A joint Initiative of Ludwig-Maximilians-Universität and Ifo Institute for Economic Research

Working Papers

CLASSICAL CORPORATION TAX AS A GLOBAL MEANS OF TAX HARMONIZATION

Seppo Kari
Jouko Ylä-Liedenpohja*

CESifo Working Paper No. 665 (1)

February 2002

Category 1: Public Finance

Presented at CESifo Conference
on Corporate and Capital Income Taxation in the EU, Mons, December 2001

CESifo
Center for Economic Studies & Ifo Institute for Economic Research
Poschingerstr. 5, 81679 Munich, Germany
Phone: +49 (89) 9224-1410 - Fax: +49 (89) 9224-1409
e-mail: office@CESifo.de
ISSN 1617-9595

* We would like to thank Clemens Fuest, Jan Södersten and Alan Viard, as well as conference participants in Mons, Uppsala and San Francisco, for comments and suggestions.

CESifo *Working Paper No. 665*
February 2002

CLASSICAL CORPORATION TAX AS A GLOBAL MEANS OF TAX HARMONIZATION

Abstract

Classical corporation tax entails double taxation of corporate income. The alternative practice to impute corporation tax to the domestic recipients of dividends is shown, in the case of a company with international owners, effectively to convert the imputation system back to a classical corporation tax. It also requires complex rules for exempting flow-through dividends from equalization tax to avoid the cumulation of corporation tax internationally. In contrast, classical corporation tax maintains its simplicity and can be designed so as to be neutral in respect of the financing and dividend decisions of multinationals, by adopting double taxation of interest income. Broad tax bases, flat-rate taxes on personal income from capital, and low statutory tax rates are advocated as general policy

JEL Classification: H25, G32, G35.

Seppo Kari
Government Institute for Economic Research
P.O.B. 269
00531 Helsinki
Finland

Jouko Ylä-Liedenpohja
Department of Economics
FIN-33014 University of Tampere
Finland
Ktjoyl@uta.fi

1. INTRODUCTION

Classical corporation tax regards corporations and their owners as separate tax entities and therefore double-taxes their income, first the corporation and then the owners, on dividends and realized capital gains. Such a tax system discriminates against the incorporation of business ideas, restrains the supply of equity finance necessary for their economic utilisation, reallocates resources from the corporate sector to the unincorporated one and thus causes an efficiency loss to the whole economy (Harberger 1962).

The need to eliminate these drawbacks led to tax reforms aimed at integrating the taxation of corporations and their owners. Many EU countries adopted the approach to regard corporation tax as a withholding tax of the owners' final income tax. Therefore, it would be credited on the distributed corporate profit against the owners' income tax on dividends. This system became known as the *avoir fiscal* in France and the imputation system in Britain, the purpose of which is to ensure that dividend income is taxed once. Crediting the corporation tax on the undistributed part of profits was not even considered because many European countries do not tax long-term realized capital gains at all, or tax it at a lower legal rate than dividends, with further benefit due to deferred realizations. Corporation tax on undistributed profits was seen as an accrual based tax. Without it undistributed profits would escape taxation altogether, which would be against the idea of a comprehensive income tax.

Imputation credit is typically not extended to foreign shareholders nor is it granted on dividends received from abroad, except on a reciprocal basis. Therefore the imputation system does not eliminate the double taxation of foreign-source dividends or foreign-destination dividends. On the contrary, foreign-source dividends distributed onward are typically subject to an equalization tax in the home country of the dividend-distributing company. The tax adjusts corporation taxes up to the imputation credit on dividends, if the corporation tax falls short of it.[1] This means that foreign-source dividends are double-taxed when leaving the country of the dividend-paying company, and the shareholders' countries of residence may levy their own dividend taxes.

[1] The operation of equalization tax differs in detail between national systems. An excellent reference is Harris (1996).

These features demonstrate that the imputation system is not a multinational-friendly arrangement, and this is recognized in literature; see Boadway and Bruce (1992).[2] On the practical side, Germany and Ireland decided to give up the imputation system altogether. The UK and Norway have taken considerable steps away from it. This seems peculiar because the imputation system was the favoured corporate tax system in the European tax harmonization debate, and until the early 90's the number of countries operating the imputing system was increasing. Finland remains one of the countries that fully impute corporation tax to tax-paying domestic recipients of dividends.[3]

In the light of these developments it is useful to review some of the basic features of corporation tax in an international setting. Below it is demonstrated more formally that:

(i) corporation tax starts to cumulate if foreign-source dividends are tax exempt, but onward-distributed dividends are subject to equalization tax, and more importantly that

(ii) given the mixture of foreign and domestic ownership, the imputation system effectively converts back to a classical corporation tax with double taxation of dividends when the imputation credit is not granted to foreign-destination dividends of a multinational with foreign shareholders.

Therefore, some of the old properties of classical corporation tax are demonstrated:

(iii) a tax that does not allow for the deduction of interest expenses on debt, combined with equal tax rates on interest, dividend and capital gains in the shareholders' income taxation, is neutral with respect to financing and dividend decisions of the firm (King 1974, 1977); hence the corporation tax base comprises of the return on both equity and debt.

(iv) in the case of multinationals corporation tax does not cumulate if the foreign corporation tax is always either fully credited against the domestic tax in the country

[2] Alworth (1988, 37) quotes a Treasury Minister as saying "… the imputation system was invented by the French to be beastly to the Americans" because it favours domestic ownership over foreign. In fact, Fuest and Huber (2000) show that imputation credits are not optimal in an open economy from a welfare point of view.

[3] The Finnish imputation system levies equalization tax if the imputation credit exceeds the corporation tax on profits and the unutilized past tax surplus of the last ten years (previously paid taxes on undistributed profits). There is an exception to this rule. Equalization tax is not levied when tax-exempt remitted dividends from a foreign subsidiary are paid to foreign shareholders (flow-through dividends). In this way the Finnish imputation system attempts to eliminate the multiple taxation of cross-border dividend flows.

receiving foreign-source income or is exempt from it, the two main ways of treating foreign-source corporate income in the EU.

Property (iii) then simply extends double taxation to the whole income generated by the corporation and adopts the flat-rate approach to the personal taxation of income from capital, as currently in the Nordic countries. The design is then a double-tax version of the comprehensive business income tax (CBIT) -proposals, widely discussed in tax policy literature over the past decade; see Cnossen (1996) and US Treasury (1992). It would also offer a natural solution to the well-known difficulty of taxing foreign-source interest income in the presence of interest deductibility and growing tax-exempt ownership (Bond 2000 and Cnossen 1996).

The remainder proceeds as follows. Section 2 explains the imputation system and develops the key concepts for analysing the financial choices of a company that operates in its home country only. Section 3 builds up assumptions and definitions regarding the international taxation of income flows. Section 4 considers the case of a multinational and the tax incentives for repatriating and distributing onward foreign-source income in the imputation system. Section 5 demonstrates the advantage of the classical double-tax system over the previous one. Section 6 concludes with a policy discussion. The appendix reviews the cost of capital for internally financed domestic and foreign investments and how it does depend on the personal tax rate of future dividends on such an equity. This trapped equity approach is the driving analytic force of the paper as a whole.

2. THE IMPUTATION SYSTEM AND FINANCIAL DECISIONS

Following King (1974, 1977), the shareholders' credit is defined in terms of the rate of imputation u according to which the received dividend d is deemed already to have been taxed in corporation tax. Therefore, the taxable gross dividend per euro of dividends received is 1/(1-u) euros, which carries a credit of u/(1-u) of a euro. Both the dividend and the credit are taxed at the personal income tax rate of τ^d. After the credit the investor's additional tax on dividend d is

(1) $$T^d = (\tau^d - u)\frac{d}{1-u},$$

and his post-tax dividend θ from a declared dividend of one euro d=1 is

(2) $$\theta = 1 - T^d = \frac{1-\tau^d}{1-u}$$

An important element is the market valuation γ of one euro of post-tax undistributed profit. There are investors in the market who seek to benefit from the possibility of different tax treatment of dividends and capital gains. In arbitrage equilibrium the market price γ must be such that investors are indifferent as between pocketing the post-tax dividends or selling their shares. Then they realize a post-tax capital gain of $(1-\tau^g)\gamma$ per euro of post-tax profit of the corporation, τ^g being the effective accrual-equivalent tax rate on undistributed profit facing the investor. Hence, the no-arbitrage condition

(3) $$(1-\tau^g)\gamma = \theta$$

gives the market valuation coefficient of undistributed profit[4]

(4) $$\gamma = \frac{1-\tau^d}{(1-\tau^g)(1-u)} .$$

In this section we assume the company to operate in its home country only (h-country). The following additional concepts are needed to derive the total tax liability T of the corporation and its financiers:

y^h = real operating profit in the h-country, assumed also to be the taxable one

b = real interest expenses

β = a variable describing the degree of deductibility of real interest expenses from the corporate tax base, with $\beta = 0$ when not at all deductible, and $\beta = 1$ when fully deductible;

[4] This is the most direct way to derive the tax capitalization hypothesis which is the core of the trapped equity argument, as developed by King (1977) and popularized by Auerbach (1983) and Sinn (1987) in particular.

τ^h = the rate of corporation tax in the h-country; and

τ^b = the effective personal tax rate on real interest income.

The effective tax rates are typically different from the legal rates due to inflation, but the problem is abstracted away in this paper. Now we obtain

$$T = \tau^h\left(y^h - \beta b\right) + \tau^g\left[y^h - b - \tau^h\left(y^h - \beta b\right) - d\right]\gamma + \tau^b b + \left(\tau^d - u\right)d/\left(1-u\right) \tag{5}$$

where the first term is the corporation tax liability T^h, the second is the shareholders' capital gains tax liability, the third is the interest income tax on debt, and the fourth the additional personal dividend tax. In the second term the bracketed expression is the undistributed post-corporation tax profit, which multiplied by γ gives the true taxable capital gain. The construction guarantees that the owners receive the same post-tax income whether post-corporation tax profit is distributed or retained.

Consider the financial decisions of the company, adopting a purely static approach. The question is how to allocate the real true post-tax income generated by the corporation among real interest expenses on debt, dividends and retained profit that is capital gains to the shareholders. The tax consequences of those decisions for both the corporation and investor are partial derivatives of condition (5). Let us start from the trade-off between interest expenses and retained profit. This is independent of the tax system,[5] if the following holds:

$$\tau^b - \tau^h\beta = \tau^g\gamma\left(1-\tau^h\beta\right) \tag{6}$$

The lhs gives the combined net tax burden from allocating one euro of pre-tax profit to interest payments: the investor's tax on additional interest income minus the tax shield due to their deductibility from the corporate tax base. This must be the same as the shareholder's

[5] Formally conditions (6) and (7) respectively derive from $\partial T/\partial b = 0$ and $\partial T/\partial d = 0$. The same conditions follow from the necessary conditions of the underlying intertemporal problem.

increased capital gains tax on the rhs, if the company decides not to increase its interest payments, thus saving a net $(1-\tau^h\beta)$ from one euro of interest expense.[6]

Consider next the trade-off between allocating post-tax profit to dividends or retaining it for financing investment. It is not affected by the tax system if the following is true:

$$\frac{\tau^d - u}{1-u} = \tau^g\gamma \tag{7}$$

That is, the investor's additional tax burden must be the same, whether the corporation uses one euro of post-tax profit on dividend distribution (lhs) or retains it in the corporation (rhs). There is, of course, a third trade-off between debt and new share issues, which is given by the left-hand sides of conditions (5) and (6). It is, however, redundant, for if (5) and (6) hold simultaneously, the tax system does not distort the financing and dividend decisions of the company.

It is immediately clear that the classical corporation tax (u = 0), without the deductibility of debt interest β = 0, satisfies conditions (6)-(7) simultaneously

$$\tau^b = \tau^g\gamma \tag{8a}$$

$$\tau^d = \tau^g\gamma \tag{8b}$$

if the following is true of all investors' tax rates

$$\tau^b = \tau^d = \tau^g, \tag{9}$$

whence $\gamma = 1$ holds in the classical system.[7] The condition (9) is satisfied in principle in the

[6] As a matter of fact, the interpretations of this and condition (7) are much more delicate as is evident in the original reference (King 1974, 1977, ch, 4; see also Sinn 1987, ch. 4.2). The interpretations are, however, fully sufficient for the clarity of the current policy problem.

[7] Besides the uniformity of the flat-tax rates among investors, it should be emphasized that the taxation of true economic income both at the corporation and investor levels is decisive for neutrality of financial policies. Consideration of the investment incentives for different kinds of projects is beyond the scope of this paper, but the appendix summarises the effect of the tax system on the minimum required rate of return on investment.

Nordic flat-rate system of taxing income from capital, only earned income being subject to the progressive tax schedule. There conditions (8a-b) and (9) hold true except among tax-free and tax-paying investor groups. The latter is double-taxed while the former is taxed once. Hence, the only incentive is to channel savings and income from capital through tax-free institutions. The classical corporation tax described is not neutral with respect to the ownership of the corporations, though debt and dividend decisions are independent of the tax system.

Finally, to avoid the cumulation of domestic corporation tax, the natural solution is to exempt all dividends and interest income received from other domestic corporations, or otherwise corporation tax would have to be credited not only on received dividends, but also on interest income, and the possible surplus credits be remitted.

The imputation system eliminates the double-taxation of dividends, but not that of undistributed profits, which in some countries is not regarded as a problem due to the non-existent or low effective capital gains tax rate. Yet Finland, for example, runs a capital gains tax system where realized nominal capital gains are fully taxable[8] and unrealized gains are subject to an annual wealth tax. Thus the approximate uniformity (9) of the tax rates is reality. Hence it is obvious that the neutrality conditions (6)-(7) cannot hold under the imputation system. To see this, substitute the value of γ in (4) into conditions (6) and (7), set $\beta = 1$ because of the deductibility of interest expenses, use condition (9), and apply the full imputation tax credit on dividends $u = \tau^h = \tau^d$. Then the left-hand sides of conditions (6)-(7) are zero, and the right-hand sides are equal to τ^g. Such a system is neutral with respect to the sources of outside finance, but discriminates against internal finance. Neutrality of financial decisions would require the re-adoption of the old thinking, non-taxed long-term capital gains, or crediting the corporation tax on the accumulated undistributed profits during the ownership period as Norway does. In such a system a tax on capital gains realized before the company earns any profit at all is a tax on pure rents.

[8] After a 10 year holding period 50 per cent of the total gross proceeds from the realized asset is taxable income if that sum is less than if calculated on the basis of the original purchase price.

3. THE INTERNATIONAL TAX FRAMEWORK

Define

y^f = true operating profit of a foreign subsidiary

b^{hf} = repatriated interest income from a foreign subsidiary

b^f = real interest payments by a foreign subsidiary directly to investors.

Then the foreign corporation tax at the rate τ^f is

$$T^f = \tau^f \left[y^f - \beta^f (b^f + b^{hf}) \right] \tag{10}$$

where β^f denotes the deductible fraction of real interest expenses. The parent company may also repatriate dividends. The home country is assumed to credit the foreign corporation tax on income from which repatriated dividends are derived, and any withholding taxes up to the home country tax on the respective repatriated income. Therefore the total f- and h-country taxes on the repatriated income of the parent company are:

$$T^{hf} = wb^{hf} + \max\left[0, (\tau^h - w) \right] b^{hf} + d^{hf} \cdot \max\left\{ 0, \frac{\tau^h - \tau^f}{1 - \tau^f} - w \right\} + wd^{hf} \tag{11}$$

where w = the rate of the withholding tax in the f-country. Instead of crediting the underlying foreign tax, the home country may exempt the foreign-source income from the h-country tax, in which case the 0-arguments of the max-expressions are always true.

International investors are assumed to face the same tax rates on their interest, dividend and capital gain income as h-country residents. Therefore their total personal tax liabilities on interest income and capital gains respectively are defined as follows:

$$T^b = wb^f + \tau^b b^h + \max\left[0, (\tau^b - w) b^f \right] \tag{12}$$

$$(13) \qquad T^g = \tau^g \left[y - b - T^h - T^f - T^{hf} - d^h - d^f - \frac{u}{1-u} d^f \right] \gamma$$

In (13) repatriated income does of course not affect the true operating profit $y = y^h + y^f$ or total interest expenses $b = b^h + b^f$ of the multinational, T^h denotes the h-country corporation tax, and d^f = dividends paid out of repatriated income which are subject to equalization tax $u/(1-u)$ when distributed onward by the parent company. Therefore the equalization tax reduces the undistributed post-tax profit in (13).

The total distribution is $d^h + d^f$, where d^h denotes dividends paid from income taxed at the h-country rate of corporation tax. Thus, condition (1) must include not only the shareholders' additional dividend tax but also the equalization tax paid by the parent:

$$(14) \qquad T^d = (\tau^d - u) \frac{d^h + d^f}{1-u} + \frac{u}{1-u} d^f$$

The total tax liability of the multinational and its investors on its debt and equity is made up of the domestic corporation tax T^h and conditions (10)-(14):

$$(15) \qquad T = T^h + T^f + T^{hf} + T^b + T^g + T^d$$

The tax consequences for incremental interest and dividend payments follow from condition (15), analogously to conditions (6)-(7) from (5). Alworth (1988) and Keen (1991) study the same issues, extending the intertemporal analysis of King (1974). The taxation of border-crossing dividends is our main theme. Therefore, less attention is paid to the taxation of interest income for which brief principles are given at the end of sections 5 and 6.

4. DISTRIBUTIONS FROM REPATRIATED INCOME

The chain of dividend taxation is examined in two stages, repatriation and onward distribution by the parent, assuming the imputation system to be in operation.

Repatriation decision

Repatriation is examined in three different regimes. When the h-country credits foreign taxes against and up to the domestic tax on foreign-source income, the parent is either in a state of excess credits or deficit credits. The former (latter) occurs when the domestic tax liability on foreign-source income is lower (higher) than creditable foreign corporation tax and withholding tax. The third regime corresponds to the case where the h-country applies the exemption method to the foreign-source income of the parent company.

If the dividend repatriation is d^{hf}, the additional net taxes of the multinational and its owners are in the three regimes as follows:

(16a) $$\partial T/\partial d^{hf} = w(1-\tau^{g}\gamma);\ \tau^{h} < \tau^{f} + (1-\tau^{f})w$$ (excess credits)

(16b) $$= \frac{\tau^{h}-\tau^{f}}{1-\tau^{f}}(1-\tau^{g}\gamma);\ \tau^{h} \geq \tau^{f} + (1-\tau^{f})w$$ (deficit credits)

(16c) $$= w\left(1-\tau^{g}\gamma\right);$$ (exemption)

To interpret the net total tax effects in each regime, remember that one euro of post-corporation tax profit is repatriated as dividend. Therefore in case (16a) the subsidiary pays the withholding tax on it at rate w, which directly reduces the undistributed profit of the multinational as a whole. Its market value is γw. Thus the owners save in their capital gains tax liability, and (16a) gives the net tax effect of the two.

In (16b) the h-country recognizes that one euro of dividend results from $1/(1-\tau^f)$ euros of taxable income abroad, for which the parent pays domestic corporation tax at the rate τ^h, but receives the foreign tax credit of $\tau^f/(1-\tau^f)$. Now the excess domestic corporation tax over the foreign tax plays the same role as the withholding tax in (16a). The only difference concerns the distribution of tax revenues. In (16a) it is the source country of income and in (16b) the h-country of the multinational that gains while in both cases the countries of residence (r-countries) of the shareholders lose tax revenue. Condition (16c) speaks for itself.

Valuation of undistributed profit abroad

What is important in (16a-c) is that the coefficient γ now reflects the market value of post-corporation tax profit retained abroad, which also depends on possible additional taxes in the repatriation phase. Let this be represented by γ^f. Its value derives from an analogous arbitrage condition to (3) as follows:

$$(17) \qquad \left(1-\tau^g\right)\gamma^f = \theta^{hf}$$

where θ^{hf} denotes the post-tax dividend accruing to the shareholders of the parent from one euro's dividend from the subsidiary

$$(18) \qquad \theta^{hf} = \left\{1-\max\left[\frac{\tau^h-\tau^f}{1-\tau^f}-w,0\right]-w\right\}\left(1-T^d\right)$$

The first term in the curly braces is the dividend of one euro, the second the possible excess domestic corporation tax on it, and the third the withholding tax on it. The expression itself in the curly braces is the declared dividend of the parent resulting from the repatriation. The final multiplier term on the rhs defines the dividend after the owners' dividend tax. At the moment the imputation credit is assumed to be extended to all shareholders, also by those whose r-country differs from that of the multinational. This is equivalent to the assumption that the r-countries apply the credit method to the foreign-source dividends of all investors,

crediting both the withholding tax and the underlying corporation tax. Tax revenues, however, are allocated differently.

The value of γ^f now follows from conditions (17) and (18) in the regime of (16a), when the zero argument applies in the max term of (18):

(19a) $$\gamma^f = \frac{1-\tau^d}{1-\tau^g} \cdot \frac{1-w}{1-u}$$ (excess credit)

In regime (16b), the first argument of the max-term in (18) is the relevant one, whence

(19b) $$\gamma^f = \frac{1-\tau^d}{1-\tau^g} \cdot \frac{1-\tau^h}{1-\tau^f} \cdot \frac{1}{1-u}$$ (deficit credits)

follows. In the third regime of (16c), the h-country applies the exemption method, and dividends from the subsidiary, when distributed further to shareholders, are subject to equalization tax[9] determined on the basis of the dividend distribution d^f. Therefore conditions (17)-(18) now give

(19c) $$\gamma^f = \frac{(1-\tau^d-u)(1-w)}{(1-\tau^g)(1-u)}$$ (exemption)

Keen (1991) does not explicitly derive market valuation coefficients in different tax regimes. In our case they enhance the comprehension and transparency of analysis.

Total additional tax of onward distributed repatriated dividend

The total additional tax due to the repatriation and onward distribution by the parent is thus the sum of the effect in (16a-b) and the marginal dividend tax in condition (1), with the

[9] For presentational purposes the equalization tax is modelled only in the combination of the exemption method. In fact, the tax is also relevant in the case of excess credits (16a).

respective γ^f in (19a-c). In the case of exemption (16c), the onward distribution decision includes the effect of the equalization tax. Hence in each regime we obtain as follows:

(20a) $$\frac{\partial T}{\partial d^{hf}} + \frac{\partial T}{\partial d} = \frac{\tau^d - u}{1-u} - \tau^g\gamma + w(1-\tau^g\gamma) \text{ with } \gamma^f \text{ from (19a)}$$

(20b) $$\frac{\partial T}{\partial d^{hf}} + \frac{\partial T}{\partial d} = \frac{\tau^d - u}{1-u} - \tau^g\gamma + \frac{\tau^h - \tau^f}{1-\tau^f}(1-\tau^g\gamma) \text{ with } \gamma^f \text{ from (19b)}$$

(20c) $$\frac{\partial T}{\partial d^{hf}} + \frac{\partial T}{\partial d} = \frac{\tau^d - u}{1-u} - \tau^g\gamma + \left[w + \frac{u}{1-u}\right]\left[1-\tau^g\gamma\right] \text{ with } \gamma^f \text{ from (19c)}$$

It can be seen from (20a-c) that, in comparison to a solely domestic company, the neutrality of the dividend decision with the full imputation credit $u = \tau^h = \tau^d$ and with a zero capital gains tax rate requires the additional taxes both in the repatriation phase (the withholding tax or the excess of the domestic corporation tax rate over the foreign one) and the equalization tax to be zero. Were the dividend and debt financing decisions both simultaneously to be independent of the tax system, the foreign corporation tax rate at which interest expenses are deductible would have to equal both the domestic corporation tax rate and the personal tax rate on interest by an analogous condition to (6) and (9).[10] The cost of capital would then be the same for each source of finance and the same both in the f- and the h-countries; see appendix. These neutrality results are in conformity with Keen (1991) and Boadway and Bruce (1992) subject to the inclusion of equalization tax here.

Treatment of foreign shareholders

Introduce next the crucial property that the imputation credit is not extended to the foreign shareholders of the parent.[11] Assume that their ownership share is η and that they pay tax in the countries of residence on dividends at the same rate τ^d as the h-country investors. Hence

[10] Under these circumstances interest payments from the subsidiary directly to investors or through the parent company face the same effective tax burden as that on dividend flows.

the proportion 1-η of the shareholders receive the full[12] imputation credit $u = \tau^h = \tau^d$ when paying their dividend tax. Assume the share η to be constant and modify respectively definition (14):

$$T^d = (1-\eta)\left(\frac{\tau^d - u}{1-u}\right)d + \eta\tau^d d + \frac{u}{1-u}d^f \tag{21}$$

where $d = d^h + d^f$. This affects expression (18), the post-tax dividend θ^{hf}, in which the tax rate T^d is determined from (21) by setting $d^f = 1$.

The nature of arbitrage changes, too. There are now two kinds of arbitrators, both the foreign and domestic, arbitrating between post-tax dividends and capital gains. In addition, there is a group of arbitrators, daytraders, consisting of large financial institutions and small investors, who arbitrate away any share price differences between the above two groups. Therefore in equilibrium[13] they face the same share price both on cum-dividend and ex-dividend days. The post-tax capital gain must then be a weighted average of the post-tax dividends of the two groups analogously to condition (17).

From it the market valuation coefficient of undistributed foreign profits is derived in the three regimes as follows:

$$\gamma^{f\eta} = \frac{1-\eta\tau^d}{1-\tau^g}(1-w). \qquad \text{(excess credits)} \tag{22a}$$

$$\gamma^{f\eta} = \frac{1-\eta\tau^d}{1-\tau^g}\left(1-\frac{\tau^h-\tau^f}{1-\tau^f}\right) \qquad \text{(deficit credit)} \tag{22b}$$

---

[11] Nor can mutual funds and non-taxable domestic shareholders such as pension insurance companies and trusts, foundations, unions, and associations serving a public purpose claim the tax credit back in the Finnish system.

[12] The modeling of a partial imputation credit would only lead to clumsier expressions, without changing our conclusions in substance.

[13] In practice there are trading costs, and the profitability of stripping dividends around ex-dividend days depends additionally on the dividend yields and tick rules, as analysed in detail by Sorjonen (2000). The factors cause an arbitrage band around each group's tax-determined reservation price. The arbitrage bands may partially overlap. Daytraders guarantee that neither of the two groups alone can determine the share price.

(22c) $$\gamma^{fη} = \left\{1 - \eta\tau^{d} - \frac{u}{1-u}\right\}\frac{1-w}{1-\tau^{g}} \qquad \text{(exemption)}$$

It is immediately clear in case (22a) that the valuation parameter of internal equity is the same as under the classical system when u=0 holds in (19a). The only difference is that the dividend tax rate is weighted by the share of foreign shareholders $\eta\tau^{d}$. The same is of course true in case (22b) and (22c), exemption plus the equalization tax. The total tax effect of repatriation and onward distribution is then as follows:

(23a) $$\frac{\partial T}{\partial d^{hf}} + \frac{\partial T}{\partial d} = \frac{\tau^{d} - u}{1-u}(1-\eta) + \eta\tau^{d} - \tau^{g}\gamma + w(1-\tau^{g}\gamma)$$

(23c) $$\frac{\partial T}{\partial d^{hf}} + \frac{\partial T}{\partial d} = \frac{\tau^{d} - u}{1-u}(1-\eta) + \eta\tau^{d} - \tau\gamma + \left[w + \frac{u}{1-u}\right]\left[1-\tau^{g}\gamma\right]$$

from which the obvious case of deficit credits is omitted and where γ is the respective $\gamma^{fη}$ from (22a,c). When the h-country of the parent fully imputes the corporation tax to its resident shareholders $u = \tau^{h} = \tau^{d}$, the first terms in (23a-c) are zeros. The combined effect of the remaining three terms should then be zero for the tax neutrality of repatriation and onward distribution. This justifies a positive capital gains tax rate, which would be $\tau^{g} = \eta\tau^{d}$ in the case of no withholding tax w = 0. However, the distortion in favour of debt finance remains because of interest deductibility.

The case of exemption (22c) differs from the case of excess credits (22a) only by having a lower market valuation of foreign internal equity due to the cumulative effect of equalization tax. This explains why in Finland politicians have granted a concession from equalization tax for onward-distributed dividends paid abroad. The exemption of foreign-source dividends in the r-country of the multinational is not consistent with the imputation system and equalization tax.

Hence in the case of not extending imputation credits to foreign shareholders the imputation system effectively converts to a classical corporation tax with double-taxed equity but once-taxed debt irrespective of whether the home country of the parent company runs a system of foreign corporation tax credit or exempts foreign-source dividends. Thus the multinational ownership structure of a multinational together with an imputation system in its home country potentially distorts its financial structure. Contrasting these results to those of the previous subsection, brings forth the necessity of extending imputation credits to foreign shareholders to achieve financial neutrality in the imputation system.

5. GLOBAL CLASSICAL CORPORATION TAX

The natural question then arises that if the behavioural incentives of classical corporation tax are an unavoidable property of the practical imputation systems in an international perspective, why not adopt it directly without the current administrative complexities. And why not adopt it without the deductibility of debt interest expenses globally.

In such a case there is no economic justification for collecting withholding tax. So let us assume w = 0 as well as uniformity (9) of flat-tax rates on all kinds of income from capital, whence $\gamma = 1$ holds under classical corporation tax, u = 0. Then the total tax effect from repatriation and onward distribution is zero in cases of excess credits (20a) and exemption (20c). What is paid in dividend tax due to those decisions is saved in capital gains tax. The repatriation and onward distribution of dividends is independent of the tax system. Equity income is double-taxed, first in the r-countries of the subsidiary and parent on their domestic income, thereafter in the r-countries of the investors at the tax rates $\tau^d = \tau^g$.

The r-countries of the investors collect revenue from dividend tax, capital gains tax and interest income tax. The r-countries of the corporations collect corporation tax revenue at their respective rates. Under these conditions the deficit credits case (20b) is only slightly different, because the h-country corporate tax rate exceeds the foreign one and therefore collects some corporation tax revenue with respective incentives to delay repatriation. To see the significance of this regime for the overall neutrality requirement for financial policies, consider now the decision to repatriate interest income, but continuing to assume classical

corporation tax, without the deductibility of interest expenses β=0, and with the uniformity condition (9) of flat-tax rates irrespective of the investors' r-countries.

Interest payments directly to investors

Consider a multinational, the foreign subsidiary of which pays interest expenses directly to its international investors. Assume for the moment the existence of a foreign withholding tax w. Analogously to (6), the total tax consequence of paying interest expenses is zero when the following holds:

(24a) $$w - \tau^f \beta^f = \tau^g \gamma (1 - \tau^f \beta^f); \quad w \geq \tau^b$$ (excess credits)

(24b) $$\tau^b - \tau^f \beta^f = \tau^g \gamma (1 - \tau^f \beta^f); \quad \tau^b > w$$ (deficit credits)

where γ is given by conditions (19) and depends on the withholding tax rate. But, without interest deductibility β = 0, there is no economic justification for the withholding tax any more. Hence, set w = 0 and eliminate condition (24a). The valuation factor of internal equity γ = 1 now holds with uniform personal tax rates (9). Tax neutrality would then prevail as between decisions to increase and decrease interest payments along with their non-deductibility $\beta^f = \beta^h = 0$.[14]

Repatriation of interest

With non-deductibility of interest expenses the only consistent way is to exempt them in the taxation of the parent company. In the end it will be double-taxed when distributed onward, at the rate τ^b when paid to those investing in the debt of the parent, or at the equal dividend tax (9) if in the form of dividends. Withholding tax and crediting of it are consistent only with interest deductibility.

[14] On the other hand, the reporting of foreign-source interest income is regarded as a problem. Were there a withholding tax $w = \tau^b$ in combination with non-deductibility, no control or obligation to report them under exemption would be required. Nor would investors' r-countries collect any tax revenue.

6. CONCLUSION

Both the imputation system, which credits corporation tax on dividends to shareholders, and classical corporation tax, which double-taxes dividends, are examined as tax systems of a multinational, the ownership of which is internationally dispersed. Most international tax literature deals with the tax incentives of repatriation within a multinational under different ways of treating repatriated income in the taxation of the parent company. The analysis here is extended to take the tax incentives of onward distribution into account, i.e. via the capitalization of equalization tax and foreign shareholders' potential imputation credit in the market value of undistributed profits of foreign subsidiaries.

The major finding[15] is that, when the restriction of the imputation system in not extending the imputation credit to dividends paid abroad is taken into account, the imputation system effectively converts back to a classical system with double-taxation of equity income, favouring debt finance, the system it was supposed to replace. This property occurs irrespective of whether the exemption method or the foreign tax credit is applied to the taxation of repatriated income. As there are administrative complexities in running the imputation system so as to avoid the cumulation of corporation tax internationally, the paper addresses to the benefits of classical corporation tax as a global system.

The particular design advocated here is to extend double-taxation to the entire income of a corporation. Classical corporation tax, without the deductibility of interest expenses, but combined in personal taxation with uniformity of flat-tax rates among all categories of income from capital, is demonstrated to produce

(i) neutrality with respect to the sources of finance, if the rates of corporation tax and the personal flat-tax rates of income from capital tend to converge to the same level in each country because of tax competition and global harmonization efforts; the return

[15] In the appendix the Hartman-Sinn result, in which the potential "dividend tax" of the repatriation phase does not affect the incentive to expand or contract a capital stock abroad, is extended so that neither does dividend tax on repatriation or onward distribution, including equalization tax and foreign shareholders' potential imputation credits, affect the cost of capital of a foreign investment financed from profit retention. Instead, repatriation and onward-distribution dividend taxes are shown to affect the average tax rate of undistributed profits of foreign subsidiaries via capitalizing into the market value, the precise reason why they do not affect the cost of capital.

on outside equity, internal equity and debt would be double-taxed, first at the corporate level, thereafter at the investor level

(ii) fair division of tax revenues among the resident countries of corporations and investors

(iii) administrative simplicity; income from other corporations would be non-taxable to the receiving corporation; there is no justification for withholding tax on repatriated income when the payer is another corporation

(iv) apprehension and clarity

The kind of system outlined above is not free from the general handicaps of comprehensive income tax due to its obstinacy in taxing income from capital on an accrual basis, which distorts intertemporal saving and investment decisions, and its quality of not treating all categories of ownership equally. That is why savings tend to be channelled through the non-taxed sector, distorting the ownership structure of the corporate sector. International tax competition towards lower legal tax rates and tax harmonization efforts aimed at broader tax bases would reduce these distortions.

The blueprint for international tax co-ordination would entail adopting

(i) true economic income as the basis of both corporation and personal income tax

(ii) a dual approach in the latter, where all categories of income from capital would be taxed at the same flat rate and separately from earned income, which is taxed at progressive rates[16]

(iii) classical corporation tax without deductibility of interest on debt as a global system

(iv) the exemption method in the taxation of all corporate-source income, foreign or domestic

and elimination of

(v) annual wealth taxes

(vi) imputation credits, equalization taxes and other restrictions on flow-through dividends and realized capital gains, within the corporate sector.

[16] The splitting of income of non-listed companies into capital income and earned income is regarded as necessary in those countries where marginal tax rates on earned income exceed the double-tax rate on income from capital, as in Nordic countries.

The line between debt and equity is thin. Non-voting preferred stock and long-term subordinated bonds, both convertible to common stock, are economically very close instruments except for their tax treatment. Classical corporation tax without interest deductibility would make such distinctions irrelevant. No thin capitalization rules in the countries hosting subsidiaries of multinationals would be needed. The lifting of interest deductibility would of course cause problems of transition,[17] but it would solve the problem of interest income taxation, mentioned at the outset, taxing it effectively at source, as envisaged by Cnossen (1996).

Finally, there is the question of tax havens. They mostly cannot invest productively in their own jurisdictions the funds they receive, but elsewhere. Investment income from funds, the marketing of which is registered in the investor's country of residence, would be taxed in the same way as income from domestic funds, with all deals reported to the tax authorities. Investment income from tax havens paid directly to investors would thus face at least the same effective tax burden as that enjoyed by non-taxed institutions from their domestic and foreign investments. Thus tax havens may be seen as vehicles of tax competition and as enhancing economic efficiency.

[17] An obvious rule would be eliminating it on all new borrowing, continuing to levy withholding tax on long-term bonds issued before the regime shift and phasing out it on old bank borrowing within the customary roll-over period of such loans.

REFERENCES

Alworth, J.S. (1988), *The Finance, Investment and Taxation Decisions of Multinationals*, Basil Blackwell, Oxford.

Auerbach. A.J. (1983), Taxation, Corporate Financial Policy and the Cost of Capital, *Journal of Economic Literature 21*, 905-940.

Boadway, R. and N. Bruce (1992), Problems with integrating corporate and personal income taxes in an open economy, *Journal of Public Economics 48*, 39-66.

Bond, S.B. (2000), Levelling Up or Levelling Down? Some Reflections on the ACE and CBIT Proposals, and the Future of the Corporate Tax Base, in S. Cnossen (ed.) *Taxing Capital Income in the European Union: Issues and Options for Reform*, Oxford University Press, Oxford.

Cnossen, S. (1996), Company taxes in the European Union: criteria and options for reform, *Fiscal Studies* 17, 67-93.

Fuest, C. and B. Huber (2000), The optimal taxation of dividends in a small open economy, CESifo working papers no. 348.

Harberger, A.C. (1962), The Incidence of the Corporation Income Tax, *Journal of Political Economy 70*, 215-240.

Harris, P.A. (1996), *Corporate Shareholder Income Taxation and Allocating Taxing Rights between Countries: A Comparison of Imputation Systems*, IBFD Publications, Amsterdam.

Hartman, D.G. (1985), Tax Policy and Foreign Direct Investment, *Journal of Public Economics* 26, 107-121.

Keen, M. (1991), Corporation tax, foreign investment and the single market, in L.A. Winters and A.J. Venables (eds.) *European integration: Trade and Industry*, Cambridge University Press, Cambridge, 165-199.

King, M.A. (1974), Taxation and the Cost of Capital, *Review of Economic Studies* 41, 21-35.

King, M.A. (1977), *Public Policy and the Corporation,* Chapman and Hall, London.

Sinn, H.-W. (1984), Die Bedeutung des Accelerated Cost Recovery System für den internationalen Kapitalverkehr, *Kyklos* 37, 542-576.

Sinn, H.-W. (1987), *Capital Income Taxation and Resource Allocation*, North-Holland, Amsterdam.

Sorjonen, P. (2000), Essays on Dividends and Taxes, *Helsinki School of Economics Publications A-164*, Helsinki.

US Treasury (1992), *Report of the Department of the Treasury on integration of the individual and corporate tax systems: Taxing business income once*, US Government Printing Office, Washington DC.

APPENDIX: INVESTMENT DECISION AND "TRAPPED EQUITY"

In the main text the emphasis is on the tax neutrality of the financing decisions of a multinational. Satisfaction of this does not guarantee intertemporal neutrality, which comprehensive income taxation (CIT) deliberately breaks, because it taxes the return on saving. In CIT, neutrality in respect of financing decisions means uniform taxation of all modes of saving for all savers. The investment decision is summarised briefly here, and extended to the different regimes of international taxation. Because the cost of capital is most controversial in the case of internal finance, it is almost the sole focus. Nor are tax depreciation allowances and similar investment incentives taken into account.

Define

MRR^h = the marginal pre-tax real rate of return on investment after true economic depreciation

r = the pre-tax real rate of interest on the alternative financial investment

When the company refrains from a dividend distribution of one euro and instead invests it, the shareholder's wealth increases by γ euros. The investment yields a post-tax dividend stream to the shareholder equal to $\theta(1-\tau^h)\,MRR^h$ in every future period, assuming the true depreciation to be continuously reinvested, which maintains the income generating power of the asset intact. The company invests up to the point at which the real rate of return on investment equals to the post-tax return on the shareholder's alternative financial asset:

$$\text{(A 1)} \qquad \frac{\theta(1-\tau^h)MRR^h}{\gamma} = (1-\tau^b)r$$

where θ is from (2) and γ from (4). These give $\gamma = \theta/(1-\tau^g)$, which implies that θ appears both in the numerator and denominator of (A1). The pre-tax cost of capital on investment financed from a marginal euro of post-tax profit retained is thus

$$\text{(A 2)} \qquad MRR^h = \frac{(1-\tau^b)r}{(1-\tau^g)(1-\tau^h)}$$

The striking feature of this is that dividend distributions on equity accumulated from undistributed post-tax profits no longer face the personal dividend tax τ^d, because the dividend tax is already deducted from the share price γ at the instant of profit retention. It follows that the tax rate of a marginal investment

$$\text{(A 3)} \qquad \frac{MRR^h - (1-\tau^b)r}{MRR^h} = \tau^h + \tau^g(1-\tau^h)$$

does not depend on the dividend tax rate τ^d when the source of finance is profit. This phenomenon, the capitalization of the dividend tax in the share price, is the "trapped equity" -argument. Dividend tax is paid in any case, whether one euro of post-tax profit is distributed

or retained, because dividends are the only way to channel the return on investment to shareholders. The marginal tax rate of investment (A 3), however, is made up of both the tax wedge of the investing company τ^{h} and that of supplying finance $\tau^{g}(1-\tau^{h})$.

Because the dividend tax τ^{d} is deducted in the market price of undistributed profit, it affects the average tax rate. When each euro of the true pre-corporation tax profit retained is taxed and when shareholders' accrual-equivalent capital gains tax is paid on the market value of the remaining post-tax profit, the average tax rate of the undistributed part of profit[18] is

$$\text{(A 4)} \qquad \text{ATR} = \tau^{h} + \tau^{g}(1-\tau^{h})\gamma ,$$

which clearly depends on τ^{d} γ from (4). If γ is less than one, as is often assumed to be case due to the fact that the effective τ^{g} tends to be less than τ^{d} in most tax systems, the average tax rate (A 4) is lower than the marginal one (A 3). If $\gamma = 1$ holds as with uniform flat-tax rates (9), tax rates (A3) and (A4) are equal. If the corporation tax system is the classical one without interest deductibility but with uniform tax rates (9), the tax rates (A3-4) are also naturally equal to those on the debt-financed part of the company $\tau^{h} + \tau^{b}(1-\tau^{h})$ and on the part of the company financed from outside equity $\tau^{h} + \tau^{d}(1-\tau^{h})$. If the company earns economic profit over its real cost of finance, i.e. it adds value, the average tax rate of the whole company is defined by (A4), when the tax rates satisfy condition (9).

The essentials of the "trapped equity" -argument do not change when the company is a multinational. It still follows from condition (A1) that the net dividend θ^{hf} in (18) pocketed from the repatriated dividend is cancelled out by the numerator γ^{f} (conditions 19a-c).[19] Dividend taxes, whether in the repatriation or onward distribution phase, are unavoidable. The only difference from the expression (A2) is that the foreign corporation tax rate τ^{f} of the investing subsidiary enters the cost of capital MRR^{f} instead of the h-country rate. Also, in cases where the h-country applies the imputation system, but does not extend it to the dividends received from and distributed abroad, the cost of capital remains unaffected. But, in both cases the relevant γ^{f} has an effect on the average tax rate (A4), increasing it when γ^{fh} in (22a-c) holds true.

Hence the cost of capital of a foreign subsidiary and the international allocation of capital depends on the dividend tax system if the subsidiary is marginally financed with newly raised outside equity, as analysed by Keen (1991).

[18] Formally (A4) is derived by setting d=b=0 in (5) and dividing the resulting total tax liability by pre-tax income of the corporation. The ATR is hence comparable to an effective average income tax rate.

[19] This is known as the Hartman-Sinn result, the relevant references being Sinn (1984) and Hartman (1985). Keen (1991) discusses it, including its break-down when profitability of the parent company and its foreign subsidiary are interdependent.