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Allowance for Corporate Equity - A solution to the debt equity
bias in Sweden?

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Abstract

The debt equity bias refers to the discrimination between debt and equity finance. This discrimination is problematic since it distorts companies' decisions and increases systemic risk. The European Commission has recommended Sweden to eliminate or reduce the bias and the Swedish Ministry of Finance has gathered a committee to investigate possible solutions. Sørensen (2010) suggested that Sweden would benefit from implementing a reform called Allowance for Corporate Equity. An Allowance for Corporate Equity, often referred to as ACE, would introduce a deduction for equity similar to the existing deduction for interest payments, eliminating the debt equity bias. It also offers other attractive features such as leaving marginal investment unaffected by taxation. Belgium, Croatia, Italy and Brazil are countries that have implemented ACE like reforms. These reforms are discussed and used to draw conclusions regarding the design of a Swedish ACE.

The biggest problem of an implementation of the Allowance for Corporate Equity is that it narrows the tax base and consequently requires funding. It is often suggested that the statutory corporate tax rate needs to be increased to fund the reform but other alternatives that are less distortive are also discussed in this paper. Considering the current tax competition in Europe, the positive aspects of an ACE would struggle to outweigh the negative effects from an increased corporate tax rate. Sweden is unlikely to implement an ACE since it is supposed to be financed within the area of corporate taxation. If other sources of funding were allowed, an ACE would have been a more plausible option. A source of funding that seemed particularly interesting was the reintroduction of the recurrent property tax that was replaced by a low fee in 2008. The low fee together with the deductibility of interest payments and low amortization requirements channel too much investment into the housing market and implies a distortion of investment. A reintroduction of the recurrent property tax would generate revenue and eliminate the distortion.

Key words: ACE, Allowance for Corporate Equity, Debt Equity Bias, Capital structure, Notional interest rate

1. Introduction

Companies make the choice to finance their business either by borrowing money or by using equity, issuing securities for example. In most economies the cost of debt (interest payments) is deductible, while the cost of equity (dividends) is not. This discrimination between debt and equity is often called the debt equity bias or the debt bias and causes distortions in companies' financial structure. The bias encourages companies to take on more leverage than what would be the optimal level without taxation. Excessive leverage makes companies more vulnerable when a crisis hits, which has a negative impact on systemic risk. This is even more evident after the financial crises of 2007/2008.

The deductibility of interest payments creates incentives for debt shifting for multinationals. Multinationals shift debt within the group, deducting interest payments in a high-tax jurisdiction while paying taxes on the interest received in a low-tax jurisdiction. The possibility to shift debt for tax reasons implies an advantage for multinationals relative to domestic companies that are unable to do so. The European Commission has given recommendations to reduce the existing debt bias in Sweden as it is seen as problematic for both households and the corporate sector.

A problem that is becoming increasingly relevant is the difficulty to distinguish between debt and equity. Hybrid instruments and financial derivatives can be used to create an instrument with equity-like characteristics that qualifies as debt. This might seem like a solution to the problem since the instruments narrow the gap between debt and equity but the existence of these instruments is inefficient in itself. Designing the capital structure of the firm to avoid taxation is also an inefficient use of a company's time. These instruments also reduce both transparency and accountability of firms' corporate financing policies. Differences at country level exist as well; there is no coordinated view of what qualifies as debt and what qualifies as equity. Arbitrage possibilities are created when countries use different definitions.

Allowance for Corporate Equity, often referred to as ACE, introduces deduction for equity in addition to the existing deductibility of interest payments. By allowing deductions to be made for dividend payments and private equity, the tax bias for debt and the subsequent distortion of financial structure is eliminated. Not only does the ACE eliminate incentives for debt shifting, it also shifts taxation from normal profits to pure profits, which means that taxation does not affect marginal investment. A tax that does not impact investment decisions of

companies is efficient; this is true when the effective marginal tax rate of new investment is zero. Sørensen (2010) wrote a report for the Swedish government, in which he proposes that Sweden would benefit from implementing an ACE. I have chosen to analyse the ACE because of its attractive neutrality features with respect to both scale of investment but also choice of financing. It is a relevant topic since Belgium and Italy have implemented ACE reforms in the last decade but also because of Sørensen's (2010) recommendation. Finansdepartementet has gathered a committee to give suggestions regarding the debt equity bias, which makes it an even more relevant topic for Sweden at the moment. The paper will focus on analysing the implementation of an ACE, and only briefly describe other alternatives. I will use existing theory and other countries' experiences and apply it to the situation in Sweden to analyse the effects of a Swedish ACE.

After the introduction, a section explaining the debt equity bias and why it is problematic will follow. The properties of an ACE will be explained and other alternative reforms will briefly be covered. The next section of the paper will look at experiences from ACE reforms in practice. The reforms in Belgium, Brazil, Croatia and Italy will be discussed. After this I will describe the current situation in Sweden and why the debt bias and its elimination is a relevant topic. Sørensen's (2010) recommendation regarding the ACE will also be explained in this section. The paper will end with an analysis that discusses the different choices that are made when an ACE is implemented, for example the choice of notional interest rate and whether to apply the allowance to pre-existing equity or not. Different sources of funding are also discussed, looking at revenue aspects, neutrality features and viability.

2. Theory

The theory section will explain the debt equity bias, why it is problematic and why it needs to be eliminated or reduced. The ACE reform and its properties will be explained. Alternative reforms will also be explained although not to the same extent. The aim is to give the reader an overview of the problem and possible solutions to the discrimination between sources of funding.

2.1 The debt equity bias

Companies finance their business by issuing shares (equity) or by borrowing money (debt). In Sweden, and in many other countries, the interest paid on debt is deductible while the dividends paid to shareholders are not. This phenomenon is often called the debt equity bias or the debt bias and it provides an incentive for companies to finance their investments with debt rather than equity. As a result, companies take on more debt than what would be the optimal level without its beneficial tax treatment. The higher the amount of debt is, the higher is the value of interest payments and the lower is the taxable profit (since interest payments are deducted from the taxable income).

The Modigliani Miller theorem states that the choice of financing through debt or equity does not influence the value of the firm if some conditions are met (Modigliani and Miller 1958). The value of a firm that uses debt (a leveraged firm) will be equal to the value that the same firm would have if it had used equity instead (an unleveraged firm). Since one of the conditions of the theorem is the absence of taxation¹, it is obvious that these conditions are not met in practice. Existing taxation practices imply that the value of a leveraged firm is equal to the value of an unleveraged firm plus the tax shield² (Fatica, Hemmelgarn and Nicodème 2012). If no other factors were important when deciding the capital structure of the firm, in theory firms could maximize their value by using only debt. In practice there are other significant aspects to consider.

Why is the debt equity bias problematic?

When different investments and different sources of finance are not treated the same, a welfare loss occurs. This welfare loss originates from a sub-optimal investment level, funds invested in assets that are not the most productive ones or costs from arranging financial decisions to pay less tax. These inefficiencies can in their turn cause more inefficiency; when

¹ The other conditions are that there are no bankruptcy costs, perfect markets and no information asymmetry.

² A tax shield is something that reduced the company's taxable profits, such as an ACE allowance, depreciation allowances or the deductibility of interest payments.

companies arrange their financial decisions and activities to avoid taxation, the government might have to introduce more taxes (that are perhaps even more distortionary) to raise the revenue needed. Also, companies that have not tried or managed to arrange their financial decisions and activities in a tax avoiding manner will be penalized by paying a higher tax burden than the ones that have. The deductibility of interest payments creates incentives for debt shifting for multinationals. Multinationals shift debt within the group, deducting interest payments in a high-tax jurisdiction while paying taxes on the interest received in a low-tax jurisdiction. Domestic firms are unable to do this so the possibility of debt shifting gives multinationals an advantage over domestic firms (Fatica, Hemmelgarn and Nicodème 2012).

After the financial crises of 2007/2008 and 2011 it is evident that the equity in the corporate sector has to be strengthened. Not only does it reduce the vulnerability in the event of a financial crisis, it is also important for the establishment of companies for which the loss in absence of sufficient equity is private. This is particularly the case for risky investments. Higher solvency for the companies is also positive for lenders and can reduce macroeconomic fluctuations (Finansdepartementet 2011).

Should the debt equity bias be eliminated?

One argument for the discrimination is that the personal income tax often discriminates in the opposite way (taxing interest received at a higher rate than capital gains and dividends) but in Sweden this argument is irrelevant since both interest received and capital gains are taxed at 30 % (Skatteverket 2014). Fatica, Hemmelgarn and Nicodème (2012) discuss the psychological aspect; people tend to see equity dividends as pure reward of capital and interest payments as a necessary cost.

There are positive aspects to the use of debt finance. For example it is a tool to deal with the information asymmetry between shareholders and managers. Debt usage restricts the cash flow in the company and keeps the manager from making the company grow beyond what is optimal. When debt is used to finance the company's activities, the manager must pay out cash flows to bondholders instead (who are in some cases the same as the shareholders). However, several research papers have shown that with the narrowing gap between debt and equity due to the development of sophisticated instruments, there is no longer any rationale behind the discrimination.

A problem that is becoming increasingly relevant is the difficulty to distinguish between debt and equity. Hybrid instruments and financial derivatives can be used to create an instrument with equity-like characteristics that qualifies as debt (Auerbach, Devereux and Simpson 2007). This might seem like a solution to the problem since the instruments narrow the gap between debt and equity but the existence of these instruments is inefficient in itself. Designing the capital structure of the firm to avoid taxation is also an inefficient use of a company's time. These instruments also reduce both transparency and accountability of firms' corporate financing policies. Differences at country level exist as well; there is no coordinated view of what qualifies as debt and what qualifies as equity. Arbitrage possibilities are created when countries use different definitions (Fatica, Hemmelgarn and Nicodème 2012).

2.2 Allowance for Corporate Equity

The Allowance for Corporate equity was first proposed by Devereux and Freeman (1991). Inspiration was found in Boadway and Bruce’s paper (1984) that presented a neutral and inflation proof profits tax called Allowance for Corporate Capital, which will be described in more detailed later. Devereux and Freeman (1991) wanted to create a system that was more compatible with established conventions and relatively easy to implement in practice, the result was the ACE. The ACE implies a tax relief based on the funds that shareholders have put into the company (new equity and retained earnings); I will refer to this as the equity base. The system would be implemented and function parallel with the system of interest deductions.



Figure 1

When a country implements an ACE it chooses a notional interest rate that should reflect companies’ cost of equity. The government decides whether the notional interest rate can be multiplied with companies’ total equity or only with post-reform equity. The equity base is multiplied by the notional interest rate to get the notional return. Figure 1 shows an example where the equity base is \$ 1 000 000. It is multiplied with a notional interest rate of 5 % and the notional return is then \$ 50 000. This means that the company can deduct \$ 50 000 from its taxable income.

The main idea of the ACE is to divide profits into normal profits (the profit investors require in order for the investment to be worthwhile) and pure profits (any profit exceeding that level). The company is allowed to deduct the cost of equity finance (approximated through the notional return showed in figure 1). This deduction is similar to the deduction for interest payments (the cost of debt finance). All profits are taxed but the cost of finance can be deducted, the result of this is that only pure profits are taxed. By taxing only pure profits, the level of economic activity and investment plans are not distorted by taxation. When a company raises finance, this finance will receive a relief corresponding to the normal profit but any profit above this level generated by these new assets will be taxed. For this to hold it is important that the notional interest rate chosen corresponds to the rate at which companies discount future allowances.

The calculation of the equity base:

The equity base year of this year
=
+ Last year's equity base
+ taxable profits (net of equity allowance)
+ dividends received
+ net new equity issue
- tax payable
- dividends paid
- net new acquisitions of shares

By including taxable profits in the base, accelerated depreciation reduces the ACE allowance. Lower taxable profits imply a lower ACE allowance; miscalculations of the profit one year will give a lower allowance the following year. The same is true when the full economic depreciation is not deducted, then the allowance will be larger next year. The ACE hence remedies investment distortions. The purchase of shares in other companies is subtracted to avoid double counting; they will be counted in the equity base of the issuing company. Dividends received are included in the base of the acquiring company. When holding companies finance investments in subsidiaries using debt or a combination of debt and equity, the equity base is reduced. The negative effect on the notional return will be equal to the deduction for the interest payment made if the notional interest rate equals the interest rate on debt (Sørensen 2010).

If the ACE is outlined in nominal terms, indexation is unnecessary. An overpayment of relief will be followed by an overpayment of tax. There might be a mismatch in the timing of payments but this will be offset in present value terms. Under inflationary conditions an asset is taxed at the nominal rise in its value but at the same time income will be overestimated and the two overestimations will cancel each other out.

Choosing the right notional interest rate:

When the notional interest rate is equal to the rate at which investors discount the future ACE allowances of the company, the ACE system eliminates the distortion of investment at the intensive margin (the choice of how much to invest). A company’s discount rate is often approximated using the risk-free market interest rate. The notional interest rate ensures that cash return to shareholders is taxed and equity that shareholders put into the company is deductible. The shareholder will try to maximize this net flow and when only the net flow is taxed, it does not affect decision-making. For this to hold, the ACE allowance must be certain so that the shareholder values it at the risk-free rate. When the notion of risk is accounted for, the authors still see strong benefits of using that formula.

Quick review of present discounted value calculations

When a company discounts future cash flows, it uses a discount rate that is equal to the risk-free rate plus a compensation for risk, the discount rate will be denoted by d. In equation 1, it is shown how the present discounted value of future allowances is calculated.

$$\frac{Allowance_1}{(1 + d)^1} + \frac{Allowance_2}{(1 + d)^2} + \frac{Allowance_3}{(1 + d)^3} etc.$$

Equation 1

If the allowance and the discount rate are constant, the present discounted value of all future ACE allowances can be calculated as shown in equation 2.

$$\frac{Allowance}{d}$$

Equation 2

When new equity is put into the company it will generate an allowance equal to the new equity multiplied by the notional interest rate. In equation 3, equity invested is denoted by E and the notional interest rate is denoted by r.

$$\frac{(E \times r)}{d}$$

Equation 3

As can be seen in equation 3, the present discounted value of all future ACE allowance generated from the new equity invested will be equal to the amount of equity invested, but only if the notional interest rate is equal to the rate at which shareholders discount future allowances. For the notional interest rate to equal the risk-free rate, the ACE allowance must be discounted at the risk-free rate, which means that it has to be certain. Often, the allowance is not a hundred per cent certain due to asymmetric treatment of losses and gains or due to the risk of bankruptcy.

In order for a system to be symmetric, governments would have to treat losses and gains in the same way, giving an immediate rebate on taxable losses. Governments are usually not keen on this since it implies giving large sums of money to loss-making companies. For neutrality to hold the company must be certain of getting the tax credit of the unrelieved loss at some time in the future or claim immediate credit against tax paid. Allowing losses to be carried forward with an interest mark-up or treating an unrelieved loss as an undeclared profit reduces the problem.³ If the tax system is not symmetric, risky projects with possible negative outcomes will have a lower expected post-tax return and companies will be biased against investments that include the possibility of a loss even when we assume risk neutral investors⁴.

If investors are risk averse they will require a risk premium to compensate for the uncertainty of outcome; they will require a higher expected return. A relief at the risk-free rate reduces both expected return and the uncertainty of outcomes, reducing the risk and hence reducing the risk premium that investors require. The government thus pays part of the losses of a loss-making project and shares some of the revenue of profit-making investments. The effect on investors' attitude towards risky projects will depend on how well the reduced risk

³ Losses typically reduce the equity base and hence future allowances, not declaring and including a loss in the equity base has the same effect as including it but carrying it forward with an interest mark-up. The loss does not reduce the equity base.

⁴ Risk neutral investors do not care whether they receive a certain return of \$100 or an uncertain return with an expected value of \$100.

compensates for the reduced expected return. Under commonly used assumptions of risk Devereux and Freeman (1991), claims that an allowance at the risk-free rate should make the system neutral.

Applying the notional interest to debt

The allowance for corporate equity implies that an estimated cost of equity can be deducted, not the actual cost of equity. In a conventional tax system, interest payments are deductible. Interest payments are not an estimated cost of debt but the actual cost of debt. This means that the deduction depends on the interest rate set through an agreement between the lender and the borrower. One could argue that debt holders should be treated in the exact same way to ensure neutrality and to avoid inflated interest payments. The value of outstanding debt should be calculated and be multiplied by the same notional interest rate as the equity base. By using the same notional interest rate on debt as on equity, investors can be kept from lending to companies at inflated rates instead of purchasing equity. However it is important to note that a company is owned by its shareholders who are entitled to all assets and income streams after the company has paid off its debts. Therefore, any excessive interest payments will be at the expense of the companies' shareholders. When lenders and shareholders are the same, a close company problem exists, this problem is relevant under conventional tax systems as well and there is typically legislation in place to avoid this phenomenon. In most cases, interest payments are a good measure of the actual cost of debt while the notional return would only be an approximation. It is also administratively attractive and practical to keep a system that is already in place and functioning (Devereux and Freeman 1991).

Interaction with personal taxation:

To obtain a system that is neutral as a whole, the personal tax must be neutral. In most countries, capital gains taxes are levied at realization. Taxation of capital gains is delayed when dividends are not paid out, which implies that retained earnings can be a cheaper source of finance than new equity. There are ways to handle this distortion, reduced tax rates on dividends or imputation systems for example⁵. These systems can only partially undo the problem because of differing personal tax rates. To truly correct the distortions of the personal income tax, changes need to be made in the personal income tax system (Devereux and Freeman 1991).

⁵ An imputation system is in place to avoid double taxation of dividends. The shareholder does not have to pay taxes on dividends when the company has already paid income taxes on it.

Treatment of pre-existing equity

The transition to an ACE should not be too painful since the bulk of the tax base remains the same. The biggest change is that the value of the equity base needs to be calculated. A decision has to be made on whether to include pre-existing equity or only new equity. Incentives are the same regardless what choice is made. If only new equity is included, the transition will be cheaper but it also creates a wedge between old and new equity and legislation would be required to prevent tax-avoidance⁶. This would complicate the system and part of the saved revenue would have to be used for enforcement. Devereux and Freeman (1991) think that the easiest would be to use some value relating to the book value of assets or the tax written down value of assets (net of debt).

Profit shifting

The ACE eliminates the incentive for debt shifting, which removes the need for anti-avoidance measures like thin-capitalisation rules. The incentive for transfer pricing manipulation remains and is determined by the difference between the statutory corporate tax rate and the marginal profits from foreign and domestic jurisdictions. If the ACE were financed by an increase in the corporate tax rate, this would have effects on transfer pricing manipulation incentives. It would also reduce multinationals' investment in the country.

If rents (pure profits) are mobile, a source-based corporate tax with an ACE allowance will distort corporate investment decisions at the extensive margin (the choice of location). If the domestic corporate tax rate is high, the ACE allowance might not be enough to keep multinationals with high mobile rents in the country. When rents are immobile because of certain natural resources, well-educated population or infrastructure for example, a source-based tax can be sued without distorting investment at the extensive margin (Sørensen 2010).

2.3 Alternative reforms

2.3.1 Comprehensive Business Income Tax (CBIT)

The CBIT implies that the deductibility of interest payments is abolished. This reform makes the tax base larger and therefore allows for a reduction of the corporate tax rate. This is desirable since the marginal dead weight loss rises with the tax rate, but also for competitive reasons (Gruber 2010). The reform would also encourage firms to reduce their leverage, which reduces the probability of default. At the same time, the CBIT increases the cost of

⁶ A company could completely liquidate, selling old funds only to reform by issuing new equity, replacing old equity with new equity hence benefitting from the allowance

capital, which increases the probability of default so the result depends on which effect is the strongest. The statutory tax rate is decreased but choices such as investment and location choices are more sensitive to the effective marginal and average tax rate, which include elements of the tax base, and could therefore increase. A difficulty similar to the one of the ACE exists; the government must decide on how to treat pre-existing debt and shareholders' gains from selling equity.

The CBIT does not have the desired neutrality feature of the ACE. The debt bias is eliminated but normal profits are taxed, when interest payments and dividends cannot be deducted they are taxed with the normal profit. This implies that the effective marginal tax rate on new investment is not zero under a CBIT and taxation can distort investment decisions. If rents are immobile it implies macroeconomic losses but if rents are mobile it can create macroeconomic benefits since a CBIT, which shifts taxation from rent to normal returns will attract rent making companies (Fatica, Hemmelgarn and Nicodème 2012).

2.3.2 Allowance for Corporate Capital (ACC)

The ACC was originally proposed by Boadway and Bruce (1984). Their proposal is what Devreux and Freeman (1991) based their ACE proposal on and some similarities are evident. Boadway and Bruce (1984) suggested that the capital cost could be deducted each tax period. This sounds much like an ACE but the difference is that the ACC removes the deductibility of interest and replaces it with an allowance of the normal return applied to the book value of the company's capital. Since it removes the deductibility of interest payments but at the same time introduces an allowance for the cost of capital (both debt and finance) it can be seen as a combination of the CBIT and the ACE although the ACC was suggested before both of the other reforms.

2.3.3 Thin-Capitalisation rules

Thin capitalisation refers to when a company is financed with a high level of debt relative to equity. Thin capitalisation rules imply that a company that has too much debt compared to equity will be denied deductions for part of its interest payments or that a part of interest payments will be reclassified as a dividends (Finansdepartementet 2011). Two approaches exist; determining a maximum amount of debt for which interest payments are deductible or determining a maximum amount of interest that can be deducted based on the ratio of interest and some other variable.

The arm's length approach implies that the maximum amount of debt that interest can be deducted for is equal to the amount of debt that a third party would be willing to lend to it. This approach is tailored for each case, which removes asymmetrical treatment but also requires a lot of work from the tax authorities. A ratio approach can be based on the debt equity ratio for example. Ghana and Canada use the 2:1 debt to equity ratio. Other ratios can also be used. The ratio approach is simple to implement and does not require much resources from the tax authorities but they might not always take all factors of the economic reality into account (OECD 2012).

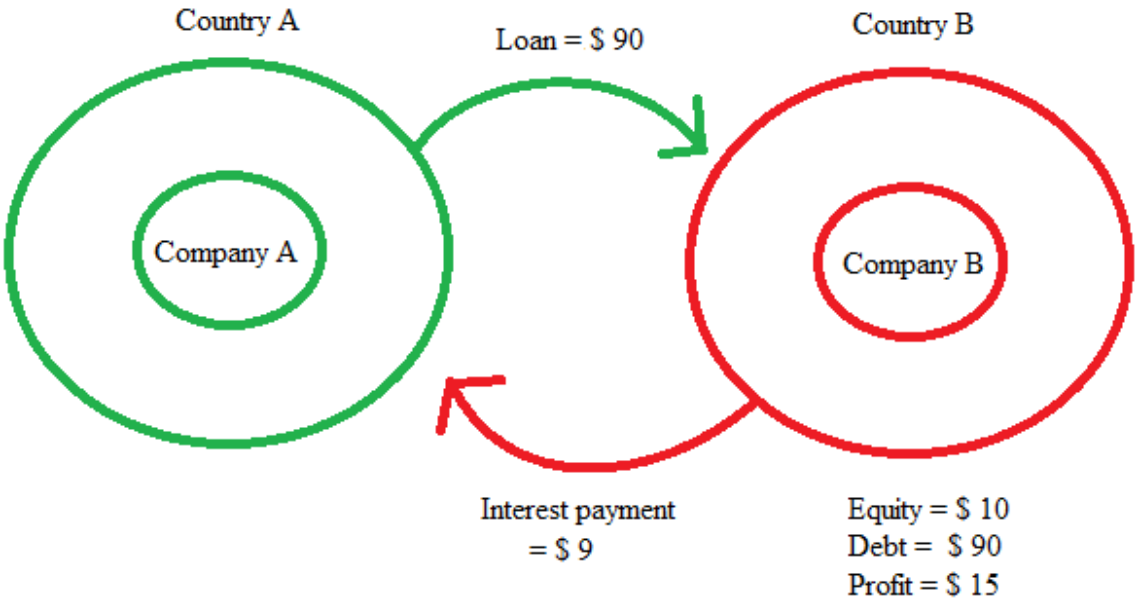


Figure 2

Figure 2 shows an example of the ratio approach. Assume that country A has thin capitalisation rules using the debt-equity ratio of 2:1. Assume further that company A establishes a subsidiary (company B in country B) with an investment of \$ 10. Company A lends 90 \$ to company B. Company B now has equity of \$ 10 and debt of \$ 90, the company makes a profit of \$15. The interest rate is 10 % so company B pays \$ 9 in interest payments to company A. The remaining taxable profit is \$ 6 but because of the thin capitalisation rules, the company can only deduct interest payments made for $2 \times \$ 10 = \$ 20$ of debt. The interest payment for \$ 20 of debt is \$ 2. The taxable profit will be equal to $\$ 15 - \$ 2 = \$ 13$.

2.3.4 Earnings-stripping rules

Earnings-stripping rules are similar to the thin capitalization rules; it is another way to limit interest deductibility. The deductibility of interest payments depends on the ratio of interest paid to the income it is paid out from. Interest deductibility is limited when net interest expenses exceed a certain percentage of EBITDA (Earnings Before Interest Taxes Depreciation and Amortisation). EBITDA is a measure of the profit before it has been adjusted for taxes, interest deductions, depreciation and amortisation. If net interest expenses exceed a certain percentage of this, deductibility is limited (Fatica, Hemmelgarn and Nicodème 2012). Italy and Germany implemented Earnings-stripping rules in 2008.

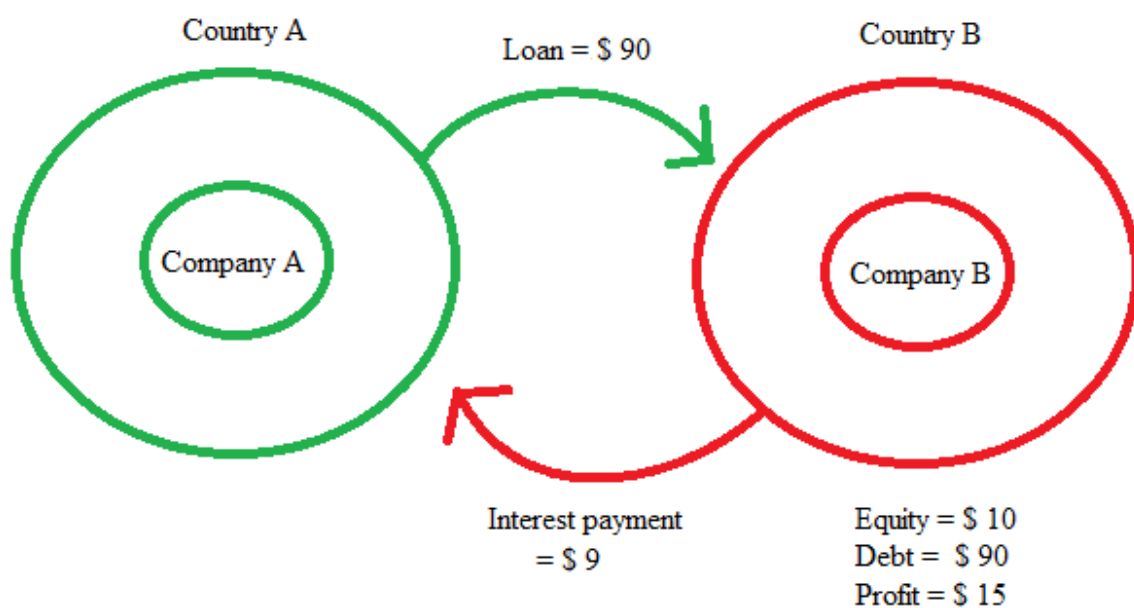


Figure 2 (again)

The same figure and example as for the thin capitalisation rules will be used to illustrate the earnings-stripping approach. Company B has made EBITDA of \$ 15, \$ 9 are paid as interest to company A. Taxable profit is equal to \$ 6. If deduction is limited to 30 % of EBITDA, deductions are limited to $0.3 \times \$ 15 = \$ 4.5$. Taxable profits become $\$ 15 - \$ 4.5 = \$ 10.5$.

2.3.5 Cash flow corporate income tax

The cash flow tax is neutral with respect to financial and investment decisions. The basic principle is to levy a tax on the net cash flow to the company, generated from its real business activities. The tax base thus becomes the difference between the income generated from sales of goods and services and the costs for goods and services used in the production process. Since the tax is not based on the profit or loss account but on the cash flows, there is no need

for inflation adjustments or for constructing a true measure of depreciation. Deductions for financing of investments are not allowed; the current deductibility of interest payments would be removed under a cash flow tax. Instead a first-year depreciation allowance of a 100 % is introduced, this is called immediate expensing. The debt equity bias is removed under a cash flow tax (King 1987).

The cash flow tax does not distort investment decisions since immediate expensing implies that the government subsidises investment at the same rate as it taxes profits. The cost of any project will be reduced by the same fraction as the future benefits will be taxed. The result is that any project worth undertaking in the absence of taxation should be worth undertaking when taxes are accounted for. For this to hold, the company must have sufficient taxable profits so that the allowance can be used to offset current tax liabilities or the losses must be allowed to be carried forward with an interest rate mark-up since it is unlikely that the government would make large negative tax payments to firms that acquire capital (King 1987).

3. ACE reforms in practice

After a more general explanation of the debt equity bias and reforms that could eliminate or reduce it, I will now focus on practical experiences of the ACE. The reforms implemented in Belgium, Croatia, Brazil and Italy, and the evaluations that have been made will be described in this section.

3.1 Belgium

The Belgian ACE variant was introduced in 2006 and is close to the reform proposed by Devereux and Freeman (1991), explained earlier in the paper. The base of the Belgian system is the book value of equity with some adjustments made. The notional interest rate is set annually and is equal to the average return of a 10-year linear state bond two years prior to the current fiscal year. The system is called notional interest (intérêts notionnels). The equity used to calculate the equity tax shield is the shareholders' equity (some items are subtracted to avoid double deductions and abuse). The equity from the opening balance sheet for the taxable period is adjusted for the net tax value of own shares, non-portfolio participants and share issued by investment companies producing taxable revenues. Net equity assigned to foreign permanent establishments or property rights is subtracted along with the net book value of tangible fixed assets (for which costs unreasonably exceed professional needs or

investment that has not been made to produce regular income). Tax free evaluation gains and capital subsidies are also subtracted. Equity deductions are allowed from taxable income, not on the actual equity cost (return to shareholders) but on an estimated equity cost (the notional return). After the introduction of the ACE both equity and debt finance reduce taxable income, providing corporate tax shields. Capital gains are generally not taxed at the personal level (Deloitte 2014). Therefore the Belgian system achieves neutrality as a whole.

Aspects particular to Belgium's ACE

The Belgian system replaced the coordination centre regime. The coordination centre regime attracted multinationals by offering favourable tax treatment for their subsidiaries offering business services and financial services to other companies within the same group. The regime was not compatible with the European State Aid legislation and thus had to be abolished. In order to provide multinationals with a favourable tax treatment in accordance with EU legislation, Belgium introduced an ACE system. As the ACE narrows the tax base, it is often suggested that the statutory tax rate should be increased to collect the lost revenue. The Belgian ACE replaced an already beneficial tax treatment; this was probably an important reason for why the statutory rate was unchanged after the reform.

Evaluation

Princen (2011) analyses the implementation of the Belgian ACE using a diff-in-diff regression to measure how tax shields affects firms' capital structure⁷. She estimates that the debt tax shield results in 2-7 % higher leverage than what would be the case under tax neutrality; the debt tax shield affects the capital structure of companies. She also finds a stronger impact for large companies than for small and medium sized companies. Princen (2011) suggests that a possible reason for this is that small firms are typically younger; their credit constraint makes them less responsive to equity incentives. Since one of the aims (although not official) of the ACE was to provide benefits that would make it attractive for multinationals' coordination centres to stay in Belgium after the abolition of the coordination centre regime, it is positive that big multinational companies seem to be favoured.

The tax relief for the corporate sector without a resulting boost of employment or increased investment has not been very popular with the public (Princen 2011). The lack of employment

⁷ She compares a treatment group of Belgian companies with a control group of first French, then German companies before and after the reform.

and investment effects could be associated with the treatment of pre-existing equity; companies are not required to create new investment to benefit from the allowance.

3.2 Croatia

The base of the Croatian system was the book value of equity; the adjustments made are described below. This means that the Croatian system did not create a tax wedge between old and new equity and could lead to similar problems as in Belgium. The notional interest rate was set at 5 % and increased with inflation of industrial products⁸. The ACE was introduced in 1994 and was part of a broader reform of the Croatian profit tax. The reform was built on the principle that taxation should be levied on consumption instead of income. The three main pillars of the system were a broad base VAT, a personal income tax that exempted dividends, interest and capital gains and a profit tax only levied on the equity income above the level of the imputed normal return.

The calculation of the tax base was based on the change in the firm's book value of equity. New equity contributions are subtracted, dividends paid and other profit distributions added back to obtain the profit or loss made in the accounting period (the tax base). New equity subscribed during the period does not reflect earnings generated in the company, which is why they were not included in the tax base. Dividends however, do represent earnings generated and were therefore added back. Adjustments were made for depreciation above the maximum rate, excessive interest payments and expenditure for other than business purposes. Revenues and expenditure from shares in other firms were not part included in the profit. The notional interest rate was applied to the book value of equity. If the tax base calculated was negative, losses could be carried forward for five years with an interest mark-up added (at the notional interest rate). After adjustments had been made, remaining profits were taxed at 35 %.

Personal taxation

As mentioned in the beginning, part of the Croatian reform was to exempt dividends and capital gains at the personal level. Since the Croatian ACE kept the deductibility of interest payments and allowed a deduction of the notional return the system was neutral at the corporate level. The exemption of capital gains and interest receipts made the tax system neutral as a whole, this is consistent with the original idea of Devereux and Freeman (1991).

⁸ In Croatia, it was called the protective interest rate but to make the paper more understandable, I will refer to it as the notional interest rate.

Evaluation

Keen and King (2002) describes the experience of the Croatian ACE reform, they explain how the system functioned and discusses different critical views of the Croatian system. After its introduction in 1994, revenues rose sharply but since the whole system was restructured at the same time it is difficult to attribute this increase only to the ACE. The post-reform revenue level was only slightly lower than the average of the EU and Central and Eastern European countries. This can be taken as a sign that firms were not taxed too harsh or too kindly.

The risk-free rate is often argued to be the most appropriate rate; it is normally approximated with the government security rate (like in Belgium). In Croatia, financial markets were too fragmented so there was no obvious choice for a risk-free rate. The authors think that the choice of 5 % was not obviously too low nor obviously too high, a rather good approximation.

When eliminating the debt bias, capital-intensive companies are no longer favoured⁹. Some critics claim that large and state-owned or previously state-owned enterprises were overvalued and thus benefitted from a notional interest deduction above the appropriate level. Companies that are over-valued do in fact benefit from mismeasured tax liabilities for a few periods but the benefit gradually disappears when old assets are written down and new assets replace them. Mismeasurement of tax liabilities does not distort investment in a permanent way but it gives the firm a windfall cash-flow profit¹⁰. The authors state that a windfall profit like this would have been expected and taken into account when a state-owned firm was privatized. They also argue that even though they found some possible evidence of overvaluation (low rate of return relative to equity), this is fixed through revaluation of the assets, not through changes in the tax system.

A concern that is often raised regarding the ACE is that the tax payments in this system might not be taken into consideration in tax treaties with other countries with double taxation as an effect (which would discourage investment). In Croatia no evidence of related problems were found, even without a tax treaty, there was no problem for U.S. investors getting credit reliefs for the tax paid. Foreign investment in Croatia does not seem to have declined, as it is higher than most of its neighbouring countries' foreign investment levels.

The biggest issue of any ACE type reform is the lost revenue. Keen and King (2002) estimate that the deduction reduced the profit base by roughly one third; abolishing the deduction

⁹ Capital-intensive firms can borrow more easily since they can use their capital as collateral.

¹⁰ A windfall gain is an unexpected profit that arises from fortunate circumstances.

could generate twice as much revenue. However this is probably an overestimation since some of the investment never would have taken place under a higher marginal effective tax rate. Another problem was that the calculation of the deduction could get rather complex in Croatia. The complexity was mostly due to the fact that the interest rate had to be applied to the relevant balance sheet changes every month¹¹.

For the desired properties of the ACE to hold, the notional interest rate must be set at the right level but even if it is set at the wrong level Keen and King (2002) claim that it still might be better than the conventional system which implies a zero rate (allowing no deduction for protective interest). The degree of non-neutrality depends on the size of the difference between the actual and the appropriate rate of notional interest.

In 2001 the allowance was eliminated with no clear explanation. A new government was elected and chose to implement a new reform, lowering the statutory rate from 35 % to 20 % and eliminating the deduction. Keen and King (2002) identify the death of Franjo Tudjman in 1999 (and the following desire for change) and the increasing tax competition in the EU as partial explanations for the abolition. The authors describe a rather well functioning system that did not leave any technical flaws in the system. They state that the Croatian ACE is both attractive from an analytical perspective and close enough to conventional establishments. It is based on commercial accounts with only a few adjustments needed.

3.3 Italy

Italy introduced a partial ACE system in 1997; it was called the dual income tax (DIT). The Italian ACE was also part of a larger reform that had two aims; financial neutrality and a lower statutory tax rate leading to a lower effective average tax rate. This is curious since the ACE narrows the tax base and hence should be accompanied by a higher statutory tax rate. Something else that is interesting about the Italian ACE reform is that the deductibility of interest payments was removed at the same time, which is the main feature of a Comprehensive Business Income Tax that was described in section 2.

The ACE was partial since it did not exempt normal profits; they were just subject to a lower tax rate. Normal profits were taxed at 19 % and pure profits were taxed at 37 %. Exempting normal profits completely would imply a greater revenue loss and would probably have to be followed by an increase of the statutory rate. The partial ACE was part of a big reform, which

¹¹ There was a reason for the frequent calculations; it reduces incentives to time transactions around certain dates to reduce tax liability.

also shifted profit taxation to a broader definition of business income, including labour costs and interest payments. IRAP: a flat tax levied on all types of business activities was introduced. Thanks to its large base, a rate of 4.25 % allowed for a reduction of the statutory rate from 53.2 % to 41.25 % (Bordignon, Giannini and Panteghini 2001).

The notional return started from zero and increased when new subscriptions and retained earnings replaced old capital¹². Pre-existing equity was not included. The notional return was calculated by applying a notional interest rate to a measure of equity in the company (the equity base). The rate was set annually and depended on the market interest rate on public and private bonds (maximum 3 pp. above the market rate). If normal returns exceeded total profits the loss could be carried forward for four years (no interest rate adjustment and carry back were allowed).

The equity of young companies came closer to their total capital so they got a big reduction in the average tax rate although the average tax rate could never go below 27 %. Many other companies pressured the government for faster and clearer tax reductions. This resulted in a change of the system in 1999; partnerships and individual firms were allowed to compute the normal return on the full equity stock. From 2000 corporations were allowed to multiply their normal return on new equity by 1.2 and in 2001 the factor was increased to 1.4. These changes were supposed to speed up the transition to a system where the notional return is applied to all equity. An increasing number of firms started “hitting the 27 % floor”, which partly offsets the benefit of the DIT. A removal of the minimum average tax rate was proposed in 2001 (Bordignon, Giannini and Panteghini 2001).

Personal taxation

The Italian reform managed to reduce arbitrage and eliminate the discrimination between retention and distribution of profits. This was done by taxing the change in market value of portfolios and by taxing capital gains and losses at realisation with an adjustment mechanism to eliminate the advantage of deferral. If assets were not listed on regulated markets, the realised gain was proportionally spread out over the period of possession. When the sum of capital gain was negative, the shareholder got a tax credit that could be used to compensate for other capital gain tax or be carried forward for a maximum of four years.

¹² The notional return was called ordinary income in Italy but for consistency reasons I choose to refer to it as the notional return.

Italy's ACE was in place until 2003 but an ACE was introduced once more in 2011. The rate was fixed at 3 % for 2011, 2012 and 2013. From now on the rate will be determined each year by a ministerial decree based on the value of Italian treasury bonds. The rate can be increased by up to 3 % to compensate for a higher business risk (Deloitte Global Services Limited 2012). Italy has once more chosen to apply the notional interest rate only to new equity but it seems as if it is more of a full scale ACE, not just a lower tax rate for normal profits. At the personal level, the general rule is that dividends and interest receipts are taxed at 20 % (KPMG 2014). Neutrality is achieved with the current system. I have not found research papers evaluating the Italian ACE since it is mostly likely too soon to draw any conclusions from the reform after only three years.

Evaluation

Bordignon, Giannini and Panteghini (2001) find that the cost of capital was halved for equity after the reform, which can be attributed to the abolition of ILOR and the introduction of the DIT. The cost of debt financed investment increased since interest payments were no longer deductible and while the debt equity bias persisted, it was largely reduced. The possibility to multiply the normal return by 1.4 reduced the debt bias further while the minimum rate of 27 % increased the cost of capital both for equity and debt financed investments¹³.

The average effective tax rate decreased in Italy after the reform but not as much as the effective marginal tax rate. What is important is how high the rate is relative to the rates of other countries. They find that the Italian rate is still higher than those of most other EU countries¹⁴. That explains to some extent why there has been no significant effect on foreign investment. However, there are other non-tax wedges that are important for foreign investment. Italy's heavy bureaucracy and inflexible labour market most likely have a big impact on how attractive the country is for foreign investment. Only tax factors are researched in this paper.

3.5 Brazil

A version of the ACE was introduced in Brazil in 1996 as part of a big reform of the corporate income system. The Brazilian ACE variant differs in a significant way from the Belgian and the Croatian system that are closer to the originally proposed ACE. The difference lies in a

¹³ Normal returns cannot benefit from the 19 % tax rate and interest payments cannot be deducted against the 37 % rate.

¹⁴ The authors estimate the effective average tax rate in Italy using a method suggested by Devereux and Griffith (1998) but when comparing it to other countries they approximate effective average tax rates using statutory tax rates since the average rate approaches the statutory one when profitability increases.

restriction that allows notional interest to be deducted only when it is paid out to shareholders; hence there is no deduction for retained earnings, only for dividends. The notional rate of return is equal to the interest rate on long-term loans (de Mooij and Devereux 2009).

In the original ACE proposed by Devereux and Freeman (1991), the notional interest rate is multiplied by the company's equity base to get the notional return. This notional return is deductible from the company's taxable income. In Brazil, the system implied that firms that paid out dividends in excess of the notional return could deduct the full notional return as under any ACE. The difference from the original ACE is only relevant for firms that did not pay out enough dividends to reach the notional return, these firms could subsequently not take advantage of the full notional return. The equity increase resulting from a new investment increases the notional return but since the firm is already unable to benefit fully from the existing notional return, the increased equity does not add any benefit. These firms therefore face a different system. They can pay out their dividends as interest on equity and can deduct this from taxable income in the same way that other interest payments are deductible. Just like other interest payments the interest receipt at the personal level is subject to a withholding tax of 15 %.

Personal taxation

Before the reform, only interest payments on debt were deductible at company level.

Withholding taxes on dividends were levied at 15 % while interest receipts were taxed at 25 % implying an opposite distortion at the personal level. A consequence of the previous tax on dividends was that it was more attractive for firms to finance their activities using retained earnings.

The reform introduced deductibility for dividends. At the personal level, dividends were exempt and interest receipts were taxed at 15 %. A slight debt bias remained at the corporate level while dividends were favoured at the personal level. Dividends were tax-free after the reform but the dividends that were paid out as interest on equity were taxed as other interest receipts. The dividends that were paid out in excess of the notional return were tax-free at the personal level.

Evaluation

Klemm (2007) analyses the effects from the Brazilian ACE through various regressions. One significant result is that neutrality between sources of finance might not have been obtained since the notional interest rate was set too low (much lower than the bank interest rate).

Consequently he finds a remaining debt bias for firms that pay out dividends in excess of the notional return. Klemm (2007) labels those firms H type firms. The firms for which dividends paid do not reach the notional return are labelled L type firms.

Companies benefitted from financing activities through debt before the reform since the cost of capital was lower. For H type firms this benefit is removed and for L type firms it is reduced. L type firms should be indifferent between using new equity or debt to finance an investment since both imply a similar subsidy for investment. Using retained earnings to finance investment was seriously discouraged. Theoretically the debt bias should have been eliminated from the reform but in practice, the notional interest rate was set too low. This means that the debt bias remained for H type firms.

The big majority of firms in the data set did not reach the notional return. Still, dividend deductibility eliminates the distortion in the choice of debt or equity to finance new investment. The expected result would therefore be increased use of equity and decreased use of debt but no such results were found in the data. The reform resulted in more dividends paid out and the number of H type firms slowly growing. An increase in investment can also be seen after the reform but it is difficult to say whether this had anything to do with the effects on capital structure or if it was due to the lower statutory corporate tax rate, which was part of the reform.

A big shortcoming with this analysis is that there were so few H type firms in the data set and these firms were the only ones subject to the original ACE. Klemm (2007) suggests that an analysis of closed companies could have reached better results but there are difficulties in collecting data for these firms¹⁵. Due to its shortcomings, the analysis of the Brazilian ACE did not show strong effects, however it did not show any negative results or big problems either.

¹⁵ The tax system for closed companies was closer to the original ACE.

4 The situation in Sweden today

This section will give an overview of Sweden's current legislation and explain how the debt equity bias affects Sweden. The work of a committee gathered by the Swedish Ministry of Finance and their search for a remedy for the debt equity bias will be discussed. The ACE recommendation given by Sørensen (2010) mentioned in the beginning of the paper will also be explained in more detail.

4.1 Current Swedish legislation

The Swedish Ministry of Finance issued a memorandum on more efficient interest deductions in 2012 that explains the current legislation and makes suggestions on how to improve it (Finansdepartementet 2012). The main rule in the Swedish income tax act is that interest payments are fully deductible. In 2009 an exception to the main rule was introduced. The new legislation limits the deduction of interest payment for internally funded acquisitions. The aim is to prevent tax schemes where internally funded acquisitions of ownership rights within a community of interest are used in order to receive beneficial tax treatment. The new legislation is applicable when a loan within a community of interest is used to acquire ownership rights within the same community of interest¹⁶. For cases like this, deductions of interest payments are not allowed.

To prevent tax evasion through the use of external loans, there are two main rules. The first rule states that deductions cannot be made if the external debt is paid off and then completely or partially replaced by internal debt. The second rule is that deductions are not allowed if the external debt is matched by a claim that another company within the community of interest has on the external company. This rule is only applicable when the loan is made to acquire ownership rights within the community of interest.

The ten per cent rule implies that deductibility of interest depends on how the recipient of the interest payment is taxed. A hypothetical test is made to determine the level of taxation that the recipient faces. If the recipient is located abroad, the classification is made according to the foreign legal system. Deductions are allowed if the income generated from the interest payment is taxed at 10 % or more¹⁷. "Ventilen", or the ventilator, is the name of the rule that allows deductions to be made regardless of the taxation of the recipient if the debt is

¹⁶ A company is considered to be in community of interest with another company if it has direct or indirect influence on that company or if the two companies are under the same management.

¹⁷ When making this decision profits and losses from the normal operations are not taken into account, the interest payment is seen as if it was the company's only income

commercially motivated. Sound commercial considerations should lie behind the relationship that is assessed.

The Swedish government asked the tax authorities to follow the evolution of tax avoidance using deductions of interest throughout 2009, 2010 and 2011. They found that intercompany indebtedness is often used for both internal and external acquisitions of subsidiaries. There are big possibilities to structure the corporation and debt so that deductions can be made in Sweden while the recipient is not taxed or taxed at a very low rate. The ten per cent rule has had unwanted effects. Considerable interest deductions are obtained in Sweden when the internal claim has been placed within the group so that the ten per cent rule applies. They suggest that the rule should be changed or completed in order to prevent company internal debt establishment for tax reasons no matter if the recipient is taxed at 10 % or not.

The enforcement works well in the areas where it is applicable but too many areas are left unregulated. Some of the parts left unaffected are company internal loans in order to finance dividend payments, acquisitions of company internal claims or capital contributions to subsidiaries used to acquire internal ownership rights. The many exceptions imply a heavy administrative burden for the Swedish tax agency. Assessments are made based on foreign legislation and conditions, which is difficult and requires resources (Finansdepartementet 2012).

The Swedish ministry of finance gathered a committee to look over the Swedish corporate tax system. Many of the Swedish tax laws are designed for a small and closed economy and with a national perspective rather than an international one. The committee's task is to analyse the potential tax changes and their effects in the new global business climate. In a closed economy it is easier to balance deductions in one company with taxation in the receiving company but in today's global context, this is becoming increasingly difficult and the protection of the Swedish tax base is weakened.

A committee directive was issued in 2011 and discusses how the Swedish tax system can benefit business, investment and employment (Finansdepartementet 2011). One of the issues discussed in the directive is the debt equity bias and the possibility to make the treatment more similar for the two means of funding. The committee will give a suggestion for a more comprehensive system, which will replace the current one and reduce the equity discrimination. The new legislation must be consistent with current EU law.

In 2008 the Swedish government presented some guidelines for the tax policies over the coming years and some requirements regarding the design of the Swedish tax system. After the proposition was accepted by the parliament it has been the starting point for tax reforms. The guidelines for corporate taxation are to create incentives for investment and a fast development of production in Sweden. One way to do this is to reduce taxation of venture capital in the form of equity, which is consistent with the ACE. Reforms have to be sustainable and consistent with EU legislation, laws have to be symmetric, simple and consistent regardless of the size of the company or the industry in which it operates. Legislation must be competitive on an international level without impairing the Swedish tax base. Deferred taxation and double taxation should be avoided, current legislation and tax treaties with other countries should be reviewed. Reforms as a whole should result in a simpler and more stable system and a lower administrative burden for the companies.

It is more and more common that firms, when acquiring external ownership rights, reduce their expenses through tax planning (using interest deductions). Profits from a Swedish company are transferred to companies in low tax jurisdictions. This type of activity is not limited by the legislation from 2009 since this only covers internal acquisitions. The committee will investigate whether the rules concerning internal acquisitions could be extended to include external acquisitions as well.

The committee will research the possibility to implement an ACE, a CBIT, Thin-capitalisation rules and other reforms they find interesting. The suggestions will be judged based on accuracy, predictability and how easy they can be implemented in practice. The effects on investment, employment, distribution of wealth and GDP should also be taken into account when forming an opinion. The main idea is that the changes will lead to a tax base broadening that will finance a reduced tax rate for corporations. It is important to offer a competitive tax rate compared to other EU countries. Rules concerning transfer pricing are also designed to fit a closed economy and need a review. When designing a tax reform the Swedish tax base should be protected but it should still be an attractive country to invest and do business in. The administrative burden for the companies and for the Swedish tax agency should be minimized.

4.2 Sørensen's proposal

Sørensen (2010) suggests an ACE reform for the Swedish tax system to achieve financing neutrality. The only thing that has changed in Sørensen's calculation of the equity base compared to the original proposal by Devereux and Freeman's (1991) is that he also subtracts net new equity provided to foreign branches. This is to prevent that investments that do not generate tax revenue in Sweden erode the Swedish tax base. Dividends received from foreign companies can be included in the equity base as long as they are reinvested in Sweden. This way, all domestic investment is included in the Swedish ACE allowance.

Within the ACE system, firms could potentially issue new equity on the last day of the year, only to redeem them or pay out the revenue as dividends the next day still benefitting from the full ACE allowance. This implies that firms could benefit from a permanent tax relief without having to increase their equity finance. To prevent firms from doing this, an adjustment that ensures that the timing of dividends and new issues are taken into account is suggested. When a company tries to issue shares on the last day of the year and then redeem them the first day of the next year, the adjustment ensures that the ACE allowance increase by only $1/365$ of the amount of new equity. The calculations can be studied more carefully in (Sørensen 2010).

Choosing the right level for the notional interest rate

The present value of an investment should not change with taxation. To ensure this, the notional interest rate must equal the discount rate of future ACE allowance for shareholders. The discount rate depends on how certain future tax savings from the ACE allowance are. The risk is much associated with the risk of bankruptcy, which is reflected by the rate at which a company can borrow, the interest rate¹⁸. Therefore that would be a good choice for the notional interest rate but the administrative burden from having different rates for companies would be too heavy. Even if the neutrality is slightly reduced by having one rate for all companies, Sørensen (2010) suggests that the average rate of the corporate bonds market is a natural benchmark (assuming well functioning and liquid corporate bonds market).

Treatment of pre-existing equity

Sørensen (2010) estimates the revenue loss from allowing an allowance for pre-existing equity as well as new equity to be limited. It does not grant a deduction for equity from untaxed reserves (accelerated depreciation for example), neither does it grant a deduction for

¹⁸ When a firm goes out of business, unutilized losses that remain cannot always be deducted against other taxable income.

shares held in other Swedish or foreign companies. He estimated the loss of tax revenue in Sweden to be around 10 % of corporate tax revenue in 2007¹⁹. Sørensen (2010) explains the small Swedish ACE base by referring to multinationals having large debt-financed ownership in foreign companies. For ownership in a Swedish subsidiary, the negative effect on the ACE allowance will be offset by the positive effect of the new equity in the subsidiary but if the subsidiary is located in a foreign company, the aggregated ACE base is affected in a negative way. The small revenue loss could also be explained by a corporate income tax base consisting to a large extent of pure profits, which are taxed under an ACE.

Distortions caused by the ACE

Sørensen (2010) discusses the impact of a tax on pure profits on risk-taking. He acknowledges that the practical limitations of loss offsetting make it difficult to estimate the effect. There is a substitution and a wealth effect and they go in opposite directions. If loss offsets are very limited, that implies a large negative wealth effect. Losses carried forward means they can be saved and deducted against future income. In Sweden carrying losses forward is possible but there is no interest that ensures the present value of the deduction. The losses are not indexed and therefor lose their real value over time. Losses are not fully refundable, some losses are “wasted”. A way to address the issue could be to let losses offset other tax liabilities during the same year (like VAT etc.). This would limit the amount of losses “wasted” and give some of the benefits of a full refundability. In theory, the ACE should not affect private risk-taking but in practice it probably will, although to a smaller extent than the current system. A tax system that discourages risk-taking is not good for innovation, growth and investment although excessive risk-taking is of course not desired.

5. Analysis

The analysis will discuss the design of a Swedish ACE; the choice of notional interest, treatment of pre-existing equity and how it will be funded. I will also look at the effects that an ACE might have and whether these are desirable or not.

5.1 Tax Design of a Swedish ACE

If an ACE was to be implemented in Sweden, one of the first choices that will have to be made is whether the ACE allowance should be applied to pre-existing equity or not. Applying the allowance only to post-reform equity is cheaper for the government but firms will see the possibility of liquidating only to reform immediately after, taking advantage of the full

¹⁹ Assuming the required rate of return for investors to be 7 % (4 % risk-free rate + 3 % risk premium).

allowance without increasing equity. The incentives for investment will not change but the cash flow of the companies is affected. The government will have to spend part of the saved revenue on creating anti-avoidance legislation and enforcement. Brazil chose an extreme version by not only limiting the allowance to new equity but also only to dividends that were actually paid out. That makes it different from the ACE and I will not discuss this option for Sweden since the desired neutrality properties are not fully obtained. The Italian ACE variant only allowed deductions for new equity. Since Italy relaxed its restrictions in 2000 and 2001 to allow the equity base to be multiplied first by 1.2 and then by 1.4, to speed up the transition to an ACE applicable to the full equity base, one could draw the conclusion that starting with an initial equity base of zero was a bad idea. The multiplication by 1.4 was eliminated soon after though so it is difficult to draw any conclusions. Italy introduced an ACE reform once more in 2011, choosing again to limit the allowance to new equity, which can be seen as a sign that they thought it worked well. Belgium applied the allowance to pre-existing equity as well as new equity. The reform seems to be functioning well but, as Princen (2011) suggested, the unpopularity with the public probably has something to do with the tax benefit given to corporations without any resulting boost of employment or investment. The Croatian ACE functioned in a similar way as the Belgian reform. Keen and King (2002) estimated the revenue loss from the reform to be large, reducing the profit tax base by one third, unlike Sørensen (2010) who approximated the loss to be around 10 % of corporate tax revenues. He attributes this to the fact that no allowance is granted for untaxed reserves (such as accelerated depreciation) or for shares held in other Swedish or foreign companies. The revenues that the government can collect depends much on if Swedish companies are making pure profits. I have not researched how much pure profits Swedish companies make in this paper.

Theoretically, the incentives are the same whether the reform applies to pre-existing equity or not but a reform that only applies to new equity will probably give investment an extra boost.

Devereux and Freeman (1991) and their original ACE proposal speak for using the risk-free market interest rate since this should reflect the opportunity cost of investment. When the notional interest rate differs from the opportunity cost of equity this creates non-neutrality. To what extent depends on how big the difference is between the notional interest rate and the “appropriate” rate. The notional interest rate ensures that cash return to shareholders is taxed and equity that shareholders put into the company is deductible. The shareholder will try to maximize this net flow and when only the net flow is taxed, decision-making is not affected.

For this to hold, the ACE allowance must be certain so that the shareholder values it at the risk-free rate.

It can be seen that countries have listened to this when implementing their various ACE variants. Belgium uses the average government bond rate (from the year preceding the current fiscal year by two years). Italy set their rate depending on the market interest rate on public and private bonds. In Croatia, capital markets were not well functioning enough so they could not use the government bond rate. Sørensen (2010) speaks for using the average interest rate of the corporate bonds market assuming well functioning and liquid corporate bonds market. His argument for this is that the ACE allowance is not certain in Sweden due to the risk of bankruptcy but also due to the fact that the deductions carried forward lose value over time. The losses are not indexed and therefore lose their real value over time since there is no interest mark-up to ensure the remaining present value. Losses are not fully refundable and some losses are “wasted”.

In Sweden it should be possible to use the government bond rate since it is seen as almost completely risk-free. Using corporate bonds is a slightly more difficult option. The Swedish corporate bonds market is small and not very liquid (Gunnarsdottir and Lindh, 2011). Support functions of the market are underdeveloped but it is likely to expand and develop in the future (Mårtensson and Åström 2013). If Sweden’s corporate bond market is not liquid or well functioning enough the government bond rate might be a better idea even though the ACE allowance is not completely certain.

How should the reform be financed?

Since the ACE narrows the tax base, the reform requires financing to be revenue neutral. A very common argument against the ACE is that the statutory corporate tax rate has to be increased in order to make up for the lost revenue. This argument probably stems from the original proposal from Devereux and Freeman (1991), where they estimate how much the corporate tax rate would have to be increased to finance an ACE reform. But that is not the only option; the ACE can be financed in many other ways. The European commission states that the taxes that are the least detrimental to growth are consumption taxes, recurrent property taxes and environmental taxes (European Commission 2013). Therefore I will discuss the possibility to raise taxes in these areas to finance an ACE reform. The Swedish committee elected to propose a solution to the debt equity bias has been given directions to finance the chosen reform within the corporate sector’s taxation so these alternatives might

not be on the agenda but they are still interesting to look into. I will of course also discuss the originally proposed option of increasing the statutory corporate tax rate.

Statutory corporate tax rate

Since 2000, the statutory corporate tax rate has decreased in every EU country except for Hungary and Malta and the trend is likely to continue²⁰. The average corporate tax rate in the EU was 35.5 % in the mid nineties and had dropped to 23.5 % in 2013 (European Commission 2013). This is most likely a sign of tax competition between member states, competing for multinationals' profits and business. Considering the continuous decrease of corporate tax rates in EU countries, it is not plausible that a country would implement an ACE reform funded through increased corporate tax rates. None of the countries described in the previous section financed their ACE through an increased statutory corporate tax rate although in Croatia the abolition of the ACE allowed for a big drop in the statutory rate.

Devereux and de Mooij (2011) state that the effect of an ACE depends on the initial corporate tax rate and base of a country; welfare gains are higher for countries with high initial tax rates. Sweden's corporate tax rate is a little bit lower than the EU average so under this assumption the welfare gains from a unilateral implementation of an ACE should not be large. Sweden's welfare gain estimated through their model is estimated to approximately 0.7 % of GDP when the ACE is financed through lump sum transfers. When the ACE is financed by an increase in the statutory rate the welfare gain turns negative while the CBIT reform seems very beneficial, generating a welfare gain of 1.9 % of GDP (when the statutory rate is lowered after the abolition of interest deductions). Devereux and de Mooij (2011) find a very high welfare gain for Sweden from a coordinated ACE reform, when all EU countries implement an ACE and finance the reform through increased corporate tax rates. The ACE implies welfare gains both when it is financed through lump sum transfers and when all countries increase their tax rates but not when Sweden unilaterally implements an ACE and increases the statutory rate. From this result it can be seen that the welfare loss from a unilateral ACE implementation originates from the loss of competitiveness relative to other countries and the following international spill over effects. It can be discussed which tax rate is the most important one, the statutory rate, the marginal rate or the average rate. I will leave this discussion for another paper.

²⁰ Malta has kept its statutory rate of 35 % throughout the period and Hungary has seen an increase of 1 percentage point since 2000.

Consumption taxes

Increasing consumption taxes is the easiest way to raise revenue since its base is so broad. A rise in consumption taxes will increase prices and could create inflation in the short run (European Commission 2013). Given Sweden's current situation of zero inflation or even deflation, possible inflation is not something that should be alarming. Sweden has a standard VAT rate of 25 % and some goods and services are subject to reduced rates. One possibility is to raise the standard VAT rate; since it has such a broad base a small increase would generate big revenue. However, it should be noted that Sweden already has one of the highest VAT rates in Europe. It can be argued that consumption taxes put the poor at a disadvantage since they often have to spend all their money on consumption while richer individuals can save money (savings are untaxed). But then again, savings are just postponed consumption.

Another option is to remove reduced rates, moving towards a flat tax on consumption. A uniform 25 % rate for all goods and services would make tax evasion more difficult at the same time as generating more revenue. It might be difficult to remove the reduced rates since they are typically applied to goods and services for which more consumption is desired in society because of positive externalities. These goods are for example books, vegetables, museum entrance fees or other cultural activities. Even if the goods facing reduced rates would just become subject to standard taxation it would probably be perceived as an extra tax levied on these goods.

Recurrent property taxes

Increased taxation on immovable property will not raise as much revenue as increased taxation on consumption but it is a reliable source of income for the government and the distortionary effects are rather small. In Sweden, all interest payments are deductible at the personal level (Skatteverket 2014). The deduction of interest payments on mortgages was previously countered by a proportional property tax but in 2008 the tax was replaced by a low fee (Finanspolitiska Rådet 2008). The result of this has been that more investments are channelled into the properties than what would be optimal in the absence of taxation, which is inefficient. The removal of the proportional property tax was financed by an increased tax rate on the capital gain received when selling property. This creates a lock in effect but I will not describe this in further detail in this paper. According to the uniformity principle and neutrality principle followed in Sweden; equal income should be taxed the same way and individuals' choices should not be distorted by taxation. This is consistent with the ACE

reform and would also fit well with a reform of recurrent property taxation. In today's globalized world, taxation of immobile factors is attractive for tax authorities.

High indebtedness of Swedish households has been pointed out as a matter of concern by the European Commission (2013). Low recurrent property tax, deductibility of interest payments and low amortization requirements channel makes it attractive to invest in property. The commission states that a drop in prices in the housing market or increased interest rates on mortgage payments exposes households to big risk. They recommend Sweden to reduce the debt bias and the deductibility of interest payments. There is technically a subsidy for investment in property now and it is difficult to say what effects a removal of the subsidy would have on existing investments.

Environmental taxes

The third area recommended by the EU for raising extra tax revenue is environmental taxation. Environmental taxes on consumption are particularly beneficial. These taxes generate revenue but they also have other benefits for society; they help reduce climate change and reach environmental targets. Environmental taxes have a relatively narrow tax base and can therefore not be expected to generate as much revenue as the consumption or the recurrent property tax. Sweden is not one of the countries pointed out by the European Commission as being able to boost tax revenue from environmental taxes, probably because Sweden is often ahead when it comes to environmental topics (European Commission 2013).

Development in other EU countries

Several reforms have taken place in the EU during 2012 and 2013, many of them have aimed to reduce the debt bias through thin-capitalisation rules or earnings-stripping rules (European Commission 2013). Thin-capitalisation and earnings-stripping rules are more in line with the CBIT reform, which owes much of its popularity to the possibility of a lower statutory corporate tax rate. In the committee directive from the Swedish ministry of finance (2011) it was also indicated that a reform that broadened the tax base and lowered the rate would most likely be the one chosen (although nothing was decided in advance). These facts combined with the high welfare gains found by Devereux and de Mooij (2011) suggests that Sweden will be more attracted to a CBIT type reform. The current legislation is also approaching thin-capitalisation rules through various rules on when interest deductions can and cannot be used.

In despite of this, the ACE is not completely out of the question. Belgium chose to implement the ACE in 2006 and now Italy implemented an ACE once more in 2011 after the abolition in

2003. Sørensen's (2010) suggestion in also suggests that the ACE is not off the agenda, but instead a relevant reform to research more closely.

5.2 Effects of an ACE

Eliminating tax avoidance

One might ask if it is so obvious that the debt bias should be eliminated. As mentioned in the introduction, the use of debt finance does have some positive aspects although the negative ones seem to be greater. The removal of the debt bias will eliminate tax avoidance through debt shifting but it will not remove the possibilities of transfer pricing manipulation. After the removal of the debt bias, transfer-pricing manipulation might increase since the option of debt shifting is removed. The committee is also supposed to review the legislation on transfer pricing manipulation. But is it a good idea to eliminate every way of tax avoidance?

Multinationals are the ones who are primarily taking advantage of both debt shifting and transfer pricing manipulation since they have the possibility to shift debt to subsidiaries in other countries. If the possibility of tax avoidance was removed in Sweden, multinationals with mobile production factors might decide to move their business elsewhere. Sweden would not only lose the existing tax revenue but also job opportunities. At the same time, the reduced cost of capital for equity finance following the ACE reform makes business in Sweden more attractive for multinationals.

Benefitting capital-intensive industries or not

The debt bias benefits capital-intensive industries, as explained in the section about Croatia's ACE reform. Therefore a removal of the debt bias will benefit small firms. Smaller firms are often younger and will have to rely on equity to a larger extent so an equity tax shield is in their interest. Considering these facts, it is strange that both Belgium and Italy have results showing that the large firms are the ones changing their capital structure the most. Princen (2011) mentions the possibility that large firms are more responsive to tax incentives. This could be due to the fact that a large firm might have employees that are analysing the best way to organise taxation and capital structure, while small firms have to keep focus on the main business. Another reason that could explain why small firms are not changing their capital structure as much is that they are already using equity. Larger firms will have an incentive to shift from debt to equity. Small firms are already using equity so the change in their capital structure will not be as large.

The equity tax shield is only relevant for companies that can raise equity, corporations. In Sweden the minimum capital requirement to start a corporation is 50 000 SEK (aktiebolagslagen 1 kap 5 §). The requirement is rather low and the equity tax shield could encourage more firms to become corporations. More firms financed through equity rather than debt will probably decrease macro-economic fluctuations.

Competitive advantage

While Sweden is a big producer of paper, iron and steel for example, Sweden's perhaps largest competitive advantage today is knowledge and innovation. Sweden cannot compete with the cheap labour in other countries and even though productivity growth has been particularly strong in manufacturing in the last decade and Swedish multinationals are competitive, a large part of operations is located abroad. Sweden ranks high when innovation is measured but the amount of companies entering and exiting the Swedish market relative to the existing stock of companies is low. That implies what OECD has also pointed out, that Sweden's level of entrepreneurship does not match its high rankings in innovation. Making equity finance cheaper is a way to encourage entrepreneurship, start-ups and innovation, which is an area where Sweden has to focus in order to sustain its current competitiveness in the futures (entreprenorskapsforum.se).

Neutrality for whom?

For the ACE system to be neutral it is important that the taxation is symmetric both on company level and at the personal level. The Swedish tax system is not symmetric at the moment; at the personal level dividends and interest receipts are taxed at the uniform rate of 30 % (Skatteverket 2014) but at company level interest payments are exempt while dividends are not. If the ACE was introduced, neutrality would be achieved but it can be debated whether corporations are the ones who should receive the tax benefit. Interest receipts and dividends could also be exempted at the personal level, which would have similar effects.

6 Conclusion

In most mature economies, the cost of debt is deductible while the cost of equity is not. This is often referred to as the debt equity bias or the debt bias and it creates an incentive for firms to take on more debt than what would be optimal in absence of this discrimination between sources of funding. The debt bias is problematic for a number of reasons; besides increasing systemic risk a welfare loss is created due to sub-optimal investment level, funds invested in assets that are not the most productive ones or costs resulting from tax planning and tax avoidance.

An implementation of an ACE in Sweden is a possible solution to the debt equity bias. The reform does not require any major changes to current accounting practices; it is compatible with established conventions. The only big change is that companies would have to calculate their notional return. They will do this by multiplying a notional interest rate with their equity base (total equity or only post-reform equity). The rate chosen would most likely be the government bond interest rate. It is the method suggested in the original proposal by Devereux and Freeman (1991) and it is also the rate chosen for the Belgian reform. The average corporate bond rate is also an interesting alternative but it depends on the liquidity and the functioning of the Swedish corporate bonds markets, a market that is still rather small. There are both positive and negative aspects with applying the allowance to both new and pre-existing equity. Only applying it to new equity is cheaper for the government but it also creates a need for anti-avoidance measures to make sure that firms do not liquidate and immediately reform, taking advantage of the full allowance. The ACE has several attractive neutrality features; by allowing the cost of debt and equity to be deducted, only economic rents are taxed. This implies that the effective marginal tax rate of new investment is zero and that the scale of investment is not distorted. The ACE eliminates the incentive for debt shifting and neutralises the choice of source of funding.

Implementing an ACE requires funding since it narrows the tax base. In the original proposal by Devereux and Freeman (1991), the ACE was to be funded through an increase of the statutory corporate tax rate. This does not seem like a plausible solution in the climate of increasing tax competition in Europe. The European Commission identifies consumption taxes, recurrent property taxes and environmental taxes as the least detrimental ones. While an increased VAT or elimination of reduced VAT rates would be an efficient alternative it might be difficult to implement in practice. The interest deductibility for mortgages combined with

low fees and low amortization requirements channels too much investment into the property market so a reintroduction of the proportional recurrent property tax would most likely improve efficiency. The revenues from this could go to the funding of an ACE. Sweden is usually ahead when it comes to environmental taxation so increasing environmental taxes even more would probably not raise enough money to fund the ACE. It could contribute though and environmental taxes reduce the negative externalities from emissions. The committee gathered by the Swedish Ministry of finance to give a suggestion on how to reduce the debt equity bias in Sweden is meant to finance the suggested reform within the area of corporate tax rates. This means that only the option of the statutory tax rate is under consideration. If the statutory tax rate has to be increased to fund an ACE, the chances of a Swedish ACE are seriously reduced. There has been a steady decrease of corporate tax rates in the EU over the last two decades, which indicates increasing tax competition. The positive aspects of an ACE would struggle to outweigh the negative effects from an increased corporate tax rate²¹.

The trend in Europe seems to be going in two directions; some countries are going in the direction of a CBIT, implementing thin-capitalisation rules and earnings-stripping rules. These reforms go in the opposite direction of the ACE, limiting or removing the deductibility of interest payments to eliminate the debt equity bias. Others like Belgium and Italy have implemented ACE reforms. Since there are other alternatives that seem just as popular as the ACE, it would be interesting to see further research on the potential implementations of these reforms as well. It would also be interesting to see further research on the additional tax revenue that could be collected from a higher recurrent property tax or a flat VAT rate.

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²¹ Decreased investment in Sweden, potential relocation of multinationals, increased incentives for transfer pricing manipulation etc.

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