Relevance of Capital Structure Theories in the Service Sector

JUDIT SZEMÁN, Ph.D.
ASSOCIATE PROFESSOR

UNIVERSITY OF MISKOLC
e-mail: pzszeman@uni-miskolc.hu

SUMMARY

The aim of this study is to examine the relevance of capital structure theories in the Hungarian service sector between 2008 and 2014. The service sector stands in the centre of research, as the role of this sector is becoming more and more important. Whereas the importance of other sectors has decreased in the previous years and decades, the role of services shows an increasing trend in developed societies. The paper focuses on three factors. Firstly, I examine whether the classical theory is relevant, in which there is a negative linkage between profitability and capital leverage. Secondly, I examine the linkage between liquidity and capital leverage. Finally, I examine the principle of maturity matching, namely if firms in the service sector keep the golden rule to finance their non-current assets from non-current liabilities and equity.

Keywords: corporate capital structure, services, Hungary
Journal of Economic Literature (JEL) code: G32
DOI: http://dx.doi.org/10.18096/TMP.2017.01.05

INTRODUCTION

The corporate capital structure means, in the classical sense, the ratio between the non-current liabilities and equity, which is voluntarily created and modified by the corporates. To acquire new financing sources, the company can issue new shares, which increases the equity base, or can take out a non-current loan and/or issue bonds, which raises the share of non-current liabilities. The main questions of theoretical and empirical researches related to the capital structure are the following:

1) Is there any optimal ratio between the two types of financing sources by which the value of the company can be maximised?
2) What kind of aspects should be considered by corporate managers when they make decisions on the way of financing an investment?
3) What is the correct requisition order of financing opportunities?

No consensus has been reached related to these questions, either in theory or in empirical studies. My study examines these issues after introducing the related theories.

LITERATURE REVIEW

Agency Theory in Corporate Finance

Generally, the financing markets do not operate perfectly efficiently, nor do they operate cost-free. Jensen and Meckling were the first to dealt with the theory based on agency cost (Jensen & Meckling 1976). The capital structure theory based on agency cost developed by them is based on the incomplete contract and information asymmetry.

The principal-agent relationship is established among people or groups when the principals delegate their ownership or other interests to an agent or a group of people working as an agent (Williamson 1988). The principal delegates his/her right to an agent if he/she judges that he/she is unable or does not wish to represent his/her interest independently due to the lack of knowledge, time or other resources.

The principal-agent theory assumes that the partners maximise their utilities in the principal-agent relationship, they behave in a rational and opportunistic manner and the maximisation of their own benefit is not inhibited by any harm of the partner's interest.

The agent theory explains the capital structure of corporations where the management and the ownership are

separated. The informational problem of agency theory is based on the fact that any economic actor has extra information, but it is probable, that in the future one of them will have extra information. He/she is called the agent, whereas the other partner, the principal, is the one who wants to ensure in a contract that the agent should act in his/her interest. If there is a deterministic linkage between the operation of the agent and the result of the operation, no problem arises. The problem occurs if the linkage is stochastic. If the compensation of the agent is exclusively the function of the output, the agent bears risk from the stochastic linkage. If the compensation is independent from the output, the agent is not encouraged to follow the principal's interest.

A further risk for the principal is that the agent – since he/she serves other's interests – tends to bear excessive risk, since he/she shares in the potential high return, but in case of loss only the principal's interest and wealth are damaged (moral hazard). The root of the problem is that the interests of the principal and the agent differ, and they try to solve this problem by making a proper contract. The manager is generally interested in the value increase of the organisation, while the shareholders are interested in the share price increase.

a) The conflict between managers and shareholders

In this case, the shareholders are the principals and the company management is the agent. The aim of shareholders is to persuade the company management to make decisions that maximise the value of the company. The problem is that the principals do not have accurate information about the investment opportunities of the firm, and the value of the company does not depend solely on the efforts of the management. In the theory, if the management discloses some actions, it bears the total cost, but it shares in the profit only through its ownership share (Mikolasek and Sulyok-Pap 1996). Generally, the management strives to overinvest. Even the management is not willing to liquidate the company if its net asset value is larger than the market price of the company.

In the representatives of the theory the increase of leverage is a satisfactory solution in these circumstances, since it decreases the free cash-flow spending on investments, and makes liquidation easier to enforce (Jensen & Meckling 1976).

Conflicts during the company operation between the personal goals of the management and the wealth maximisation of the owners may relate to the following fields:

- management of assets/investment decisions
- financing issues
- dividend payment.

In investment decisions, the basic appearance of the interest conflict is the difference of risk levels. The owner is interested in more risky projects, while the manager prefers the less risky investments, since the probability of default is lower. In financing decisions, the owner is interested in utilising the tax shield (higher debt level); the manager prefers to maintain liquidity and lower indebtedness to avoid bankruptcy. The conflict of interest between the owner and the manager in dividend payment comes from the fact that the interest of owner is to increase the value of sharess by receiving dividends; the manager strives to increase the retained earnings, which finance investments. Several options are available for the shareholders to encourage the management to consider the interest of the owners; the aim of the management is to maintain a balance between the shareholders' interests and the long-term interest of the company.

The following studies formulate and deduct findings related to the American capital market. Their aim was to make transparent the partners' interests.

Conflict of ownership-management interests in investment decisions:

1. The management undertakes investments only in a good liquidity position. If the liquidity of the company is fragile, then even investments with positive net present value are not realised. Research has discovered a positive linkage between the size of equity and the investments.
2. A special appearance of management's interest is the building of a corporate empire, increasing of the company size by takeovers. The mergers and takeovers ensure greater influence for the management and higher return due to the economics of scale. The management carries out even the weaker projects (overinvestment).
3. If the company has relatively high debt, the management is encouraged to seek new investment opportunities to increase the income generation of the company (the higher income and the bigger asset collateral make the debt service safer and the rating higher). By seeking the investment opportunities, the risk appetite is also increasing, so the conflict of interest between owner and management decreases.
4. If the company has internal liquidity, and this exceeds the value of investment opportunities, the management repays the liabilities and equity (loan repayment, repurchase of shares, dividend payment), which decreases the conflict of interest. (Ross et al. 1996; Harris & Raviv 1991; McConnel J.& Servaes H.1995).

Conflicts of interest between owner and management in financing decisions:

1. The owners often think that the corporate's leverage is too low, and the company does not utilise the tax shield of the loan. The rise of lending – in a favourable cash-flow position – may increase the income of the shareholders. In the USA, most of the companies have low leverage, and that is why their corporate tax commitments are significant, which supports the view that the management is too careful in lending, and avoids threats to the company's liquidity.
2. The external owners interpret signals in the lack of real internal performance indicators, and try to deduce from them the size of real corporate income. The lending is one of these signals; if the managers raise a loan, the

external owners deduct a good liquidity position, since the management (presumably having reliable information) undertakes the higher debt stock.

3. The management forms a multifactorial preference system in practice, in which the corporate specific factors have a significant role. So, the corporate asset features (significant tangible assets lead to high leverage, whereas significant intangible assets indicate equity finance), the uncertainty and fluctuation of operational profit, growing potential, financial independence, and the maintenance of flexibility determine the leverage (Ross et al., 1996)" (Szórádiné Szabó 2005).

What are the most important tools of owners' influence? One is to offer shares to managers, since the higher the share of the management in the company; the lower the "money-wasting" manner of management. In these situations, the manager prefers t investments that bear less risk. Another option is for the investors to introduce monitoring and control measures to decrease the agent costs. The monitoring follows the performance of the company and the management. Control mechanisms, legal norms and moral rules keep the management acting for the benefit of the owners. Monitoring means a general control framework and is part of the broad contract features by which the owner determines the acting scope of the management. Lending is an essential element, since it forces the company to pay cash, and limit the free cash flow available for the agent.[1]

b) The conflict between bondholders and shareholders

The conflict among bondholders and shareholders is rooted in asset substitution. Both the bond and the share have option characteristics; the share is simply a call option. The shareholders have got the opportunity to influence the parameters of the underlying assets. If the volatility of the underlying asset increases, then the option's value rises. The shareholders' interest is to increase the value of the equity, not the value of the whole company. For this reason, it can be imagined that the shareholders invest even if the net present value is negative, but the project has got substantial risk. The bondholders try to stand up against this, but they have got only two tools. These are:

1. They try to control the company to describe broader information services of the company. This makes the loan more expensive, because this means incremental costs for the company.
2. They interfere in the investment decisions; however, the management always has an advantage over the investors, since it is better informed and has a comparative advantage in company management.

The supporters of the theory draw the conclusion, that the asset substitution problem may decrease the leverage in case of some investors, but we should consider two important effects by determining the leverage.

1. Management reputation: The management is not always interested only in high return, but in the success of the company, which may counterbalance the effect of asset substitution. In the opinion of some researchers, the companies directed by management with a low reputation more often becomes the object of a takeover; that is the reason why the leverage in companies facing with hostile takeover is so low.
2. Corporate reputation: If the company is qualified as a reliable debtor by its credit record, then it can access loans at lower interest rates. Thus, a company with a good reputation benefits by maintaining its good credit record and this may decrease the asset substitution effect. (Mikolasek & Sulyok-Pap 1996).

The primary areas of bondholder-shareholder conflicts of interest are the following:

1. Investment decisions: The owners often try to solve problems stemming from a weak liquidity position and bankruptcy-close circumstances by starting new investments. However, the lenders try to avoid the risk and do not approve the new investments in these situations.
2. Financing decisions: The interest of lenders is good solvency, high liquidity and retaining the profit for the company.
3. Dividend policy: Considering the size of the dividend the lender's and the shareholder's interest differ in the short term, since the shareholder wants to receive income from the company, while the lender wants to retain the profit. A shareholder investing in the long run gives up his/her immediate income to increase the company's value and the share price by making investments with a positive net present value.

Further cases in the owner-lender's conflict of interest according to empirical research:

1. Owners of a company close to bankruptcy often want to make new investments to improve the profitability, but the risk of these actions is borne by the lenders.
2. If the lender judges that the corporate performance or the result of the investment is worse than could have been foreseen at the granting of the loan, the lower income decreases the value of the company (i.e. future cash inflow, the value of the assets). The risk of interest and principal repayment is increasing for the lenders, while the asset value as collateral becomes lower. The lender is likely to change the rating of the company, but the increasing interest rate and the additional collaterals decrease the cash income of the owner.

[1] *Lending does not always trigger the same control effect. If the company grows rapidly and has projects with high profit potential but its free-cash flow is limited, this method is less effective. However, if the company's growth potential is limited and has significant free-cash flow, the method could be very effective. (Jensen-Meckling 1976)*

3. The company raises a new loan, whose collateral is the available assets. The cost of loans is lower due to the good collateral. The new loan withdraws value from the lenders of the old assets. (If the new investment is not successful, the old assets cover the principal and interest payment of the new investment.)
4. The dividend payment and the share repurchase may be fields of conflict of interest. If the dividend payment significantly rises or some shares are repurchased due to the good liquidity position, this decreases the cash balance of the company, and the worse liquidity may lead to a worse rating (Ross et al. 1996)" (Szórádiné Szabó 2005).

What are the main tools of lender's influence? The appropriate tools exist in all the above-mentioned cases. All the tools should be included in the loan contract so that the best one can be applied in case of need.

Another valuable tool is the rating, which can select the potential insolvent debtor. The credit monitoring makes possible the ordinary control of the company and the modification of the loan contract if new circumstances emerge. However, these tools are available only in case of bank finance, while in case of bond finance the opportunities are limited.

Theories Based on Asymmetric Information

The main idea of these theories is that one of the economic actors has more information than the rest of the actors. However, the others observe this actor's actions, and try to deduce the missing information. Therefore, these theories are often called signalling theories.

In case of leverage we assume that the corporate manager has the incremental information and he/she can judge the credit rating of the managed corporate, whereas the investors do not have internal information. They are observing the "signals" of the management. A good company naturally strives to differentiate itself from bad ones, the question is only whether they can send believable signals to the investors. The introduced models examine how they can send good signals by modifying the leverage.

The two classical models introduced here have several versions.

Pecking order theory

One explanation of the pecking order theory is based on information asymmetry. The asymmetric information comes from the fact that the management precisely knows what the value of the company is and what the net present value of the ongoing investments is, whereas the investors do not know exactly this, because they have less information than the management. When the financing of a project should be decided, the management focuses on two things: the net present value of the project and the cost of finance. The project is worth financing from equity issue if the company's shares are overvalued (since their price is higher than their value). Overpricing occurs if the incremental information available to the management is unfavourable and the market overvalues the share. If the managers – based on favourable information – know that the market undervalues the company shares, then they make a loss by issuing new shares and they give up the investment with positive net present value (Frank Murry Z. & Goyal Vidhan D.2003).

The theory predicts that the management seeks a financing source whose value least depends on the discrepancy of information, and whose value moderately changes when the information become public. This source may be first an internal source (in case of risk-free debt neither underpricing nor overpricing occurs, but the corporate debt is not risk free), thereafter corporate debt, and finally shares, which directly depend on the company value.

The pecking order theory first occurred in Donaldson (1961), who stated based on a corporate sample that the management uses firstly internal sources to finance its projects, and last turns to share issue. Related articles are (Myers 1984), (Myers &Majluf 1984) and (Harris & Raviv 1991).

According to the (Myers &Majluf 1984) study, the management has excess information compared to the market actors; if the management finances the corporate investments from share issue, then the market actors deduct from this that the management considers the share price overvalued and the share price will fall due to this belief. Naturally, this does not serve the interest of the shareholders. Thus, managers try to avoid the share issue and choose an alternative way of financing not to undermine the share price.

Myers (2001) summarises the core of the theory in the following way:

- Corporations prefer internal finance.
- The targeted dividend ratio is justified to the investment opportunities, nevertheless the management cares of flatting the fluctuation of dividend payment.
- With a rigid dividend policy, the unforeseen fluctuation of profit and investment opportunities results in the free cash flow being sometimes higher, sometimes lower than the capital expenses. If the free cash flow is more, the company repays the debt or invests in marketable securities; if it is less, the company uses its reserves or sells its securities.
- If the company needs an external source of finance, the company issues the most secure paper first, issues corporate bonds (raises a loan), then issues a hybrid paper like a convertible bond. The higher the riskiness of the assets, the higher the probability of financial distress. If there is no further space to borrow, and the potential cost of financial distress is significant, then it supplies the additional financial needs from share issue.

In the pecking order theory, there is no optimal liability/equity ratio. There are two types of equity: external and internal. The external equity (share issue) stands at the bottom of the hierarchy, the internal equity (retained profit) is on the top of it. The size of liabilities

mirrors the cumulative needs for external sources. However, there is a threshold of the liabilities' size, and if the needs exceed this, the company issues shares.

The pecking order theory has got an alternative starting point, namely, if the companies want to minimise the transaction cost of financing. This viewpoint is neglected in the professional literature, but I find it important to express this idea, because I think that the minimising of transaction cost has explanatory power in fact. In this approach, the enterprises choose at first those financing sources whose transaction costs are smallest, and turn only to new sources if the former sources are exhausted. There is a strict hierarchy among the sources (Brealey & Myers, 1992). The order of the main financing sources in this theory is the following:

1. Internal sources
   - 1.1. Retained profit
   - 1.2. Depreciation
   - 1.3. Decrease in working capital
   - 1.4. Sale of fixed assets
2. External sources
   - 2.1. Liabilities
     - 2.1.1. Sources from the trading cycle
       - 2.1.1.1. Account payable, bill of exchange
       - 2.1.1.2. Tax- and labour cost commitments
     - 2.1.2. Indirect liabilities
       - 2.1.2.1. Bank loan, bill of exchange discounting
       - 2.1.2.2. Factoring
       - 2.1.2.3. Leasing
     - 2.1.3. Direct liabilities
       - 2.1.3.1. Bond issue
   - 2.2. Equity
     - 2.2.1. Share issue

Thus, the company orders its sources by their transaction costs and calls on the following sources if the former sources are exhausted (Brealey & Myers (1992)).

The financial manager firstly chooses between the internal and external sources. Internal sources are those incomes, which come from the operation of the company. The external sources are provided by an external entity.

Internal sources come from the company's realised net revenue and other incomes. If we deduct the payable cost and expenses from the realised, collected revenue, we receive the internal sources. By another approach the internal sources are the sum of the retained profit, the depreciation and the potential asset sale. Here firstly the cash inflow from decrease of claims, stocks and receivables should be considered as asset sale, secondary the income from real estate, equipment and vehicle sales.

1. The main advantage of internal sources is that their transaction cost is zero.
2. There is no return expectation determined by a contract – as opposed to a loan – so if business is bad, its financial position will not be worse.
3. Internal sources are eternal sources; they are not burdened by repayment obligation.

However, it is not true that internal sources are cheap sources. The internal source is the money of the shareholders, and shareholders require the return of equity. Some managers tend to forget this and, since they have no valuable investment opportunities, they accumulate an insufficient stock of cash and securities. These assets do not earn so high a return, meaning that return of total assets decreases, thus the return expectations of shareholdrs are also reduced. These companies could become takeover targets.[2] Considering this, here is good advice for the company managers:

1. If the company has got too many sources, and they cannot be reinvested with higher return than its Weighted Average Cost of Capital (WACC), then the company should pay back its loans or pay dividends to the owners. Money should be saved, if the investors can be convinced that the money is needed for future profitable investments. The success of this effort can be measured by the share prices.
2. If the share price doesn't increase, the company has not successfully communicated that future acquisitions require a high cash reserve; the company risks a hostile takeover.

The big problem with using internal sources is that their size is limited for a rapidly growing company.

In the pecking order theory, the company turns to external sources if its internal sources cannot meet the financing needs. The external sources can be split in two parts – liabilities and new equity. The liabilities should be paid back sooner or later. Their most typical type is the bank loan. Equity does not need to be paid back; it is available till the liquidation of the company. A typical example of new equity is a share issue.

It could be surprising, but in the pecking order theory, if the indebtedness of the company is not high, liabilities are preferred against equity. The arguments of the pecking order theory in favour of liabilities are the following:

1. Dilution effect – This is the viewpoint of owners. If they issue new shares, the share of existing shareholders will decline. By decreasing ownership share their influence over management also declines, and so does their share in dividend income.
2. The owners' return expectation is always bigger than that of the creditors, because the owners bear higher risk. That is why the company can get a larger amount of loan than equity for a given amount of return. The equity risk is bigger for three reasons:
   a. The yield of a loan is fixed in a contract, while the yield of equity depends on the future performance of the company.
   b. The principal of a loan will be paid back sometime in the future. The equity invested in an enterprise can be withdrawn only after the liquidation of the company. The equity share can be sold earlier to another investor, but the big question here is the price.

[2] *We can find examples of the above phenomena in the Hungarian economy realised by leverage buyout.*

c. During a liquidation process the creditors are advanced against the owners. After satisfying the creditors the owners very often receive nothing.

3. Convincing new potential owners to buy shares requires much more money and energy and the process takes much more time due to the higher perceived risk. Consequently, the transaction cost of equity is much larger than the transaction cost of liabilities.

Loan ratio as the signal of the company's future opportunities

Loan ratio is the second classical model based on asymmetric information. This examines how the leverage can forecast the company's future market position.

(Ross 1996) can be considered as a pioneer achievement. It supposes two types of companies:

- Company type A has got high leverage and excellent asset quality
- Company type B has got low leverage and worse asset quality

The companies plan to carry out several projects with positive net present value. If a company seems to be an A type due to its leverage, it can raise loans up to the Gros Present Value (GPV) of its new project, unless it goes bankrupt. The same is true in case of a B-type company. This ensures the equilibrium circumstances, supposing that neither of the companies wants to send incorrect signals. If a company A showed itself as being of B type, then it would raise a limited amount of loan, but this will not be enough to accomplish all its projects. But if a type-B company showed itself as an A type, and raises more loans, it would go bankrupt. Ross assumes that the managers have no got share in the companies. Ross deducts three important consequences:

- The Modigliani&Miller irrelevance theory (Modigliani & Miller 1958) repeats, in that the cost of equity is independent from the financing decision regardless the companies' leverage.
- The probability of bankruptcy increases with increasing leverage.
- There is a positive correlation between the value of the company and the leverage: the firms with high ratings raise more loans.

Herd mentality – Static financial leverage management

Companies follow other companies when determining their leverage. For example, a pharmaceutical company chooses low leverage, similarly to the other pharmaceutical companies. This assumption is justified by empirical studies. A company of a given industry does not differ significantly from the industry average. If we see what the major factors are that determine the leverage, then the most influential factor is the sector of the company.

It is important to note that it could be dangerous to imitate the financing behaviour of fellow company if there are big differences in the industry in point of growing opportunities and risks. Then there are big differences in leverage, too. Secondly, if the given industry is going through transformation, the leverage should be changed, too.

We should also note that the stock exchange rewards the herding behaviour, so the ordinary invertor appreciates those investment targets whose leverage is close to average. If the investor is risk averse, he/she appreciates investment opportunities that do not consist of any abnormalities (Jaksity 2004).

INTRODUCTION OF THE CORPORATE DATABASE

The empirical research is based on a database containing the annual balance sheets and income statement figures of the 5,000 largest Hungarian companies by their net sales between 2008 and 2014. Aggregated sector data are available; the database does not contain individual data. The sectorial identification of company clusters has been made by TEÁOR 08 codes[3]. The company data of the service sector were analysed from the database. I have chosen this sector because its weight and role show an increasing trend in current society, while the weights of the other sectors (agriculture, industry) have decreased in the previous years and decades. This paper examines the corporate structure influencing factors of the nine service sectors given in Table 1.

Table 1
The distribution of the examined database by service sectors

Service subsector	Proportion in database (%)
Freight, warehousing, post, telecommunication	27.6
Accommodation, hospitality	5.7
Amusing, cultural and sport services	5.2
IT services	8.5
Financial services	12.1
Real estate services and estate rent	12.6
Services supporting economic activities	16.3
Education, research	2.9
Other services	9.2
Total	**100.0**

Source: Own calculation

[3] *TEÁOR is the business sector classification system used in Hungary.*

The weights were determined by the number of companies. As we can see, the category of Freight, warehousing, post, telecommunication has the highest ratio. The areas of Economic services (including legal, accounting, tax advising, HR and administrative services), Real estate services and estate rent and Financial services also make up substantial parts of the database.

HYPOTHESES OF RESEARCH

The paper of Katits &Szemán (2017) can be considered as the antecedent of my research. The authors prepared an analysis of the capital structure of Hungarian corporate sector between 1993 and 2014. The paper stated that the Hungarian enterprises generally increased their leverage in booming period and decreased in recession. Furthermore, the paper found a negative linkage between the profitability and the leverage of the economic sectors. The Hungarian enterprises tried to keep the maturity matching. This work continues to focus on the service sector because of its importance, focusing on the period between 2008 and 2014. I kept in mind that the results of examined hypotheses should be focused from the breaking out of the economic crisis to the latest available data.

Profitability – Test of Pecking Order and Trade-Off Theory

Hypothesis 1: There is negative relationship between the profitability and capital leverage of service subsectors, so if the given subsector is more profitable than the average, its capital leverage is less; if, however, its profitability is lower than the average, it is forced to borrow more money.

I assume the relevance of the *Pecking Order Theory*, which explains the fact that most empirical studies have detected a negative correlation between these two factors (e.g., Booth et al. 2001; Szemán 2008). Sufficient internal sources are available for profitable companies, so the capital leverage is lower, since the request for external sources is lower.

The *Trade-Off Theory* states that the higher the profitability of the company, the higher its tax shield potential, so this corporation will raise its leverage. Since there are no available individual company data, only aggregate sectorial data, only the service subsectors can be compared with each other.

Relationship between the liquidity and the capital leverage – Test of Pecking Order and Agent Theory

Hypothesis 2: The better the liquidity of the service subsector, the lower its capital leverage.

There are several scientific views relating to the liquidity in the theories of capital structure. The *Pecking Order Theory* – which is supported by several empirical studies – states that the companies with high liquid asset stock finance their investments from mobilising their liquid assets, and neither borrow nor raise capital. Some researchers argue that only companies whose current ratio is high have a good chance to borrow money, since they can repay their liabilities to the bank.

The *Agent Theory* also deals with the issue of liquid assets, arguing that borrowing forces the company to make continuous interest and principal payments, so it can help to control the managers (agents). From this reasoning, the aim is to decrease the level of liquid assets and increase the capital leverage.

I have chosen my hypothesis from the *Pecking Order Theory*, because its view is closer to the Hungarian historical tradition and mentality, companies could turn to loans provided by banks, if they could not realise their aims due to their limited liquidity.

Examination of maturity matching

Hypothesis 3: Hungarian service sector companies keep the principle of maturity matching, namely they finance their current assets from current liabilities and their non-current assets from equity and non-current liabilities.

Maturity matching means that the company strives to match the maturity of its liabilities and the used time of their assets. To create a financing strategy, it is important to consider the basic rule that the non-current investments should be financed from equity and non-current liabilities (loans, bonds), while the financing of current assets is made from current liabilities. In frame of investigating this hypothesis I examine whether the Hungarian service companies keep this rule. Earlier empirical research proved the relevance of maturity matching (Szemán 2008).

EXAMINED VARIABLES

In this part, I present the applied indicators (dependent and independent variables) of my hypothesis tests. Naturally I know that the capital leverage as a dependent variable is determined by the company management, and its decision is substantially influenced by the current state of the company, which is reflected in the various financial indicators. Consequently, the independent variables and the dependent variable should have some degree of connection, and my aim is to detect how they connect.

Indicator of capital leverage (dependent variable):

One of the dependent variables is the ratio between total liabilities and equity:

- *Capital Leverage: Total Liabilities/Total Equity*. This ratio contains not only the non-current but also the current liabilities. It measures the general indebtedness of the company and shows what percentage of liabilities is covered by the equity capital.

As the classical capital structure means the ratio between equity and the non-current liabilities, most empirical research uses the non-current liabilities in the dependent variable (e.g. Baloghné Balla 2006). So, one of the capital leverage indicators used here is the following:

- *Capital Leverage2: Non-current liabilities/Total assets*. This is one of the "classic" indicators of capital structure. Its nominator contains only the non-current

liabilities, while the denominator is the total assets. It shows the share of non-current liabilities within the total sources of the company and reflects the solvency of the company and its access to credit.

The variables of influencing factors (independent variables):

- *Profitability:* Return on Assets (ROA) = Earnings Before Interests and Taxes (EBIT) / Total Assets
- *Liquidity:* Current Assets / Current Liabilities
- *Maturity matching:* Fixed assets / (Total Equity + Non-Current Liabilities)

The examination among variables was made with SPSS 22.0. Considering the limited number of observations, scatter plot charts were made and regression lines were fitted in them.

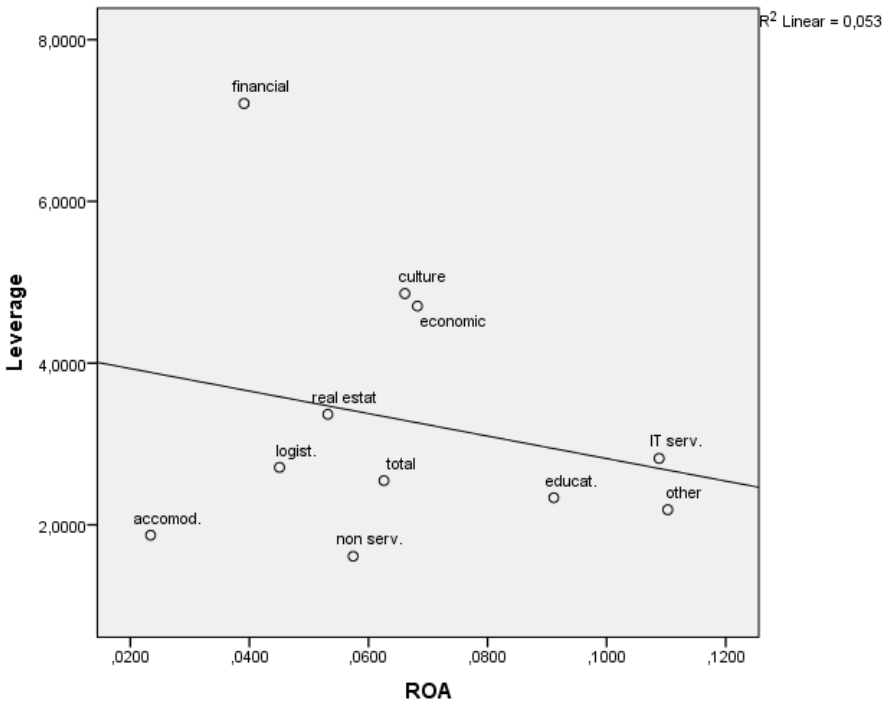
RESULTS

Hypothesis 1: There is negative relationship between the profitability and capital leverage of service subsectors, so if the given subsector is more profitable than the average, its capital leverage is less, if however, its profitability is lower than the average, it is forced to borrow more loan.

This hypothesis examines the linkage between profitability and capital structure. To test this hypothesis the following indicators were used:

- *Profitability indicator: ROA= EBIT/Total assets*
- *Capital Leverage = Total liabilities/Total equity.*
- *Capital Leverage 2 (Leverage2) = Non-current liabilities/Total assets*

The EBIT as profit category was chosen instead of net income because the amount of EBIT is neutral to the financing structure, namely the interest expense decreases the net income, but leaves the EBIT untouched. However, the larger the EBIT is, the bigger is the net income ceteris paribus (Bozsik 2017). Figure 1 shows the linkage between ROA and Capital Leverage:



Source: own calculation based on TOP5000 data

Figure 1. -Linkage between ROA and Capital Leverage

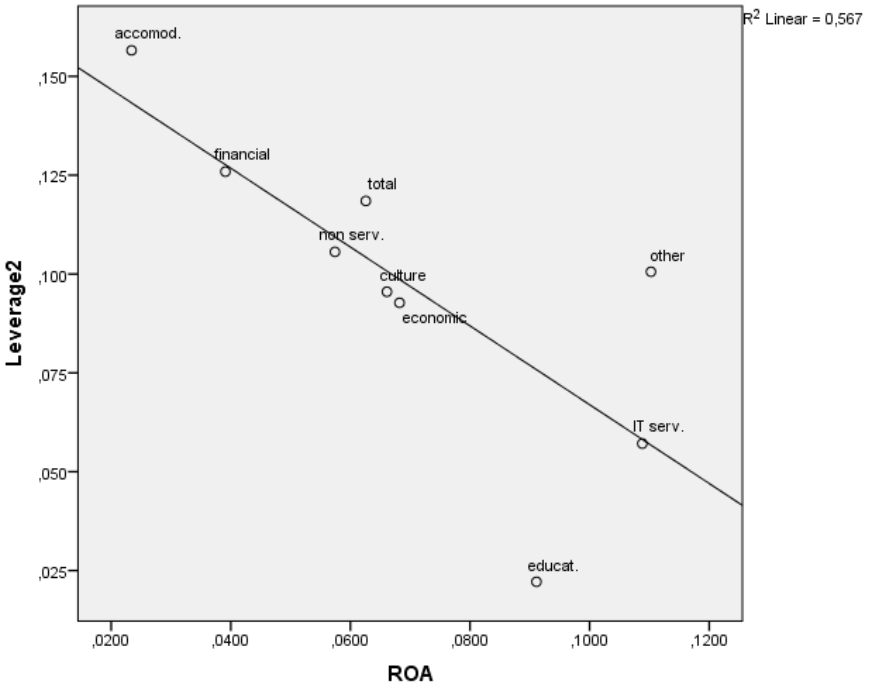
Analysing the figure, we can state that there is a weak negative relationship between the ROA and the Capital Leverage ratio. The low level of R2 indicator also reflects this. Thus, no meaningful linkage was found between the profitability and the overall indebtedness in the Hungarian service sector. The profitability does not influence significantly the company's liabilities.

The linkage between ROA and Capital Leverage2 (Non-current Liabilities / Total Assets) shows larger negative correlation.

Figure 2 shows the relationship between ROA and Capital Leverage2 excluding the real estate and the logistics sectors which proved outliers. The reason for this may be the special financing structure of these two sectors. The real estate companies build offices and flats and

finance them from borrowing. Real estate is perfect collateral. It is marketable, its market price can be precisely determined, it cannot be stolen and the mortgage right can be easily validated. The banks gladly finance this sector. The logistics sector uses vehicles, and here leasing is the ruling form of finance. The vehicles are also perfect collateral for leasing, since they are insured against damage and theft and if the company does not pay the leasing fee, the vehicle quickly returns to the lessor, while the vehicle remains in the lessor's possession during the leasing contract.

To sum up, the logistics and real estate sectors seem not to follow Hypotheses 1; they both offer perfect collateral for lending, so they are able to borrow at a low interest rate due to their negligible risk.



Source: own calculation based on TOP5000 data

Figure 2. – The linkage between ROA and Capital Leverage2 excluding real estate and logistic sector

As can be seen, the figure indicates a strong connection between the profitability and capital structure, which supports the Pecking Order Theory.

Summarising the results, the examination supports the hypothesis only in case of the Capital Leverage2 indicator and the profitability. The reason could be that the Capital Leverage includes the current liabilities, but the size of current liabilities is probably determined by the maturity matching principle (examined later) rather than the profit consideration.

Hypothesis 2: The better the liquidity of the service subsector, the lower its capital leverage.

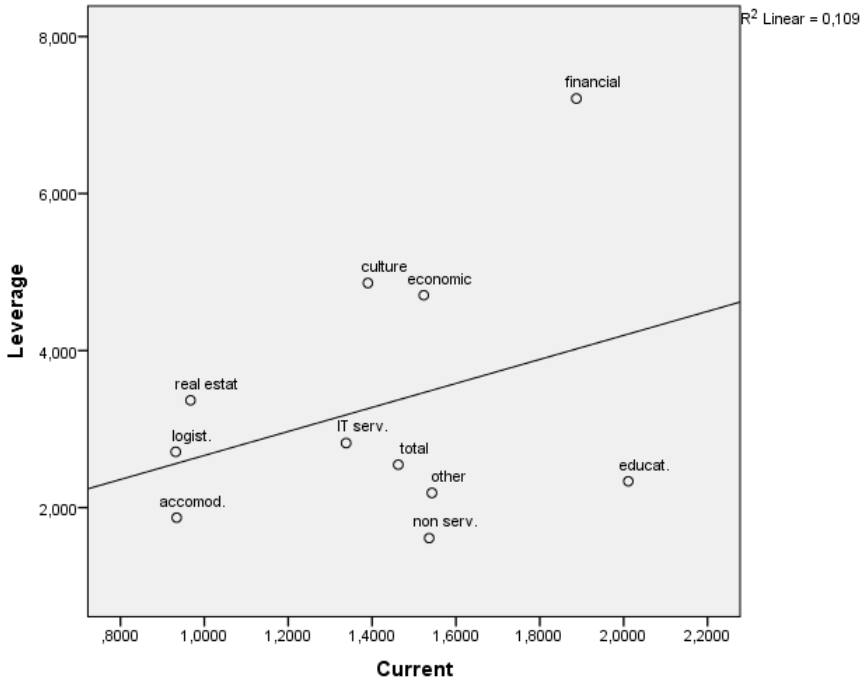
To test this hypothesis, the relationship between the current ratio and the capital leverage ratios was examined.

The current ratio was calculated for the 9 subsectors in the following way:

Current ratio = Current assets/Current liabilities

By studying this ratio, we examine whether the company is meeting its current payment commitments by liquidating its current assets. The current assets can be – theoretically – converted to cash in one year to pay the short-term liabilities. However, the too-high value is optimal only for creditors, because the return of current assets is generally significantly lower than or equal to the return of fixed assets, thus a too-high ratio of current assets decreases the overall return of the total assets. In addition, the high value of this ratio does not assure the company's liquidity, since part of current assets is practically permanent assets. However, a figure of less than 1 does not certainly indicate a prompt insolvency; during the continuous operation, if the turnover of the current assets is high enough, an elevated level of current liabilities can be managed.

The linkage between Current Ratio and Capital Leverage is shown in Figure 3.

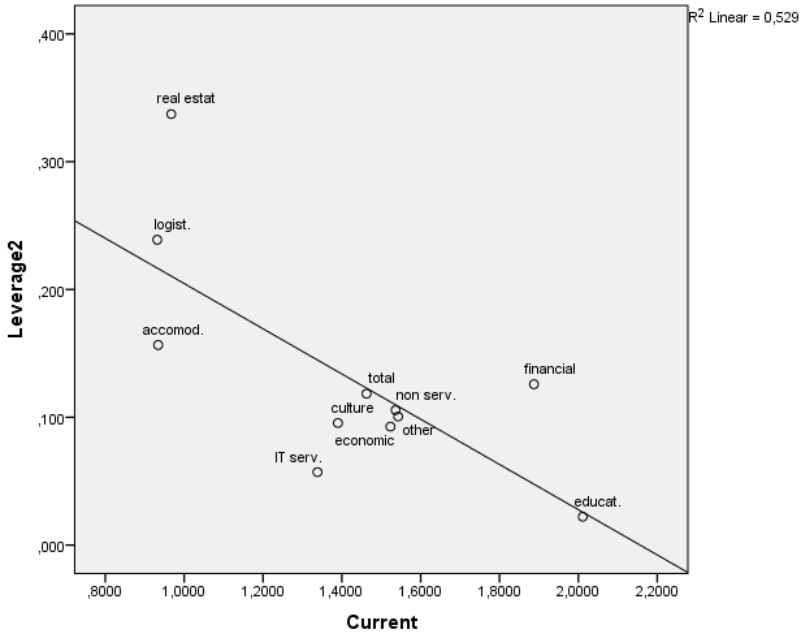


Source: own calculation based on TOP5000 data

Figure 3. – The linkage between Current Ratio and Total Liabilities/Total Equity

The chart doesn't prove any connection between the Current Ratio and Capital Leverage, especially if we neglect the financial sector. The very low value of the R2 indicator (excluding the financial sector, the R2 is practically zero) supports this statement. Thus, there is no observable connection between the overall indebtedness and the liquidity of the company. The liquidity does not influence the overall debt of the company.

Now let's look at the connection of the Current Ratio with the second indicator of capital leverage (Non-current liabilities/Total assets) in Figure 4.



Source: own calculation based on TOP5000 data

Figure 4. – The linkage between Current Ratio and Capital Leverage2

As can be seen, a much stronger negative linkage can be identified between the two variables. Highly liquid companies use lower long-term liabilities than companies with smaller liquidity. This result supports the Pecking Order Theory. The liquid companies may finance part of their investment by liquidating their current assets, which is part of their internal source of finance. Summarising the results, there is no observable connection between the overall indebtedness of the company and the liquidity; however, a strong linkage can be seen between the long-term debt level and the liquidity. The higher is the Current Ratio, the lower is the share of long term debt in the financing mix, which supports the relevance of the Pecking Order Theory.

Hypothesis 3: The Hungarian service sector companies follow the principle of maturity matching; namely, they finance their non-current assets from equity and non-current liabilities and their current assets from current liabilities.

Historically the question of maturity matching was an interesting issue. In the 1990s non-current source of finance were very limited, considering either equity or the non-current liabilities. However, times have changed, and Hypotheses 3 supposes that this scarcity – due to privatisation and with the strengthening two-tier bank system – is over.

The calculated indicator in the service sector is the following:

Non-current assets / (Total equity + Non-current liabilities): This indicator informs us about the share of long term financing funds in the financing of non-current assets.

If the indicator is lower than 1, the company has extra non-current funds for financing its permanent current assets, and consequently it follows a conservative financing strategy. If the indicator is higher than 1, the amount of non-current assets exceeds the size of non-current financing sources, so the company follows an aggressive financing strategy. The results are plotted in Table 2.

Table 2
The indicator of Non-Current Assets / (Total Equity + Non-Current Liabilities) between 2008 and 2014

Maturity matching	2008	2009	2010	2011	2012	2013	2014	Average
Other	0,91	0,92	0,83	0,78	0,88	0,74	0,68	0,82
Economic	0,62	0,71	0,77	0,64	0,57	0,59	0,62	0,65
Real estate	1,25	1,37	1,19	1,16	1,13	1,08	1,00	1,17
IT services	0,57	0,68	0,61	0,80	0,79	0,90	0,83	0,74
Education	0,85	0,58	0,75	0,58	0,59	0,99	0,65	0,71
Financial	1,64	1,68	1,75	2,16	2,37	1,99	1,92	1,93
Accomodation	1,03	0,58	1,16	1,03	1,00	0,95	0,89	0,95
Logistic	-0,27	1,36	2,25	1,16	-0,77	1,00	1,07	0,83
Cultural	0,70	1,10	0,88	1,18	1,23	0,80	0,86	0,96
Total	**0,77**	**0,90**	**0,98**	**0,93**	**0,80**	**0,89**	**0,86**	**0,87**

Source: own calculation based on TOP5000 data

The Financial sector is an outlier, and its non-current sources are very limited, since the deposits are mostly short-term. The Logistics sector's negative equity underwent very extreme volatility during the period. The rest of the service sector generally follows a conservative financing strategy, so the service sector does not bear high financial risk in Hungary. Especially conservative are the Education and research and the IT sectors. Only the Real estate sector had a ratio higher than 1, but the value of its aggressive strategy continuously decreased during the period. The Culture sector had a ratio with relatively high volatility whose value was over 1 in 2011 and 2012.

To sum up, the service sector generally followed the maturity matching principle.

CONCLUSIONS

Based on the TOP5000 corporate database between 2008 and 2014, the aggregate figures of service sector have supported the Hypotheses 1, 2 and 3.

There is a negative linkage between the profitability and the capital leverage of the service sector, thus if the companies have available internal sources – which is mostly determined by the profitability of the company – then the companies use these sources rather than borrow money. However, these linkages can be only proved for the indicator Capital Leverage2, except for Real estate and Logistics services, which are outliers. The facts generally support the relevance of Pecking Order Theory rather than the Trade-Off Theory.

The larger the liquidity of the sector, the lower its capital leverage. A negative linkage can be found between

the Current Ratio and Capital Leverage2. Here the real estate sector was the outlier. The facts also support the relevance of the Pecking Order Theory against the Agent Theory.

The Hungarian service sector companies generally follow the maturity matching principle, i.e. they finance their non-current assets from non-current sources, namely from equity and from non-current liabilities. The overall financial strategy of Hungarian service sector companies in one subsector, real estate and rent, became more conservative during the 2008-2014 period. This tendency can be explained by the increasing role of equity in finance.

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