In most countries, a significant volume of legislation has been adopted to regulate financial affairs on a company level for the purpose of better corporate governance. Recent literature (including for example Levine, 1998; Demirgüç-Kunt and Maksimovic, 1998; and Levine et al, 2000) asserts that variances in legal and accounting systems help to explain much of the cross-country differences in financial sector development and economic growth. Policy-makers should therefore pay adequate attention to the impact of micro level regulations on the financial development, growth and macroeconomic sustainability of a country.

The purpose of this paper is to highlight the impact of statutory requirements regarding the capital structure of companies on the demand for financial services and thereby macroeconomic performance of countries. To the best knowledge of the author, this is the first paper addressing that issue. It constitutes a small part of a larger effort to study the legal factors that influence companies’ demand for financial services (including, besides direct requirements on companies’ capital structure, also corporate taxation, thin capitalisation rules, etc.). The results of these and other related studies may bring out a need for changes in microeconomic policy.

Several countries have established corporate capitalisation requirements with the primary purpose of promoting companies’ sustainability and protecting creditor rights. In general, there are two main types of such regulations: (i) limitations on the maximum amount of accumulated net profit, which can be distributed as dividends, and (ii) requirements on the minimum amount of equity.

Limitations on the distribution of profit as dividends and companies’ demand for financial services

Limitations on the distribution of accumulated net profit as dividends can take the form of (i) statutory obligations to maintain a certain amount of accumulated net profit as a reserve for potential future losses, (ii) exclusion of certain revenues (e.g. negative goodwill amortisation) from distributable profits or (iii) deduction of the net book value of certain assets (e.g. capitalised start-up costs, goodwill or other intangible assets) from distributable profits.

In case a company can freely distribute its accumulated net profit as dividends, its total capital employed $C$ comprises equity capital, $EN$, and financial services utilised, $FN$, i.e. $C = EN + FN$ (eq. 1). It is assumed here that the size of $EN$ is sufficient to efficiently use financial services, or in other words, $EN$ and $FN$ correspond to adequate leverage. It is also assumed for simplicity that no intra-group financing other than equity is used.
In case there are restrictions on the distribution of a company’s accumulated net profit, its total capital $C$ comprises equity capital, $E_A$, and financial services utilised, $F_A$, i.e. $C = E_A + F_A$ (eq. 2). If the restrictions are defined as a percentage $r(0 \leq r \leq 1)$ of equity capital $E_N$, then $E_A = (1 + r) E_N$ (eq. 3). The presumption in the equation is that financial services are less costly for a company than equity capital. Thus, at any moment of time the company prefers financial services to equity capital, and is willing to pay out as much of distributable equity as possible, retaining ideally only share capital as equity $E_N$. Such an assumption is driven by the results of vast research on the cost of capital and optimal capital structure, from the early tax-inclusive model of Modigliani and Miller (1958) to the recent interpretations (e.g. Cohen, 2003; Myers, 2001; and de Haan and Hinloopen, 2002).

It is important to consider that a particular company at a particular moment of time might prefer equity capital to financial services (due to tax implications, market imperfections or other reasons). In this case statutory limitations on the distribution of accumulated profit as dividends do not have (ceteris paribus) an impact on the demand for financial services of that company, because the company would anyway not be willing to pay dividends in the total amount of accumulated net profit. If $\alpha_E$ is defined as a coefficient that measures a company’s preference for equity capital, and $\alpha_F$ is a coefficient that measures preference for financial services, then

$$E_A = \begin{cases} (1 + r)E_N, & \text{if } \alpha_E < \alpha_F \\ E_N, & \text{if } \alpha_E \geq \alpha_F \end{cases} \quad \text{(eq. 4)}.$$

Assuming that the company prefers (the less expensive) financial services to equity capital (i.e. $\alpha_E < \alpha_F$) and does not allow over capitalisation (i.e. in case of involuntary equity capital surplus, debt finance is repaid), the company’s demand for financial services, if restrictions on the distribution of net profit apply, would be $F_A = F_N - r E_N$ (eq. 5). This obviously implies that statutory restrictions on the distribution of accumulated net profit result in higher equity capital compared to the situation where no such restrictions exist, and thus lower demand for financial services ($F_A < F_N$).

**Macroeconomic implications of the limitations on the distribution of profit**

First, the direct impact of the limitations regarding the distribution of profit on macroeconomic performance has to be noted. From the point of view of a provider of equity capital, the dividends received constitute direct cash inflows related to the investment in the company’s shares. The inability of a company to fully distribute its accumulated net profit as dividends, therefore, may have an adverse impact on the net present value of the investment, in comparison to the situation where the company may distribute its entire net profit as dividends at any time. For a similar but indirect adverse effect, market prices of companies’ shares, which reflect investors’ expectations about the net present value of the investment related future cash-flows, also suffer from any restrictions on the amount and timing of dividend
distribution. Consequently, some jurisdictions (i.e. those with a lower \( r \) and thereby relatively higher rates of return for investors) have a comparative advantage in attracting investors and boosting economic growth. Moreover, in the countries where restrictions on the distribution of profit have been enforced, certain businesses may remain underfinanced due to the negative (or unacceptably low) rates of return, although they would generate sufficient net cash flows for investors otherwise. The higher the \( r \), the stronger this impact is (assuming \( \alpha_E < \alpha_D \)).

Secondly, the limitations’ impact on the demand for financial services and thereby macroeconomic performance has to be considered. Companies of different industries have a different pattern of demand for external finance. Among the underlying reasons, Svaleryd and Vlachos (2002) mention technological and organisational differences, Baldwin (1989) highlights risks related to companies’ different vulnerability to demand shocks, and Kletzer and Bardhan (1987) suggest that more sophisticated manufactured products require more credit to cover selling and distribution costs than primary or intermediate products. Rajan and Zingales (1998) show that companies in different stages of development differ in their demand for external finance, with financial services more extensively used during the early years of a company’s existence. As a consequence, the negative impact of statutory dividend distribution regulations on companies of different industries and in different stages of development is asymmetric.

For the purposes of modelling the variations in companies’ need for financial services, the coefficient \( f_N \) (\( 0 \leq f_N \leq 1 \)) is introduced, which characterises a company’s utilisation of financial services in case it can freely distribute dividends, i.e. \( f_N = F_{Nf} / C \) (eq. 6). The adverse effect that the limitations regarding profit distribution have on a company’s demand for financial services, is characterised by the difference between \( F_A \) and \( F_{Nf} \), or, in relative terms, by \( (F_A - F_{Nf}) / F_{Nf} \).

Introducing the coefficient \( f_N \) and deriving from equations (1) to (5),

\[
\frac{F_A - F_{Nf}}{F_{Nf}} = \begin{cases} 
1 - \frac{1}{f_N} & \text{if } \alpha_E < \alpha_F \\
0 & \text{if } \alpha_E \geq \alpha_F 
\end{cases} 
\]  

(eq. 7).

For companies with relatively higher equity capital, the requirement to maintain certain portion of equity as a reserve results in a higher share of post-reserve equity in total capital employed. This implies that the negative influence of the limitations is higher for companies, which rely more heavily on equity capital and less on financial services.

Consequently, it can be assumed that companies and industries, which are in relatively lower need for external finance, have a comparative advantage for development in the countries where a lower level of \( r \) is imposed. The higher the company’s dependence on financial services, the smaller the advantage is. Furthermore, as companies in the initial phase of development tend to be in relatively higher need for external finance (Rajan and Zingales, 1998), the extent of
a country’s advantage in attracting enterprises as a result of lower $r$ would be smaller for companies that are starting their business. Such consequences of the limitations on the distribution of profit may lead to shifts in countries’ industrial specialisation and the patterns of international trade. More sophisticated theoretical and empirical analysis of these results remains outside the limited scope of this paper, but constitutes a challenging area of study.

The figure below illustrates the adverse impact of statutory dividend distribution regulations on the demand for financial services (as a coefficient $-\frac{(P_A - P_N)}{P_N}$ on the y-axes) for different values of $f_N$ and three illustrative levels of $r$ ($r = 0.1$, $r = 0.2$ and $r = 0.4$) for $\alpha_E < \alpha_F$.

**Figure.** The impact of limitations on dividend distribution for different capital structures ($\alpha_E < \alpha_F$)

Svaleryd and Vlachos (2002) and Beck (2003) have found that the level of development of the financial sector influences companies’ and countries’ industrial specialisation and provides a comparative advantage to the companies that are more in need of external finance. However, neither of the two works completely excludes potential reverse causality, i.e. that companies’ demand for financial services and cross-country differences in industries might themselves be among the reasons for variances in financial sector development. This paper provides some insight into the factors that have such a converse impact on companies’ demand for external finance and thereby on financial sector development. Various factors that influence companies’ demand for financial services could be a cause for the different cost of financing in different countries, as well as for industrial specialisation. More detailed research on related direction of causality issues would be needed.

Economic growth remains one of the main objectives for governments in a majority of modern market economies. Vast research literature deals with the correlation between growth and financial sector development. Some recent works (for example, King and Levine, 1993a and 1993b; Levine, 1997; Levine and Zervos, 1998; and Neusser and Kugler, 1998) show that the development of the financial sector is
closely linked with economic growth, whereas Levine et al (2000) tackle the respective direction of causality issues, finding economic growth to be positively influenced by the development of the financial intermediary function. Due to the well-established relationship between growth and financial sector development, factors that influence the latter (including requirements on the capital structure of companies) remain an important, yet relatively unexplored area for research, potentially bringing about significant changes in economic policy.

**Examples from some European Union (EU) countries**

In the EU countries limitations on the distribution of net accumulated profit as dividends tend to be defined as a percentage of annual net profit, which has to be retained as a reserve for potential future losses until such a reserve becomes at least equal to a certain percentage of share capital. Based on the author’s draft results of the comparative analysis of relevant legislation in selected EU member states, some countries, like Denmark, Finland, Ireland, Latvia and Malta do not require this kind of a reserve to be created. The opposite extremes are for example Italy, Portugal and Spain, where the amount of accumulated net profit, which has to be retained as a reserve for potential future losses, is set at 20% of share capital (i.e. \( r = 0.2 \)). The adverse impact of the limitations on dividend distribution on the companies’ demand for financial services is therefore higher in Italy, Portugal and Spain compared to countries, such as Austria, the Czech Republic, Estonia, France, Germany and Lithuania, where \( r = 0.1 \). As no reserves for potential future losses are required in Denmark, Finland, Ireland and Latvia, no consequent adverse impact on the companies’ demand for financial services exists in those countries. These findings imply that for example Denmark, Finland, Ireland, Latvia and Malta have a comparative advantage in attracting investors and businesses. The extent of this advantage is higher for companies and industries, which are characterised by relatively lower need for external finance. The opposite applies for Italy, Portugal and Spain.

In addition to the limitations due to an obligatory reserve, the regulations adopted in some EU countries exclude certain revenues from distributable profits and/or deduct the net book value of certain assets from distributable profits. As these limitations are company and industry specific, their adverse impact on the demand for financial services is difficult to quantify. In general, companies have a comparative advantage for conducting business in those jurisdictions where net accumulated profit is in total less adjusted by undistributable items.

Deriving from the analysis above it may be hypothesised that it would be optimal for all the EU countries to abolish the limitations on the maximum amount of accumulated net profit, which can be paid out as dividends. The adverse impact of these limitations on companies’ demand for financial services appears to exceed the small contribution that such restricted reserves are able to give to the solvency of companies in the periods of financial difficulties. However, as the purpose of statutory dividend distribution regulations is to protect creditors’ rights by promoting companies’ solvency, controlling the above hypothesis would also
require a consideration of the results of research (including La Porta et al, 1997 and 1998; and Levine, 1998), which reveal that cross-country differences in legal rights of creditors help to explain variances in financial sector development and growth.

Requirements on the minimum size of equity

Requirements concerning the minimum size of equity represent a statutory obligation for the company to maintain its total equity above a certain level, defined either as a percentage of share capital, as a fixed amount or otherwise. Assuming that a company’s equity comprises share capital and net accumulated profit (or net accumulated loss), requirements concerning the minimum amount of equity would constrain the company’s ability to distribute its net accumulated profit as dividends only in case the minimum required equity level was set above the amount of the company’s share capital. In case the minimum equity requirement would remain below the amount of the company’s share capital, the company’s ability to distribute dividends would not be hindered, whereas it would be natural to expect that in case the net accumulated result is a loss, no dividends can be distributed altogether.

There is no evidence of any jurisdiction in the EU where the minimum required equity level is set above the share capital level of a company. It would therefore be of little practical importance to further analyse the impact of the requirements concerning minimum size of equity on companies’ demand for financial services and thereby macroeconomic performance of countries.

Conclusion

From the perspective of macroeconomic implications, the most significant statutory requirements on the capital structure of companies are the limitations on the distribution of a company’s accumulated net profit as dividends. These limitations result in higher equity capital in comparison to the situation where no such restrictions exist and, thus, decreased demand for financial services. This statement is valid if financial services are less costly for a company than equity capital.

Countries with lower restrictions on the distribution of profit (and thereby relatively higher rates of return for investors) have a comparative advantage in attracting businesses and achieving economic growth. The adverse impact that these requirements have on the demand for financial services is higher for companies and industries, which rely more heavily on equity capital and less on financial services. Companies, which are in relatively lower need for external finance, have a comparative advantage for development in the countries with relatively lower level of restricted net accumulated profit. Such consequences of the limitations on the distribution of profit may lead to shifts in countries’ industrial specialisation and the patterns of international trade. Due to the well-established relationship between growth and financial sector development, factors that influence the latter (including requirements on the capital structure of companies) remain an important, yet relatively unexplored area for research, potentially bringing about significant changes in economic policy.
References

Kokkuvõte

ETTEVÕTETE KAPITALI STRUKTUURI REGULEERIVA SEADUSANDLUSE MAKROMAJANDUSLIKEST MÕJUDEST

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Paljud riigid on mikromajanduspoliitika raames kehtistanud seadusandlikke piiranguid ettevõtete kapitali struktuuri osas, tagamaks ettevõtete jääkuskultlikkust ning kaitsemaks võlausaldajate huve. Käesoleva artikli eesmärgiks on selgitada, milline on nimetatud piirangute mõju ettevõtete poolsele finantsteenustele nõudlusele ning seeläbi makromajanduslikele näitajatele.

Olulisimad piirangud kapitali struktuuri osas väljenduvad selles, et ettevõtetel pole lubatud maksta dividende mitte kogu jaotamata kasumi arvelt, vaid akumuleerunud kasumi teatava osa ulatuses, kuna ülejäänud jaotamata kasum tuleb ettevõttes säilitada reservkapitalina. Artiklis on näidatud, kuidas nimetatud piirangute mõjul kujuneb ettevõtete nõudlus finantsteenuste järele makromajanduslikele näitajatele.

Nõuded omakapitali reservi hoidmise osas on riigiti erinevad. Arvamusid on varasemate uruimuste tulemuste tuginedes teoreetiliselt põhjendatud, et riikides, kus kohustuslikku reservkapitali minimaalne suurus on madalam, kujuneb aktsia-investeeringute tootlus kõrgemaks ning see tõttu on see riigid investeeringutest eelkäikul mandjanduskevadel suutuvamiselt. Negatiivne mõju finantsteenustele osalisteadusele, mida eelnimetatud kapitali struktuuri piirangud kaasa toovad, on suurem nende eelkäikul mandjanduskevadel suutuvamiselt. See tõttu on riikdes, kus piirangud kasumi arvelt dividendi maksmisel on madalamad, ruuteline suhtelise tõestustšarhade ettevõtete ligmeeetamiseks ja arengiks, mis valuvtse mandjanduskevadel suutuvamiselt. Seetõttu võivad olla ebasooovad muutused riikide tõestusharude struktuuris ning väliskaubanduses.

Artiklis esitatud esialgsete empiirilised andmed andmed mõningate Euroopa Liidu riikide kohta viitavad sellele, et näiteks Taani, Soome, Läti ja Malta on investoritele suhteliselt atraktiivsemad ning selline suhtelise võimendamisotsed on saanud suurem nende tõestusharude ettevõtete riiki meelitamisel, mis kasutavad vähemal määral finantsteenuseid.

Kuna arvukad uurimused on näidanud tugevaid positiivset seost majanduskevadel ja finantsektori efektiivuse vahel, on asjaolud, mis mõjutavad finantsektori arengut (sealhulgas ettevõtete kapitali struktuuri reglementeeriv seadusandluse kui finantsteenust selektiivse tegevuse ja arvete esidade ja koolalised ettevõtte struktuurite ja empiiriliste uuringute jaoks, mille tulemuste põhjal võib õldelda vajadus olulisteks muudatusteks riikide mikromajanduspoliitikas."

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Several studies examine the macroeconomic implications of bank capital requirements. These models are mostly partial equilibrium models. Only a few dynamic stochastic general equilibrium (DSGE) models have introduced financial intermediation in recent years, and they do not necessarily analyze the balance sheet composition of banks.

Table 8: List of Bank Holding Companies
- BHC Bank of America
- BB&T Corporation
- Citigroup Inc.
- Citizens Financial
- Comerica Inc.
- Fifth Third Bancorp
- JPMorgan Chase & Co.
- KeyCorp
- Ticker: BAC, BBT

The basic structure of our model follows Gertler et al. (2012). The representative household consists of members distributed over the unity interval; the fraction $f$ of members are bankers and the fraction $1 - f$ are workers.