastically fell back after 1997 and, parallel to this, the investment rate shows a downward trend in relation to changes in the global FDI stock.

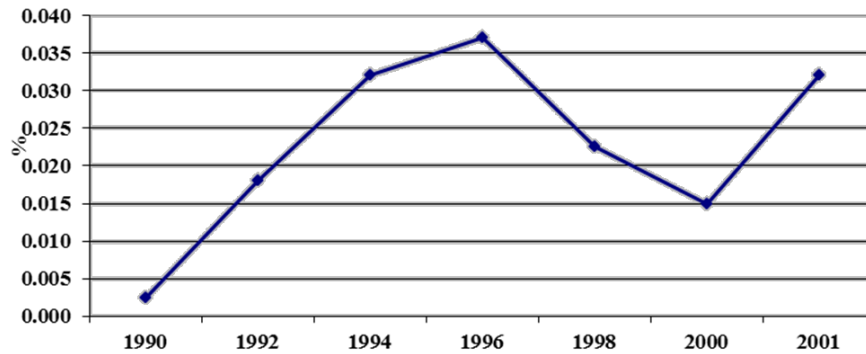


Figure no. 1 – Hungarian FDI inflow (without reinvestments) / global FDI inflow

Source: Author's calculation based on data from UNCTAD (2002)

#### Period between 1998 and 2007

From the beginning of 21<sup>st</sup> century a rapid credit expansion was observable all over the world, and this prosperity characterized the Hungarian banking system as well; the ratio of bank loans to GDP increased rapidly in Hungary. The development of the real economy basically followed the dynamics of corporate lending. The real increase in the corporate credit portfolio reached over 10% per annum. The real rate increase in long-term loans already exceeded 20% in 1998, and it was well above the growth rate of total lending. This trend continued in 2003–2004. After 2005 the credit dynamics of large corporations were balanced, but a significant increase in borrowing occurred in relation to small and middle-sized enterprises (Török, 2012). The period was characterized by an upward trend in corporate investment as well.

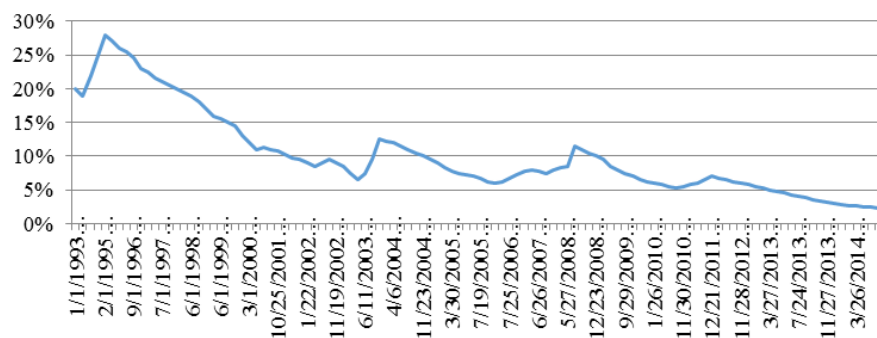


Figure no. 2 – Central Bank's Prime Rate

Source: Hungarian National Bank (2017b)

In the background of this credit expansion we have to point out an important macroeconomic change: the inflation rate had decreased markedly by the end of '90s and, parallel with this, the Central Bank (MNB) reduced the prime rate, which influenced the general level of interest on loans in Hungary.

The growth of foreign currency crediting can also be dated to this period. Companies in Hungary already started to take out loans in foreign currencies in the 1990s. According to the original practice, large companies with significant export sales started to apply for loans and credit lines in foreign currencies as a form of hedging. This changed when domestic banks started to provide foreign currency loans in an ever increasing volume to SMEs with no or hardly any sales or foreign trading in products. The interest rate of foreign currency loans was significantly lower, than those in HUF. As such, the share of foreign currency-denominated loans in the corporate sector started to move gradually from the earlier 10-20% to 40% by the end of 2003, exceeded 50% by 2006 and increased further until the advent of the crisis ([Hungarian National Bank, 2017b](#)).

In the foreign capital market – according to the nature and volume of FDI – we have to differentiate two stages within this period, before and after the EU accession of Hungary in 2004.

New features in the FDI components appeared between 1998 and 2004. The balance of equities includes Greenfield investments as a new element from 1998 onwards (its fall in 2002 was temporary and a delayed reaction to the international context). The balance of other capital (proprietors' loan) movements became volatile in the short-term but it had no long-term effect on the volume of FDI. Foreign firms could not enjoy the advantages of debt financing stemming from tax savings in Hungary, because most of them did not pay any corporate taxes already, as since the beginning of the '90s, foreign companies were entitled to special tax advantages<sup>2</sup>. The amount of reinvestment became significant after 1997. Foreign companies became profitable by the end of the 1990s, and the realized profits could be reinvested after 2000. Between 2001 and 2003, reinvested incomes started increasing, reaching EUR 2 billion by 2003. In parallel with this, profit repatriation also started.

In 2003, the per capita FDI stock in Hungary was the largest in the Eastern Central European region, at USD 3,533.3 / capita ([UNCTAD, 2004](#)).

The accession to EU on 1<sup>st</sup> May 2004 did not generate further tasks for multinational companies, because they had already prepared theretofore it. EU integration did not affect the economical operation of their places of business either. The enlargement resulted in Hungary becoming a regional center for many companies due to their access to markets to the East and the volume of FDI increased directly after the accession.

In Greenfield investments (equity capital), growing and decreasing trends were observable in parallel. This intensive fluctuation in equity was due to the structural change in FDI inflow. Investors preferred new sectors and they extracted the capital from the old ones (e.g. the real estate sector). Another important phenomenon is the rate of profit repatriation. The volume of dividends doubled and in some years even tripled the value of previous periods. The amount of reinvested earnings remained at the same level. It means that profitable Hungarian subsidiaries allowed owners to extract more and more money from their Hungarian investments. The structural change in FDI targets caused an FDI inflow in a growing proportion of Greenfield investments, while the rate of investment in existing firms was flat.

The stock of FDI increased from EUR 45.134 billion to EUR 62.454 billion over this period. Despite this positive trend, Hungary – after EU accession – lost its leading position in CEE concerning FDI stock per capita. Hungary was the third most attractive economy in CEE, but it could still overtake some emerging countries from Southern Europe as well.

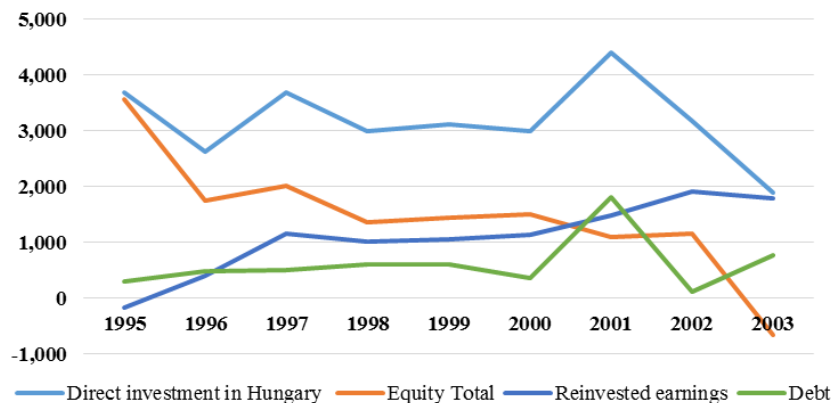


Figure no. 3 – Components of Direct Investment in Hungary 1995-2003 (Euro million)

Source: *Hungarian National Bank (2017a)*

#### Period after 2008

In the last quarter of 2008, the global financial crisis also reached the Hungarian banking system. From 2007 the increasing transaction costs of financing showed the impacts of the global financial crisis, and these were also visible in the difficulties of obtaining long-term credit. The liquidity crisis hit hard in October 2008, and the next phase is characterized by deepening credit risk problems.

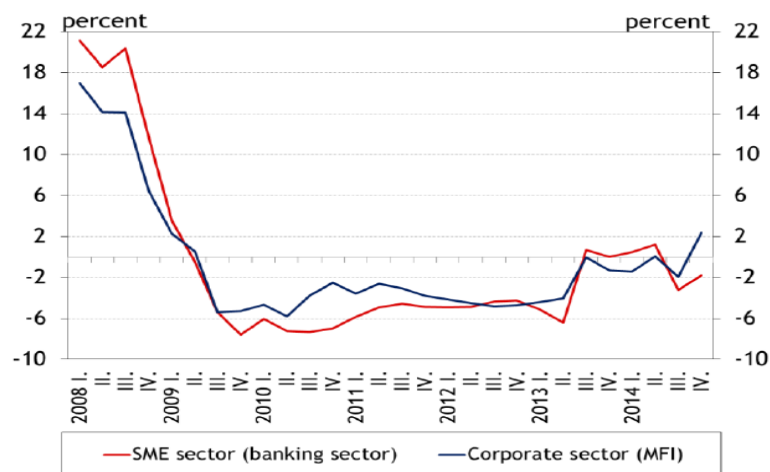


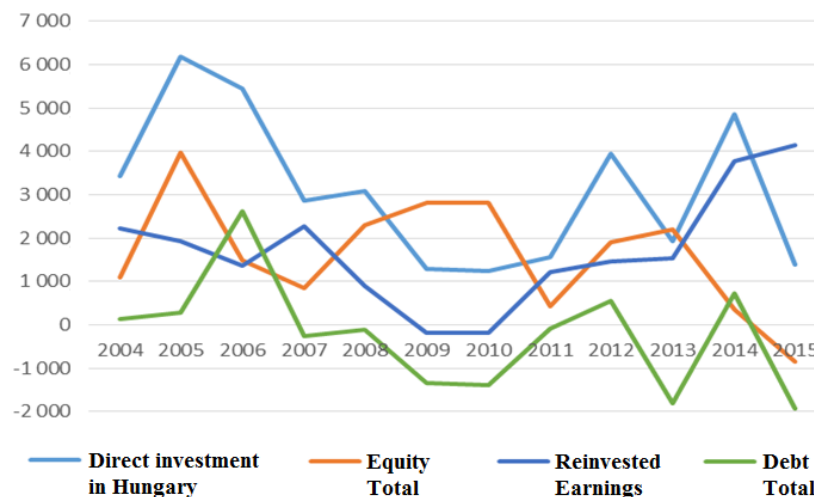
Figure no. 4 – Annual growth rate of lending to SMEs and the entire corporate sector

Source: *Hungarian National Bank (2015)*

From the last quarter of 2008, the quarterly change in the domestic credit portfolio of companies has constantly been negative. This is particularly true for long-term credit, but it also applies to short term financing. The decrease in long term loans is mainly explained by the lack of investments by the companies. The Central Bank of Hungary (MNB) launched a new programme, called the Funding for Growth Scheme (FGS) in April 2013 in order to

stimulate corporate lending in Hungary. The Scheme aimed to support small and medium-sized enterprises in accessing especially forint-denominated loans and to strengthen financial stability. The decline in corporate lending has stopped due to the FGS, but it is still far from an equilibrium level that is in line with the sustainable growth of the real economy.

The financial crisis fundamentally impacted FDI inflow to Hungary. FDI went down by 60% in 2009 (Hungarian National Bank, 2017a). This decline was 10% worse than the average of the countries which joined the European Union in the 2004 accession round (Pricewaterhouse Coopers, 2010).



**Figure no. 5 – Components of direct investment in Hungary, net flows, excluding capital in transit and restructuring of asset portfolios (Euro million) 2004-2013**

*Source: Hungarian National Bank (2017a)*

However, in 2009 and 2010 Hungary performed somewhat better than its competitors in the region, but the volume of FDI inflow still lagged considerably behind the years preceding the crisis. After 2010, in absolute value, the trends suggested the regeneration of the capital market; however, the real economic impacts of the FDI inflow were not reflected in growing corporate investments or an increasing GDP. The explanation was that new transactions tended to take place at normal companies (not in special purpose entities<sup>3</sup>). These flows were of so-called capital in transit or were transactions related to the restructuring of multinational companies' asset portfolios. These transactions within international corporate groups pass through the economy without having an impact on it.

After 2012, new equity and reinvested revenue showed opposite movements, but altogether were in compliance with the average of the previous years. The balance of other capital movements, i.e. (short term) loans granted to affiliates increased and decreased when affiliates get money from and pay back the loan to their parent company. On the whole the volume of total FDI inflow was volatile in recent years due other capital.

This volatile other capital can be explained by the response to the special taxes which Hungarian government levied after 2010, which affected foreign owned companies the most<sup>4</sup>.

#### 4. METHOD, DATABASE

The study analyses the correlation of Hungarian firms' investments with their capital structure, composition of internal funds and different types of debt during the period of 1996-2014 using a linear regression model. The regression model includes data from the top 5000 Hungarian firms according to revenues and which operated over the whole period investigated.

The database of Hungarian enterprises was made by the Hungarian Statistical Office (KSH). The records contain all relevant information from the annual reports, e.g. balance sheets, profit and loss figures, etc., of individual firms between 1996 and 2014. All data were filtered and controlled according to the accounting laws and invalid data were excluded from the database.

In the regression model the dependent variable is the volume of investments which was approximated by the value of fixed assets. According to Hungarian accounting law – in accordance with international accounting principles – fixed assets should be calculated by their net book value, without depreciation. The minimum required amount of annual investment is depreciation. If the volume of investments doesn't reach the annual amount of depreciation then the firm didn't renew its fixed assets and didn't meet the fundamental demand for a corporate investment policy. If the value of fixed assets increases, it means a real development in its assets, more than a simple renewal of them. Consequently, any annual reduction or increase in the value of fixed assets reflects the actual investment policy of the firm. The value of fixed assets in subsequent years is the result of investment policy in previous years.

In order to measure the effects of the explanatory variables on the value of fixed assets in the following year and to avoid the endogeneity problem the explanatory variables lagged 1 year behind the dependent variable (see the regression function).

The independent variables reflect all possible sources of financing investments: internal sources (reinvested revenues/cash flow), equity (share capital) and loans given by parents or (local) banks (long and short term liabilities). Because of the limits of the database, it is not possible to differentiate between long-term and short-term parent's loans. I can however draw conclusions concerning this question but only indirectly.

The dependent variable and independent variables are normalised by the capital stock to control for the size effect.

The model also includes a control variable, which is the cost of debt modified by corporate income tax rate. The interest paid on loans reduces the base of corporate income tax, which means a possible tax saving for firms financed by debts. In other words, indebtedness might have influence on the cost of corporate value, and consequently might modify the financial choice of the firms.

In order to examine the effects of foreign ownership, the regression model was estimated on the basis of domestic and foreign firms separately as well. A firm was considered as a domestic enterprise when the foreign capital in the total capital was less than 51%, and as a foreign enterprise if the foreign capital in the total capital was equal to or more than 51%. The data concerning the proportion of foreign ownership in the firms' capital was lacking in 30% of all firms.

The model also investigated the impact of capital structure of the firms on their investments before and after the financial crisis in 2008.

It was not necessary to deflate the factors, because all dependent and independent variable was a rate composed by data from the same year.

In the regression model the following regression equation is estimated:

$$Iijt_{t+1}/TAijt_{t+1} = b_0 + b_1 ICijt/TAit + b_1 LLijt/TAit + b_2 SLijt/TAijt + b_3 ODit/TAijt + b_4 SCijt/TAijt + b_5 RLijt/TAit + b_6 CDijt + e_{it}$$

The definitions are as follows:

**Iijt<sub>t+1</sub>:** investment volume of firm j operating in sector i at time t+1, approximated by the fixed assets

**TAijt<sub>(t+1)</sub>:** capital stock of firm j operating in sector i at time t or t+1 defined by the value of total assets

**ICijt:** investment loans to firm j operating in sector i at time t,

**LLijt:** long term liabilities (beyond investment credits) of firm j operating in sector i at time t,

**SLijt:** short term liabilities of firm j operating in sector i at time t,

**ODijt:** owners' loan to firm j operating in sector i at time t,

**SCijt:** share capital of firm j operating in sector i at time t,

**RLijt:** source for reinvestments of firm j operating in sector i at time t, defined as the sum of depreciation and difference between total equity and share capital

**CDit:** cost of debt of firm j operating in sector i at time t, defined by the ratio between paid interest multiplied by (1 – corporate income tax rate<sup>5</sup>) and total liabilities

Table no. 2 –Descriptive statistics of the variables

	N*	Minimum	Maximum	Mean	Std. Deviation	Variance
Iijt/TAijt	15,368	.00	.99	.3897	.24339	.059
ICijt/TAijt	10,643	.00	.93	.0290	.06945	.005
LLijt/TAijt	10,589	.00	16.12	.0531	.26051	.068
SLijt/TAijt	15,367	.00	3.18	.4139	.24335	.059
ODijt/TAijt	11,552	.00	1.31	.0801	.14952	.022
SCLijt/TAijt	15,338	.00	2.71	.1747	.19695	.039
RLijt/TAijt	15,338	-16.34	6.36	.3272	.32245	.104
CDijt*(1-Tct)	13,596	.00	2.01	.0281	.05521	.003
Valid N (listwise)	8,763					

\*The number of firms is considered for 18 years

The aim of the regression model was to reveal the potential effect of different resources on investments of the top 5000 Hungarian firms according to revenues during the period of 1996-2014. In the framework of a microeconomic analysis, the model sought to verify or reject the following research hypotheses:

**H1:** The investment of firms depends on the increase of internal sources in all firms. The most important source of investments is reinvested earnings.

**H2:** The volume of investment doesn't depend on the indebtedness of Hungarian domestic firms but it did among foreign firms.

**H3:** After the financial crisis, the effect of capital structure on investments changes in all firms.

## 5. RESULTS OF THE REGRESSION MODEL

The adjusted R square of all regression models is between .312 and .523 which means a weak or acceptable explanatory power depending on the examined period. According to ANOVA tables of all models,  $p < .01$  which means that there is a connection between the dependent and independent variables. The robustness of the explanatory variables, and the

whole model in the sampled period was appropriate. No dependent variable was excluded from any regression models; all variables were entered.

The correlation between the dependent and all independent variables is statistically significant at the 1% or 5% level after t-test in most regression models, except for some explanatory factors (share capital, reinvestment, cost of debt) of domestic firms in the whole period and after 2008 concerning foreign firms.

The robustness of share capital and reinvested cash flow was not significant for domestic firms until 2007. This fact shows that this financing opportunity either did not have a significant impact on the financial choices of these companies, or internal resources were not sufficient for financing investments of domestic firms. As an alternative source, bank (investment) loans were available for these domestic companies to receive the necessary financing. After 2008, from the beginning of the financial crisis and recession, the main sources of the investment in this group became equity and cash flow. In parallel with it, the explanatory power of long-term investment loans and liabilities also increased, which proves that the growing significance of internal funds was not the consequence of a lack of sources for bank corporate financing. It reflects the validity of the pecking order theory, the preference for internal sources, especially during a recession.

**Table no. 3 – Coefficients 1996-2014 for domestic firms**

Model Domestic Iijt+1/TAijt 1996-2014		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.519	.126		4.121	.000
	ICit/TAit	.804	.150	.231	5.343	.000
	LLit/TAit	.398	.133	.203	2.984	.003
	SLit/TAit	-.416	.130	-.414	-3.202	.001
	ODit/TAit	-.351	.085	-.117	-4.139	.000
	SCLit/TAit	.231	.127	.233	1.820	.069
	RLit/TAit	.121	.126	.136	.955	.340
	CDit*(1-Tct)	-.121	.085	-.038	-1.418	.157
R <sup>2</sup>		.494				
Adjusted R <sup>2</sup>		.489				
F value		97.636				
Degrees of freedom		7				

**Table no. 4 – Coefficients 1996-2014 for foreign firms**

Model Foreign Iijt+1/TAijt 1996-2014		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.379	.026		14.666	.000
	ICit/TAit	.903	.046	.295	19.832	.000
	LLit/TAit	.332	.035	.165	9.488	.000
	SLit/TAit	-.292	.028	-.295	-10.372	.000
	ODit/TAit	.066	.021	.044	3.162	.002
	SCLit/TAit	.242	.028	.202	8.508	.000
	RLit/TAit	.065	.026	.071	2.472	.013
	CDit*(1-Tct)	.479	.053	.122	9.110	.000
R <sup>2</sup>		.343				
Adjusted R <sup>2</sup>		.342				
F value		293.596				
Degrees of freedom		7				

Table no. 5 – Coefficients 1996-2014 for all firms

Model All Iijt+1/TAijt 1996-2014		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.462	.020		22.593	.000
	ICit/TAit	.867	.035	.241	24.460	.000
	LLit/TAit	.110	.022	.118	5.045	.000
	SLit/TAit	-.395	.022	-.393	-18.244	.000
	ODit/TAit	.044	.017	.023	2.603	.009
	SCLit/TAit	.257	.022	.216	11.665	.000
	RLit/TAit	.060	.020	.087	2.928	.003
	CDit*(1-Tct)	.234	.035	.057	6.640	.000
R <sup>2</sup>		.371				
Adjusted R <sup>2</sup>		.371				
F value		738.982				
Degrees of freedom		7				

Table no. 6 – Coefficients 1996-2007 for domestic firms

Model Domestic Iijt+1/TAijt 1996-2007		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.743	.146		5.078	.000
	ICit/TAit	.580	.171	.168	3.403	.001
	<b>LLit/TAit</b>	<b>.187</b>	<b>.156</b>	<b>.089</b>	<b>1.199</b>	<b>.231</b>
	SLit/TAit	-.674	.151	-.676	-4.454	.000
	ODit/TAit	-.263	.108	-.076	-2.446	.015
	<b>SCLit/TAit</b>	<b>.002</b>	<b>.145</b>	<b>.002</b>	<b>.012</b>	<b>.991</b>
	<b>RLit/TAit</b>	<b>-.077</b>	<b>.146</b>	<b>-.085</b>	<b>-1.525</b>	<b>.600</b>
	<b>CDit*(1-Tct)</b>	<b>-.136</b>	<b>.086</b>	<b>-.047</b>	<b>-1.579</b>	<b>.115</b>
R <sup>2</sup>		.530				
Adjusted R <sup>2</sup>		.523				
F value		85.215				
Degrees of freedom		7				

Table no. 7 – Coefficients 1996-2007 for foreign firms

Model Foreign Iijt+1/TAijt 2008-2014		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.418	.058		7.147	.000
	ICit/TAit	.999	.123	.315	8.130	.000
	LLit/TAit	.358	.075	.234	4.750	.000
	SLit/TAit	-.202	.068	-.223	-2.978	.003
	<b>ODit/TAit</b>	<b>-.075</b>	<b>.055</b>	<b>-.056</b>	<b>-1.351</b>	<b>.177</b>
	<b>SCLit/TAit</b>	<b>.145</b>	<b>.083</b>	<b>.079</b>	<b>1.738</b>	<b>.083</b>
	<b>RLit/TAit</b>	<b>-.034</b>	<b>.062</b>	<b>-.039</b>	<b>-.546</b>	<b>.586</b>
	CDit*(1-Tct)	.481	.132	.137	3.632	.000
R <sup>2</sup>		.322				
Adjusted R <sup>2</sup>		.312				
F value		32.007				
Degrees of freedom		7				

Table no. 8 – Coefficients 1996-2007 for all firms

Model All Iijt+1/TAijt 2008-2014		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.496	.046		10.830	.000
	ICit/TAit	.872	.086	.241	10.131	.000
	LLit/TAit	.308	.057	.179	5.398	.000
	SLit/TAit	-.351	.049	-.354	-7.088	.000
	ODit/TAit	-.088	.040	-.053	-2.194	.028
	SCLit/TAit	.318	.057	.199	5.593	.000
	<b>RIit/TAit</b>	<b>-.056</b>	<b>.046</b>	<b>-.063</b>	<b>-1.204</b>	<b>.229</b>
	CDit*(1-Tct)	.506	.112	.101	4.536	.000
R <sup>2</sup>		.349				
Adjusted R <sup>2</sup>		.346				
F value		106.369				
Degrees of freedom		7				

The tendency was just the opposite concerning foreign owned companies. Between 1996 and 2007, internal resources played as an important role in long-term financing as loans or credit. After 2008 the correlation of equity with the dependent variable was insignificant and it became negative concerning reinvestments. The decreasing effect of reinvestments can also be observed in the trend of this component of FDI from 2008 (see [Figure no. 5](#)). As was detailed in the literature summary, in countries with high (political and economic) risk, foreign companies have a greater preference for local sources than international sources of financing ([Hooper, 2004](#); [Kesternich and Schnitzer, 2010](#)). We can explain this risk in Hungary as the general consequence of the financial crisis but it was also due to the above mentioned special taxes which Hungarian government levied which affected foreign-owned companies the most.

Concerning all firms, the explanatory power of share capital is just as important as the role of investment loans prior to the financial crisis. After 2008 this effect reduced, but remained positive and significant. The correlation between reinvestments and the volume of investment was lower and became negative and insignificant after 2008 as the consequence of the recession.

The regression evidently does not confirm the 1<sup>st</sup> hypothesis (H1).

The effect of long-term investment loans (and long-term liabilities) was positive, significant and relevant to investments concerning all firms in all periods. The explanatory power of it was not conclusive, but it was the highest one among all variables in the regressions (beta >= .24). This result proves that credit availability was appropriate for top 5000 Hungarian firms according to the revenues. According to the study of [Katona \(2014\)](#), bank loans were not properly available for all companies in Hungary including small and medium firms. In the case of foreign firms, the correlation between investments and long term investment credits was almost twice as higher as it was for domestic firms before 2008. After 2008, both domestic and foreign firms increased their indebtedness. This result suggests that the level of the financial system and legal protection for debts meet the requirements of all investors in Hungary ([Marin and Schnitzer, 2011](#)).

The owners' contribution to financing investments was negative in domestic firms in all investigated periods. It reflects that owners' loans were only used in difficult financial situations of domestic firms when their investment prospects were not favorable. In foreign

firms the effect of owners' loans was irrelevant before 2007 and was negative and insignificant after 2008. In accordance with the analysis of the volatile trend of other capital – as the component of FDI – it was not parents' short-term loans but long-term bank lending that was relevant in financing the investments of foreign firms. Theoretically MNCs have more opportunities to choose global financing networks to finance investments than domestic firms, but in Hungary they didn't opt for it. First we have to point out that foreign firms couldn't enjoy the advantages of parent company loans from tax savings during the major part of the investigated period as was detailed in second section. Beyond this fact, the relating literature supplies other possible explanations of the insignificance of owners' loans after 2008. A foreign investor will reduce the proportion of its own contribution (equity or parents' loan) to capital structure and will finance the firm's investments using local bank loans if the economic/political risk of the (host) country is increasing for them (Kesternich and Schnitzer, 2010) or if they meet repayment and/or effort problems (Marin and Schnitzer, 2011). This way they can maximize their financial leverage and minimize the owners' risk. The effects of the financial crisis and after 2010 as previously detailed, special taxes particularly unfavorable to foreign firms can be considered as an economic risk and/or a managerial problem as well.

These results verify the higher relevance of debts in foreign firms, but don't confirm the assumption of its irrelevance with regard to domestic firms (2<sup>nd</sup> hypothesis, or H2).

The role of short term liabilities in investments was negative or insignificant for all firms and in all periods. The possible explanation of the negative signal is that high volume of short liabilities may reflect worse liquidity and operating finance, which may block the investments and growth of the company.

The correlation between cost of debt and investments was insignificant and negative for domestic companies before 2008, but it was significant and positive after 2008 and was so for foreign firms in all periods. The reason of it may root in the profitability of the firms. When ROE (return of equity) exceeds the interest rate of loans, the cost of debt doesn't modify the financial choice of the firm.

The model verified the 3<sup>rd</sup> hypothesis (H3): after the financial crisis, the effect of capital structure on investments changed in all firms.

## 6. CONCLUSIONS

This study aimed to outline what kind of financing strategy characterized Hungarian companies in the last two decades, and whether internal resources, credit supply or foreign capital was the primary source of financing the corporate investments and growth in Hungary. The paper examined the correlation between the capital structure and investments of top 5,000 Hungarian firms according to revenues in a linear regression model. The results of the model can be summarized as follows:

- The role of loans among the financing sources of top 5,000 Hungarian firms according to revenues was significant and positive in the whole examined period. Long-term loans were dominant in financing investments in domestic and foreign firms as well. It had the strongest positive explanatory power among the variables in the regression model, regardless of the ownership of the firm.
- In the first part of the period in question, the rate of indebtedness of foreign companies was higher than that of Hungarian companies. After 2008 both domestic and foreign firms increased their indebtedness. The rate of indebtedness of foreign companies

was mainly attributable to local bank loans and not loans granted by mother companies, which are part of the FDI volume. It means foreign owned firms preferred local bank credits in their financial choices in Hungary.

- The importance of internal resources diverged according to its types. The effect of share capital concerning all firms is of equal importance as the role of investment loans before the financial crisis. After 2008 this effect reduced, but remained positive and significant. The correlation between reinvestments and the volume of investment was lower and became negative and insignificant after 2008 as the consequence of the recession.
- The financial crisis resulted in an essential change in capital structure and its effect on investments of the firms in Hungary regardless of their ownership after 2008.

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## Notes

<sup>1</sup> Foreign direct investment contains three components in balance of payments statistics:

- Equity: an increase or decrease in the registered capital and capital reserve of any company established by a foreign investor in host country, and the acquisition of an ownership stake of or the sale of a resident company by a foreign investor are accounted as the turnover of shares or other shares and participations.
- Reinvested revenues connected to FDIs also have to be included in the balance of payments statistics. If profit repatriation starts, it will decrease the volume of foreign direct investment in host economy.
- Other capital: capital movements connected to debt instruments (ownership credits) should also be accounted for as an FDI, and they are not necessarily a long-term source of financing for an enterprise, such as short-term loans granted as part of daily financial settlements within the corporate group.

<sup>2</sup> Companies with at least 30% of foreign contribution (the volume of the investment had to be over 50,000,000 HUF, about 500,000 USD) could reduce their tax liability by 60% in the first 5 years of their operations and by 40% in the next 5 years. This system was repealed in 1993. However the next year the government introduced for ten years an exemption from the corporate tax for reinvestments exceeding 500 million HUF in Hungary. Since 1998, the investors who invest at least 10 billion HUF in less developed areas are eligible for a 10-year-long tax holiday if the investor creates 500 new jobs and the turnover grows annually by at least 5%. These incentives were available until 2011.

<sup>3</sup> Special purpose entity is a legal entity (usually a limited company or a limited partnership) created to fulfill narrow, specific or temporary objectives. SPEs are typically used by companies to isolate the firm from financial risk. They are also commonly used to hide debt (inflating profits), hide ownership, and obscure relationships between different entities which are in fact related to each other.

<sup>4</sup> To balance the budget the Hungarian government implemented crisis taxes. These special taxes are levied on financial and insurance service providers, on telecommunication companies, on energy suppliers, retail companies and on advertising activity. Such taxes are payable based on the commission revenue of financial service providers, the balance sheet total of credit institutions, certain insurance premiums paid to insurance companies, the turnover of energy suppliers and the revenue generated from advertising activity. Additionally, the telecommunication companies and energy suppliers are also subject to public utility tax which tax is imposed on the owner of the public utility lines. The basis of the tax is the length of the utility lines. As a novel form of collecting the crisis tax on the retail sector, the rules applicable to the local business tax have changed: only a part of the cost of goods sold can be deducted from the tax base. Essentially, retail chains and energy suppliers are subject to a substantially higher local business tax.

<sup>5</sup> Hungary set a corporate tax rate that was extraordinarily low not only in comparison to the EU average (30-35%) but compared to the tax rates of other Central and Eastern European countries as well. After the initial 40% in the beginning of '90s, Hungary's corporate tax rate was reduced dramatically from 36 to 18 per cent in 1995. This rate was the lowest in the region in the late nineties. From 2004 business only paid a 16% tax on their profits. In 2006 this tax rate became progressive; under 5 million HUF (50 million HUF from 2008) revenue it decreased to 10%, but 5 million HUF plus it remains 16%. This system remained until 2010, when the upper rate increased to 19%. In the model I used the upper rate, because the database contains the firms with highest revenue.

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