NHH

INSTITUTT FOR FORETAKSØKONOMI

DEPARTMENT OF BUSINESS AND MANAGEMENT SCIENCE

FOR 29 2015

ISSN: 1500-4066

October 2015

Discussion paper

The Tax Sensitivity of Debt in Multinationals: A Review

BY

Guttorm Schjelderup

Norges Handelshøyskole

NORWEGIAN SCHOOL OF ECONOMICS

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Guttorm Schjelderup*
Norwegian School of Economics and NoCeT

(Forthcoming International Journal of the Economics of Business)

Abstract

The OECD in its BEPS action plan 4 addresses tax base erosion by profit shifting through the use of tax deductible interest payments. Their main concern is interest deductions between outbound and inbound investment by groups. Studies of multinational firms show that the tax sensitivity of debt is more modest than what one would expect given the incentives for profit shifting. The purpose of this paper is to review existing literature and to add new knowledge on multinational firm behavior that pertains to the use of debt.

Keywords: Corporate taxation, multinationals, capital structure, international debt-shifting, tax avoidance

JEL classification: H25, G32, F23

*Department of Business and Management Science, Norwegian School of Economics, Helleveien 30, 5045 Bergen, Norway; email: Guttorm.Schjelderup@nhh.no; phone: + 47-55959238, fax +47-55959350.

1. Introduction

A common feature of national tax systems is that interest expenses related to debt are tax deductible whereas the opportunity cost of equity is not. This property is often referred to as the debt tax shield in the literature, and it gives firms' a preference for debt financing over equity. In an open economy with multinational firms, an additional incentive in favor of debt arises. If the corporate tax rate in the parent's home country is lower than the tax rate faced by its foreign subsidiary, the parent firm has an incentive to charge its subsidiary a high interest rate on intra-firm loans in order to shift profit back to the parent.[1] Even for a given fixed interest rate, the multinational firm can save tax by shifting debt to the high-taxed affiliate, since the tax savings from interest deductions in the high-tax country exceed the tax obligation in the parent firm. These incentives imply that affiliates facing high tax rates should have relatively high debt-to-asset ratios and excessive interest deductions compared to their peer group.

It is well known that the debt tax shield is a key driver of both domestic and multinational companies' capital structure. Feld et al. (2013) in a meta study accounting for potential misspecification, find that the debt-to-asset ratio increases by 2.7 percentage points if the marginal tax rate increases by 10 percentage points. They also find that there are significant differences in capital structure choice between multinationals and domestic firms.[2] The purpose of this paper is to examine the tax sensitivity of debt in multinationals in particular.

A number of studies have investigated the tax sensitivity of debt in multinationals. Desai et al. (2004) use data on US multinationals and find that a 10% increase in the corporate tax rate is associated with a 2.8% increase in the debt-to-asset ratio of affiliates of multinationals. In their study, the use of internal debt across affiliates is not taken into account whereas they do account for loans between a parent firm and an affiliate.

Huizinga et al. (2008) model the optimal allocation of *external* debt and find that ignoring international debt shifting as part of the firm's leverage decision understates the impact of national taxes on debt policies by about 25%. Egger et al. (2010) examine debt shifting by *internal debt* and find that multinationals have a significantly higher debt-to-asset ratio than national firms, and that this difference is larger in high-tax countries.

The studies above either omit internal debt or only account for external debt. Hence, they underestimate the tax sensitivity of debt. Møen et al. (2011) uses micro-level data on all German multinationals. They find that the tax sensitivity of debt has been underestimated in the studies above. Using a hypothetical case where a multinational group consists of two affiliates of equal size, they find that if the affiliate located in the country with the highest tax rate experiences a 10 percentage points tax increase, the debt-to-asset ratio will fall by 1.4 percentage points in the low-tax country, and increase by 4.6 percentage points in the high-tax country. For a company with an average debt-to-

asset ratio at the outset, a 4.6 percentage points increase in the debt-to-asset ratio implies a 7.4% increase in debt. About 40% of the increase in debt is due to the tax induced advantage of debt from which both national and multinational firms benefit, while about 60% is due to international debt shifting. They also find that in the case of international debt shifting, internal and external debt is of about equal importance.

Arena and Roper (2010) find that differences across countries in tax factors affect where multinationals locate debt, and that multinationals differ in how sensitiv they are to taxes. Both firm size and the type of industry seems to matter. Møen et al. (2011) find evidence for that debt in large multinationals is more tax sensitiv than in smaller firms. One reason may be that it is costly to engage in tax planning and that larger firms have more financial muscle.

The studies above point to the tax sensitivity of debt being quite moderate in multinationals given the tax incentives. One explanation may be that existing theory needs to be refined, another that new evidence for incentives to hold debt have not yet been tested. The purpose of this paper is to review existing literature and add new knowledge on multinational firm behavior that pertains to the use of debt. The studies mentioned above are just a small fraction of a large literature on the tax sensitivity of debt. This paper now proceeds to survey the empirical literature on the tax impact on corporate debt financing.

2. Meta Studies

It follows from theory that the debt tax shield implies that leverage should increase when the effective tax rate goes up. A central definition in the literature is the marginal tax effect on the debt ratio. It measures the percentage point change of the debt ratio in response to a one percentage point change in the tax rate. Researchers use various measures to model the tax rate. Some use the statutory corporate tax rate, whilst others use an average tax rate calculated as taxes paid divided by pre-tax income. The latter measure is meant to capture that some firms do not need to use debt to reduce the tax burden since their tax position is exhausted due to loss-carry forwards and other non-debt tax shields. Given the different measures of tax rate, it is perhaps not surprising that the identified magnitude of the marginal tax effect varies greatly across studies and that some even find a downward bias in the estimated debt response to tax.

Feld et al. (2013) synthesize the evidence from 48 previous studies in a meta - regression that not only shows the statistically central tendency in the literature, but also explains the determinants of variation in different studies. One of their main findings is that the refined simulated marginal tax rate suggested by Graham (1996, 1999) avoids the downward bias in the estimated debt response to debt. When they account for all possible misspecification biases, Feld et al. (2013) predict a positive marginal tax

effect on the debt ratio of 0.27. This number spans both domestic and multinational firms

Affiliates of multinationals may be engaged in profit shifting by excessive interest deductions whereas the profit shifting motive is absent in national (domestic) firms. There is therefore a strong theoretical argument for expecting a more positive tax impact on leverage in multinational firms (see, e.g. Altshuler and Grubert 2003). Feld et al. (2013) separate their sample into domestic and multinational firms and find that tax effects on debt are more pronounced in multinationals if primary estimates refer to average tax rates rather than statutory tax rates. Average tax rates capture cross country differences and should therefore be better indicator of the tax incentives related to debt in multinationals.

When splitting the profit shifting effect from the pure impact of the domestic tax system, Feld et al. (2013) find that a rising host country tax rate exerts a marginal effect on debt-asset ratios of about 0.199, and that the profit shifting effect arising from differences in tax rates adds a marginal tax effect of about 0.140. Taken together, the numbers imply that if the host country tax rate rises by one percentage point, the debt ratio increases by 0.339 (= 0.199 + 0.140).

Feld et al. (2013) also find that time effects are more pronounced for multinational firms. One explanation may be that multinationals can use internal debt (through financial operation centers) and that they may have better access to credit markets. Consequently, their responsiveness to macroeconomic trends might also be larger than in domestic firms.

One would expect that the tax sensitivity of debt should depend on the maturity of debt. Typically firms hold more long term than short term debt. Feld et al. (2013), however, find that marginal tax effects are unaffected by the maturity of debt. However, the inclusion of control variables such as firm profit, inflation, and industry specific leverage raises reported tax effects on debt.

It is also reasonable to expect that differences in systems for avoiding double taxation across countries would affect the tax sensitivity of debt. Some countries exempt dividends paid to corporate shareholders from taxation whereas other countries use the credit system. Under the latter, foreign taxes paid can be credited against the domestic tax liability that falls on repatriated dividends. Feld et al. (2013) investigate whether the corporate debt policy differ between multinationals headquartered in exemption or credit countries. They do not find evidence for that tax effects differ across different systems of international taxation.

3. Costs and Benefits of Debt

A parent loan to an affiliate is often referred to as internal debt as opposed to external debt, which is a loan from a financial institution. Internal and external debt carry different

costs and benefits. In the literature, internal debt is often regarded as equivalent to equity, since such debt is generally subordinated to all other kinds of debt and does not represent a bankruptcy risk.

Research on debt and the financial structure of firms can be divided into two groups; theories that examine firms in a closed economy and studies that examine multinational behavior. The factors that affect the cost of using debt for domestic firms also matter for multinationals. Other factors pertain to multinationals only. These range from tax saving incentives in a global context to the need to control risk and achieve an overall tax-efficient capital structure. The various incentives are discussed separately below.

3.1. Trade-off Theory

Theories of optimal capital structure often explain companies' choice of debt versus equity by a trade-off, where firms weigh the benefits of debt against the costs. The use of external and internal debt leads to different types of benefits and costs for an affiliate.[3] Although internal debt holds many of the same properties as equity, it is, in contrast to equity, tax deductible.[4] However, the use of internal debt is costly due to various tax engineering expenses incurred in order to avoid or relax regulations such as thin capitalization rules and/or controlled-foreign-company (CFC) rules.[5] Costs and benefits of debt depend on whether it is internal or external debt.

External debt can be beneficial in reducing informational asymmetries between managers and shareholders and in enforcing discipline on overspending managers (see Jensen and Meckling, 1976; Jensen, 1986). Benefits of debt are also related to the use of debt as a device for managers to operate efficiently (Meckling and Jensen, 1976), benefits of external monitoring of the firm (Jensen 1986), as well as the debt tax shield.

There are different types of cost related to external debt. Too much external debt may induce a debt-overhang problem that causes local managers to miss good investment opportunities (Myers, 1977). Kraus and Litzenberger (1973) also point out that the tax preferences given to debt may lead to excessive borrowing and a higher risk of bankruptcy.[6] Costs related to debt are bankruptcy costs (Warner, 1977 and Weiss, 1990), personal taxes (Miller, 1977), asset substitution effects (Jensen and Meckling, 1976), and debt overhang that may restrict new borrowing (Myers, 1977). The trade-off theory has been tested in large number of papers and this literature has been surveyed by Frank and Goyal (2009).[7] Common for these studies are that they are done in a closed economy setting.

The implication of the trade-off theory for empirical studies is that there is not a one-to-one relationship between taxes and debt. An increase in the tax rate may lead to more debt from a tax saving perspective, but cost factors may mitigate the tax incentive. For example, a one percentage point increase in the tax rate may not affect debt if the

rise in bankruptcy costs due to higher debt exceeds the tax gain. Non-tax factors, then, dampen the tax incentive and are one reason why debt is less tax sensitive than the pure tax effects suggest.

3.2. The use of Internal Financial Centers

One insight from theory is that the multinational firm saves tax most efficiently by structuring its lending operations in a financial center in a zero tax jurisdiction (Schindler and Schjelderup, 2012). By using an internal bank in a tax haven type jurisdiction the firm gets the full bene fit of the debt tax shield in a high tax country whereas the tax obligations on interest income are zero. Such a set up maximizes the value of debt shifting. Møen et al (2011) show that large multinationals use internal banks (so called financial coordination centers) to conduct such borrowing and lending. Smaller firms may be restricted because there are substantial costs related to the use of tax experts and accountants, and that a tax-efficient structure world-wide may imply costly reorganization of the firm. Such costs imply that only firms of a certain size can recapture these costs through tax savings. Ruf (2011) argues that for such reasons the tax sensitivity of debt is larger in big multinational enterprises than in smaller multinationals.

3.3. The use of Holding Companies

Many countries offer so called tax consolidation or group tax regimes. These rules imply that a group of wholly owned or majority-owned companies is treated as a single entity for tax purposes. The implication is that the head entity of the group is responsible for all or most of the group's tax obligations. Many countries such as Germany, the UK, the US and France have such rules. In this context, it is especially interesting to note that most multinational expansion happens through acquisitions (over 90% of foreign direct investment[8]). In an acquisition, the full deductibility of financing costs is a crucial element. Schumacher and Bahn (2005) explain how a German parent company can obtain a deduction of financing costs from the acquisition target's profits through a German acquisition vehicle (holding company). After the firm has been acquired, the holding company and the acquired firm are consolidated for corporate income tax purposes. This allows for a deduction of the financing costs of the acquisition company from the profits of the target company. According to German rules, the parent also avoids an 5% add-back on dividends paid by the target company.

Such rules make it more attractive to finance an acquisition by debt but they also make debt more tax sensitive. One would however, expect that the higher the corporate tax rate facing the parent firm is, the less likely it is that the parent firm will set up a holding company as a debt planning tool (see Ruf, 2011).

3.4. The Benefits of Parental Lending.

Empirical studies show that a significant amount of lending originate from the parent firm. One reason for this is the combined effect of external lending and parental lending. Suppose that the parent firm is located in a low tax country, and that the tax differential between the parent and an affiliate gives the parent an incentive to charge a subsidiary a high interest rate. In order to do so it can use external financing. The interest rate on external debt is determined by the market and the parent has an incentive to make the affiliate look like a risky proposition so, that the market interest rate will be high even for a small loan. By taking up a small loan at a high rate of interest, the parent can use this interest rate as an arm's length proxy for internal lending by the parent to the affiliate.

A second tax incentive in favor of parental lending is that the market may view the parent as less risky than an affiliate. If so, the parent firm can borrow at a lower rate than its affiliates. This funding advantage makes it attractive to conduct lending from the parent.

Gertner, Scharfstein and Stein (1994) provide a number of reasons why the parent firm is best suited as a lender. Following Grossman and Hart (1986), they see ownership to imply residual control rights over the firm's assets. In relation to internal debt, these control rights are with the capital supplier or the parent firm, which ultimately provides explicit and implicit credit guarantees for the debts of all of its affiliates. Giving control rights to the parent firm rather than to any external credit supplier or subsidiary, has some advantages. For example, since the parent firm is the ultimate claimant it has stronger incentives to monitor. Moreover, when the parent firm has many affiliates, it can, if one unit performs badly, redeploy assets more efficiently than an external credit provider can.

The benefits pointed out above reduce the tax sensitivity of debt if the parent firm is located in a high-tax country. If the parent firm is located in a low-tax country, one would expect that the non-tax factors and the tax factors work in the same direction and increase the tax sensitivity of debt.

3.5. Concealment costs

Nielsen et al. (2015) make the point that the observed low tax sensitivity of debt may be because it is less costly for the firm to shift income by transfer prices on goods and services than on debt. They argue that the multinational firm has greater discretion in setting the price on intangible goods. Their analysis shows that concealment costs related to transfer pricing affect the concealment costs of debt shifting in a way that reduces the tax sensitivity of debt, and that public regulation that pertains to leverage may affect the scope for transfer pricing (and vice versa). Thin capitalization rules,

for instance, may make it relatively "cheaper" for the management to manipulate the interest rate on intercompany loans. There may also be economies of scale and scope related to tax planning that intertwine these decisions. For example, skills in concealing abusive transfer-pricing practices may have positive spillover effects on the firm's ability to disguise its real debt-to-asset ratio.

3.6. Parent Credit Guarantees.

Huizinga et al. (2008) study how differences in national tax systems affect the use of external debt in multinational firms. They assume that the parent firm provides explicit and implicit credit guarantees for the debts of all of its affiliates, and that a higher total debt-to-asset ratio for the group increases the risk of bankruptcy. This leads them to predict that multinational firms will balance external debt across affiliates by taking into account the tax rate in all the countries where they are present. An increase in the tax rate in one country will make it profitable to use more debt in the affiliate located in this country. More debt will, however, increase the risk of bankruptcy for the group. This effect is mitigated by lowering the use of debt in all other affiliates. By shifting external debt this way, multinationals can exploit the debt tax shield more aggressively than national firms while holding the overall risk of bankruptcy in check. For a multinational firm with affiliates of equal size in two countries, a 10 % overall tax increase in one country increases the debt-to-asset ratio in that country by 2.4 %, whilst the debt-to-asset ratio in the other country falls by 0.6 %. These results are, however, based on variation in total debt, as external debt cannot be isolated in the Amadeus database.

4. Government Regulation

Multinational companies can exploit the tax advantage of debt more aggressively than national companies by shifting debt from affiliates in low-tax countries to affiliates in high-tax countries. In doing so, they shift income to low tax jurisdictions through interest deductions in high-tax countries. The value of profit shifting must, however, be balanced against other well-known costs and benefits that influence the firm's capital structure (as detailed above).

Most countries use the rules laid out in the OECD Model convention (see OECD 1979) to protect themselves against too much debt or too high interest rates. The model convention states that, for inter-company loans, one must rely on the arm's length principle. This amounts to determining what a third party lender would agree on both the terms of the loan and the interest it carries. If independent (domestic) firms would borrow less than subsidiaries of a multinational, the multinational firm runs the risk that some of its interest expenses are denied.

Government regulation may dampen the tax sensitivity of debt if such regulation is

effective. There are different approaches among countries to limit the amount of debt on which deductible interest payments may be made. These rules usually apply but not always (see below) to related party finance transactions. Traditionally countries that use explicit rules to limit debt shifting by multinationals have fallen into two categories; safe harbor rules and earnings stripping rules. I will discuss these in detail below. The next sections provide a survey of controlled foreign company (CFC) rules and their impact on debt.

4.1. Safe Harbor Rules (SH)

A safe harbor rule is a ratio rule that is meant to restrict the amount of debt for which interest is tax deductible. The exact definitions of the debt measure in the numerator of the ratio and of assets or equity in its denominator vary across countries, but the most common rule is either to use a ratio based on total debt-to-equity or internal (corporate group) debt-to-equity.

Büttner et al. (2008) and Weichenrieder and Windischbauer (2008) study SH-rules and find that they decrease (intercompany) loans and increase equity. Interestingly, Weichenrieder and Windischbauer (2008) find no effect on real investment stemming from such rules, and argue that multinationals have various strategies to circumvent such rules. One strategy they describe in detail is the use of holding company structures (see Weichenrieder and Windischbauer, 2008, section 5 for the details).

Buettner et al. (2012) study foreign affiliates of German multinationals and find that thin capitalization rules effectively reduce the incentive to use internal loans for tax planning but result in higher external debt. Recently, Blouin et al. (2014) investigate how thin capitalization rules worldwide affect the capital structure of foreign affiliates of US multinational firms. They find that restrictions on an affiliate's debt-to-assets ratio reduce this ratio on average by 1.9%, while restrictions on an affiliate's borrowing from the parent-to-equity ratio reduce this ratio by 6.3%.

Taken together these studies find evidence for that safe harbor rules have a substantial effect on the capital structure of multinational firms.

4.2. Earnings Stripping Rules (ES)

Earnings stripping rules impose a cap on interest deductibility. Unlike safe harbor rules, they are commonly not restricted to intra-group or related party finance transactions and so operate as a general restriction on interest deductibility. Earnings stripping rules have emerged because of the perception that safe harbor rules can be avoided. Earnings stripping rules operate to restrict interest deductions that exceed a certain threshold, such as a percentage of EBITDA or EBIT.[9]

A handful of countries use both safe harbor rules and earnings stripping rules, either

simultaneously or they impose a marginal earnings stripping requirement that applies only if the safe harbor limit is exceeded. Although the number of countries using an earnings stripping rule alone or in conjunction with a safe harbor rule is small, they include significant economies such as Denmark, Japan, Bulgaria, France, Norway and the United States.

An interesting question given the different country approaches to limit the use of debt is whether safe harbor rules are better at restricting the use of debt in multinationals than earnings stripping rules. Gresik et al. (2015) show the policy, among all the combinations observed in practice, which maximizes the host country national income is an earnings stripping rule without a safe harbor rule. Multinationals can shift profit either by the abusive interest rate (transfer price) or by internal debt. Profit shifting by debt allows the firm to avoid the tax on the normal rate of return on mobile capital directly, whereas an abusive transfer price is an indirect and more costly way of mitigating the tax wedge both for the firm and society. An earnings stripping rule is more effective at curbing abusive transfer pricing and is therefore a better choice from a host country perspective.

4.3. Controlled Foreign Company (CFC) Rules

CFC regimes are used in many countries as a means to prevent erosion of the domestic tax base and to discourage residents from shifting income to low-tax jurisdictions. CFC rules differ from country to country, but they work to eliminate the deferral of income earned by a CFC and tax residents currently on their proportionate share of a CFC's income. Typical conditions CFC regimes are that a domestic taxpayer "control" the CFC firm; that the CFC firm is located in a "low tax" jurisdiction or that the jurisdiction is listed as a CFC country. CFC rules will in general make it less attractive to use debt to save tax, and Ruf and Weichenrieder (2009) argue that German CFC rules are effective in reducing passive investments (i.e., setting up financial centers) in low-tax jurisdictions outside the EU. Benelux Countries such as Belgium have designed special tax systems for financial centers where the explicit aim is to fall outside the most common characteristics that would make a financial center applicable for CFC taxation. Under the Belgian system that was in operation until 2012, for example, the tax base of financial coordination centers consists of business expenses minus wages and financial costs, rather than profit. Such features may explain why Ruf and Weichenrieder (2009) find that a substantial number of multinationals have their financial centers in the Benelux countries (see also Weichenrieder and Mintz, 2008).

For countries in the European Union, the EU court's ruling in the so called Cadbury-Schweppes case may affect the effectiveness of CFC rules and other measures to reduce the tax sensitivity of debt. The implication of this ruling seems to be that restrictive tax rules are acceptable if they target wholly artificial arrangements put in place to avoid

national taxation.

4.4. Corporate Tax Reform

The Comprehensive Business Income Tax (CBIT) and the Allowance for Corporate Equity (ACE) have recently gained interest in European policy debates as a way of restructuring corporate tax due to perceived losses in welfare that follows from current corporate tax systems.

The ACE-tax system was recommended by the Mirrlees Review (Mirrlees et al. (2011)) and among the features of this system is that companies can deduct an imputed return on equity as well as interest on debt. The symmetric treatment of equity and debt implies that an ACE-tax is a tax on economic rent, but the problem of thin capitalization and profit shifting by multinationals is not solved unless a notional imputed rent is used on all types of financing (i.e. a so called "allowance for capital costs (ACC)" system). An ACE-system even without an ACC variant achieves financing neutrality and one would therefore expect it to reduce the tax sensitivity of debt somewhat.

The Comprehensive Business Income Tax (CBIT) originally described by the US Department of the Treasury (1992) works so that interest payments are not tax deductible at all. This means that the debt tax shield is eliminated and that the corporate tax is turned into a source-based tax on the full return to capital. A CBIT-system would solve the problem of excessive debt and eliminate profit shifting by debt in multinationals. Policy makers, however, have hesitated to implement the CBIT-tax because of problems related to heavily indebted firms, difficulties related to the integration of the corporate and personal taxes, and the need for special tax rules for deposit-taking financial institutions.

A third alternative for reform is the business enterprise income tax (BEIT) as proposed by Kleinbard (2007). BEIT is a comprehensive and coordinated system for taxing time-value-of-money returns, called the cost of capital allowance (COCA) system. Under the COCA regime, a business enterprise would deduct each year a time-value-of-money (interest) charge on all of the capital invested in its business, regardless of whether the company was funded by debt or equity. This works much like an ACC tax with a notional interest rate being applied.

Sørensen (2014) shows in a model extension of the widely used King-Fullerton and Boadway-Bruce-Mintz method of estimating the impact of taxes on the cost of capital[10] that thin capitalization rules and earnings stripping rules should apply to all companies. He finds that the deadweight loss from the tax bias against equity finance is linked to the rise in risk premiums generated by the tax bias in favour of debt. The risk premiums in his model include not only compensation for uncertainty; they also compensate for the costs of financial distress and the agency costs incurred by investors as a consequence of imperfect and asymmetric information.

5. Concluding remarks

This paper has surveyed the most common factors known to affect the firm's choice of a tax efficient financing structure. Firms can borrow from the financial market (external debt) and from related companies (internal debt). The two different types of debt carry different costs and and benefits that set multinational and national firms apart. Multinationals have additional incentives to use debt by exploiting tax differentials across countries. This suggests that debt held by multinationals is more tax sensitive than debt of local firms. For such reasons, one would expect affiliates of multinationals located in high-tax jurisdictions to have relatively high debt-to-asset ratios and excessive interest deductions compared to their peer group. There are also non-tax factors that affect the choice of leverage in multinationals and these may dampen or increase the incentive to hold debt. In sum, these non-tax factors may explain why empirical studies find that the tax sensitivity of debt is rather moderate. In addition, abusive transfer prices on intra firm transactions related to tangible and intangible goods and services may be an easier way of shifting profits.

Notes

[1]Similar but opposite incentives arise if the parent firm faces a higher tax rate.

[2]I will discuss the study by Feld et al. (2013) in a separate section.

[3]See Hovakimian et al. (2004) and Aggarwal and Kyaw (2010) for recent overviews on factors affecting the optimal capital structure.

[4]See Gertner et al. (1994) for a discussion on internal debt and how it relates to external debt and equity. Chowdhry and Coval (1998, pp. 87f) and Stonehill and Stitzel (1969) argue that internal debt should in fact be seen as tax-favored equity.

[5]For a more detailed discussion, see Mintz and Smart (2004) and Fuest and Hemmelgarn (2005).

[6]The 'trade-off' theory of balances bankruptcy costs with returns from the tax shield. See, for instance, Graham (2000), who estimates a tax shield value (before personal taxes) close to 10 % of the value of the firm.

[7]Recent examples of research in this tradition are van Binsbergen et al. (2010) and Korteweg (2010).

[8]See Ruf (2011).

[9]EBITDA= Earnings Before Interest, Tax, and Depreciation Allowances. EBIT = Earnings Before Interest and Tax.

[10]See King and Fullerton (1984), Boadway, Bruce and Mintz (1984).

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