International Capital Mobility and the Taxation of Portfolio Investments

by

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Abstract: This paper provides an overview of problems related to the taxation of portfolio investments in an open economy. It starts by outlining empirical results on how taxation affects household portfolio structure and proceeds by discussing the relevance of international capital mobility in relation to portfolio investments. The paper then describes problems pertaining to the taxation of derivative financial instruments, interest, and dividends.

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1. Introduction

Much of the recent theory on international taxation has addressed the issue of how national tax policy could be undermined by tax policies pursued in other countries. It is well established that capital mobility has implications for taxing capital income from both foreign direct investment (FDI) and portfolio investment (PI). The degree to which the two are affected by the integration of capital markets and the nature of the problem it poses for tax design, however, are different. Capital movements associated with FDI are generally less tax sensitive than those associated with PI. Firms undertaking FDI take into account a set of nontax factors such as market size, trade barriers, access to skilled labor, political stability, and public infrastructure in addition to national tax factors.[1] Furthermore, firms undertaking FDI do so with the aim of controlling the investment activity. The aspect of control and the higher transaction costs and sensitivity to nontax factors mean that FDI is less driven by tax considerations alone than is PI. In addition, it is often easier to identify who the taxpayer is in relation to FDI, since such activities are more regulated at a national level.

In comparison with FDI the mobility of PI is quite significant. The rapid and far-reaching advances in communication technology mean that households can allocate their savings abroad literally by the push of a button. The investment choices cover a wide range of assets including whether to hold stocks, bank deposits or bonds, when to sell appreciated securities, as well as investments in assets for retirement. Even within a country there may be substantial variation in the tax treatment of different portfolio assets and thus the associated incentives for household portfolio allocation. Integrated capital markets open up the possibility that the tax treatment of the same assets differs across countries. Such differences can arise either

[1] See e.g. Devereux and Griffith (1998) for an empirical analysis on location decisions.

because national tax rates on the same asset vary, and/or because the timing of when gains and losses are subject to taxation differ. For example, most countries tax capital gains and losses at the time of realization, using the ordinary personal income tax. In some countries, however, gains and losses are treated asymmetrically. Gains are taxed when realized, but losses are deductible upon accrual.[2] Furthermore, some countries do not apply the ordinary income tax to capital gains, but use the corporate income tax or some other capital gains tax rate. Such differences in tax treatment can cause tax arbitrage across countries or increase the burden of taxation from the perspective of the taxpayer.

The literature on portfolio investments has mainly focused on how tighter economic integration and international capital mobility may create new opportunities for tax evasion and tax avoidance. Although most countries tax their residents on their worldwide income (taxation according to the residence principle), tax authorities have feared that taxpayers can avoid national taxation by allocating their portfolio investments to low tax countries. These countries are often (but not always) tax havens with laws protecting the privacy of investors by the use of secrecy and/or blocking laws thus making it difficult in practice to enforce the residence principle.[3] The difficulties of enforcing the residence principle mean that the same asset may face different effective tax rates across countries. Since portfolio investments are highly mobile internationally, national differences in tax rates may lead to competition over national tax bases, hamper the efficiency of international capital markets, and lead to the construction of tax minimizing portfolios.

In this paper I will discuss problems related to the enforcement of the residence principle in connection with international portfolio investments and the solutions put forward by

[2] Such rules apply in Belgium, Germany, and the Netherlands for foreign exchange gains and losses.

economists. In addition, the paper focuses on problems related to tax distortions that arise when taxing PIs. Given the international difficulties of agreeing on tax harmonization rules, I will not discuss the optimality conditions for personal and corporate tax rates on international investment. Besides, this approach has been taken up elsewhere.[4] Section 2 of this paper sums up the empirical evidence on how taxes affect portfolio structure as well as the evidence for international capital mobility. Section 3 reviews some of the main findings in the literature on taxes and derivative financial instruments (DFIs), a topic that has been somewhat neglected in the literature.[5] Section 4 investigates problems related to the taxation of interest income, Section 5 discusses the taxation of dividends, while section 6 offers some concluding remarks.

2. Portfolio Structure and Capital Mobility: Empirical Findings

In order to assess the impact of portfolio taxation on investor behavior one must have a clear understanding of how taxation affects portfolio structure and how sensitive portfolio investments are to international tax differences. Theoretical models of portfolio choice find that if an investor holds risky assets, she will hold some of every risky asset, with the total holding of assets determined by the investor's risk tolerance.[6] This pattern of behavior is at odds with the empirical findings. One reason is the introduction of savings instruments that allow the taxpayer to hold assets with the same pre-tax returns in different tax habitats. Different tax treatment of such assets constitutes a problem when formulating theoretical portfolio models that can make predictions on how households behave.

[3] Even if there is cooperation among countries on information exchange there is some evidence indicating that the receiver of information does not make effective use of the information (see Huizinga and Nicodème (2001)).
[4] See Devereux (2000).
[5] Notable exceptions are Alworth (1998), Bradford (1995), and Plambeck et al. (1996).

Empirical studies on how the tax system affects portfolio choice examine the tax on interest income, dividends and capital gains, as well as the tax availability of tax-deferred retirement savings accounts, and the deductibility of household borrowing. In addition, there is a small but important literature on how tax sensitive assets are to differences in national tax rates. Some of the main findings relevant for the purpose of this paper can be summarized as follows:

(1) *There is evidence of a link between after-tax returns and whether households own a particular asset and the amount invested in an asset*.[7] Empirical studies on US data are generally supportive of a link between taxes and portfolio structure although in some studies the effect is weaker than expected (see Poterba (2001)). For other countries results are somewhat stronger. Agell and Edin (1991) study Swedish data and conclude that taxes affect the allocation of household portfolios across a broad range of asset categories. For the Netherlands, Hochgurtel, Alessie, and van Soest (1997) find that higher marginal income tax rates are correlated with greater portfolio share of risky assets. Given that capital gains are not taxed in the Netherlands, one can infer from this study that higher marginal tax rates induce risk taking.

(2) *Investors facing the choice of holding assets directly or holding them through a financial intermediary seem to have a preference for investing through financial intermediaries*.[8] Two hypotheses have been offered to explain this result. The first is that financial intermediaries can achieve a better diversification than investors can do alone, given the often limited scale of an investor's investment. The second explanation is that investors appreciate the record-

[6] See e.g. Auerbach and King (1983).
[7] These and some of the subsequent findings are taken from Slemrod (2001).

keeping and liquidity services provided by financial intermediaries. Investing through a financial intermediary may have consequences for how PIs are taxed, since many intermediaries do not pay dividends to shareholders, but reinvests gains. In such cases investors are not subject to dividend taxes, but will be taxed on capital gains.

(3) *Asset trading is affected by tax rules and sensitive to investor marginal tax rates.* Studies on the 1986 US Tax Reform and other policy changes in the US that have affected capital gains realizations, show that investors respond to changes in the rules governing capital gains by trading at certain points in time that induces tax rewards (Burman (1999) and Poterba (forthcoming) reviews this literature). Although studies on other countries are scant, Umlauf (1993) reports that the traded volume on the Stockholm Stock Exchange fell after the introduction of a Swedish transaction tax on trades. Once the tax was revoked, trade picked up again.

(4) *When households can borrow and deduct their interest expenses against taxable income, there is clear evidence that the tax deductibility of interest affects the borrowing behavior of households.* Scholz (1994) and Maki (1996), for example, show for the US that household borrowing is affected by changes in the after- and pre-tax cost of borrowing. Similar evidence for some European countries are collected in Tanzi (1995)

(5) *There is substantial evidence for tax motivated portfolio investments across countries.* Perhaps the most notable account of tax motivated portfolio investments and tax evasion is the German attempt to introduce a source tax on interest income in 1994. The first attempt in 1989 failed since the German bank secrecy law enabled resident investors to evade taxation

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[8] See Poterba (1994), Dickson and Shoven (1995), and Poterba and Samwick (1999).

by massively channeling funds into Luxemburg.[9] Later efforts by the German government allowed a substantial amount of income to be tax exempt effectively sheltering most German households from taxation and making the tax into a source tax on foreign investors.

A small literature has tried to assess the German experience by studying how international banking flows are affected by differences in national tax rules. Grili (1989) examines how international non-bank as well as inter-bank deposits are affected by tax policy and bank secrecy. He reports that non-bank deposits are influenced by taxes on interest and bank secrecy, while inter-bank deposits are affected by dividend taxation. Alworth and Andresen (1992) find that withholding taxes and bank secrecy variables are determinants of cross-border deposits. Recently, Huizinga and Nicodème (2001) have investigated the responsiveness of international banking flows to residence-based taxes on interest income and wealth as well as other income taxes that applies to foreign-source income. They find that high income and wealth taxes, as well as the practice in many countries of requiring banks to report deposits and interest payments of domestic residents to the tax authorities, contribute to international bank placements. From their study follows the conclusion that international deposits are in part intended to facilitate tax evasion, and that the tax sensitivity of international deposits seems higher in 1999 than before.

If one should make an attempt to assess the lessons learned from the empirical studies on portfolio choice one might conclude that; (a) taxation and differences in tax treatment across assets affect the choice of asset as well as the amount invested, and (b) national differences in tax rates seem to affect in particular international depositing. How much of a problem the international mobility of capital constitutes for national tax autonomy is a topic where

[9] The 1981 secrecy law in Luxemburg was used by German banks to prevent information exchange from Luxemburg to Germany. See e.g. *The Wall Street Journal*, Nov. 16, 1994: ' Tiny Luxemburg cashes in on

academics hold different opinions. The example of Germany is certainly one of great concern. Although this example indicates that capital mobility may paralyze a country's ability to levy taxes on portfolio investments, the world capital market is still far from the textbook story of perfect capital mobility. Feldstein and Horioka (1980) and later several other studies[10], have found evidence suggesting that capital is less than perfectly mobile. The evidence includes the lack of international portfolio diversification, real interest rate differentials across countries, and a high correlation between domestic savings and investment.

Several theories have been put forward to explain these findings. One theory is that capital is perfectly mobile internationally, but that real shocks to the economy lead domestic savings and investments to be positively correlated (e.g. Finn (1990)). A second theory is that most of the empirical work is on large countries, which by their sheer size attract a sizable share of new savings (e.g. Murphy (1984)). Large countries can also affect interest rates in a for them favorable way thereby reducing the net inflow of capital (e.g. Summers (1988)). Some studies on small countries – although few in numbers - seem to support this theory. Schultze et al (1990) report a lack of correlation between savings and investments for Norway suggesting that capital is very mobile (see also Obstfeld (1986)). A third hypothesis is that the use of capital controls in many countries up until the late 1980s may explain the lack of capital mobility in the early studies. A fourth explanation is put forward by Gordon and Bovenberg (1996). They claim that asymmetric information between investors in different countries put foreign investors at a handicap when investing abroad.[11] Finally, Gordon and Caspar (2001) explain international immobility of capital by a 'home bias' model of portfolio choice. In their

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Germany.'

[10] See Gordon and Bovenberg (1996) and Tesar and Werner (1994) for documentation of the empirical literature on capital mobility.

[11] Other theories have been that of high transaction costs when buying foreign securities and exchange risk. However, Adler and Dumas (1983) and French and Poterba (1991) show that the size of these costs (and risks) must be so large in order to explain the puzzle of capital immobility that they are not plausible.

model random domestic consumer prices cause individuals to invest heavily in domestic equity as a hedge against these price fluctuations.[12] They show that free mobility of capital would be the outcome if monetary policy were used to stabilize domestic prices, allowing exchange rates to absorb random variation in relative commodity prices between countries.

Although the empirical evidence suggests that capital is less than perfectly mobile, the flows of financial capital are substantial. Some of these movements reflect hedging strategies that are offsetting (like a forward contract that is a hedge against a foreign exchange transaction at some future date). Nevertheless the net flows are still considerable. For example, in 1998 net financial investments from abroad to the US constituted 6% of US GDP – and increase of 400 percent compared to 1991.[13] Portfolio flows are also of importance to developing countries. Claessens (1995) report that portfolio flows account for about a third of the net resource flows to developing countries. In terms of the world flows of PI and FDI, PI constituted about 70 percent in the early 1990s.[14]

3. The Taxation of Derivative Financial Instruments (DFIs)

The availability and variety of DFIs have grown tremendously over the last decade and it is reasonable to assume that both the number of users and the instruments at hand will continue to expand. Derivatives are used for many purposes such as hedging, arbitrage, speculation and trading. The development of these instruments allows risks to be isolated and managed in a variety of ways thus enhancing the efficiency of capital markets.

[12] This argument relies on that domestic consumers prefer to consume goods produced domestically, that indexed bonds are not available, and that the price of domestic capital and domestic consumption are closely linked.
[13] Board of Governors of the Federal Reserve System, 1999.

There are many types of DFIs and the focus in this section will be on risk-shifting financial contracts whose payment terms derive from the value of an underlying transaction (i.e., such as forward contracts and futures, swaps, options, caps, collars etc.).[15] A crude way of defining a DFI is to say that the payments rights (and obligations) derive from the value of an underlying cash such as interest rates, stock market indices or any other objectively ascertainable index. A main thing to note is that the future value of the underlying cash is uncertain and that its variation is at the core of calculating payment terms. The payment terms of a DFI can be grouped into two categories; (a) those that call for unconditional payments (i.e., forwards, futures, and swaps), and (b) those that calls for conditional or contingent payments (i.e., options, caps, floors, and collars). Since a DFI can replicate almost any underlying cash (or physical market), DFIs give the taxpayer the choice between the conventional transaction and the 'synthetic' version. If the taxation of these differs, either nationally or across countries, the end result could be tax arbitrage and the construction of tax efficient portfolios.

Most countries tax income derived from cross country PI on a source tax basis using withholding taxes that apply to clearly defined income categories such as interest, dividends, and royalties. Income from DFI is seldom part of these well-defined income categories, which effectively exempts DFIs from source taxes.[16] The lack of source taxation creates an incentive for taxpayers by use of synthetics to disguise otherwise taxable transactions as DFIs. In order to prevent such practices tax authorities must disaggregate DFI transactions and make sure

[14] Slemrod et al. (1996)
[15] Various types of debt and equity instruments, securities lending, stripping transactions etc. are not discussed although they are important.
[16] Unless the foreign taxpayer has a permanent establishment in the source country. See Alworth (1998, p. 513) and Plambeck, Rosenblom and Ring (1996, p.685).

that all types of portfolio income are subject to tax at the same tax rate (see Alworth 1988, p. 524).

Another feature of the taxation of DFIs is that most countries use the *separate transactions principle*, which means that every single contract is viewed as separate (i.e., standing on its own and thus isolated from the underlying asset). Consequently, taxable income from a DFI is the net value of all amounts due and all amounts payable in the accounting period (usually an annual period). At least two problems arise from using the separate transactions principle. The first pertains to asymmetric tax treatment of related portfolio positions, and the second relates to what constitutes a single transaction. These two problems are discussed in greater detail below.

(1) *Asymmetric tax treatment of related portfolio positions.* An illustrative example is what might happen under hedging and integration. Suppose an investor wants to hedge the principal amount of a foreign currency denominated bond with a forward contract.[17] For simplicity, assume that the net pre-tax profits from the combined transactions are € 10 (irrespective of changes in exchange rates), and that the bond results in a gain of € 25 and the DFI a loss of € 15. If the loss from the DFI is not tax deductible against the gains of the bond, and we assume a tax rate of 20%, then after tax income would be € 5 (€ 25 - € 5 (tax) - €15). If instead the loss was tax deductible, taxable income would be € 10 (€ 25 - €15), and after tax income € 8. The less than ideal after tax income of € 5 arises, since the hedge contained a risk of producing non-deductible losses not offset by the debt instrument.[18] The main point is that since DFIs may be held in portfolio with other transactions, asymmetric tax treatment of the different components creates distortions that either favor the taxpayer or the tax authorities

[17] This example is from Plambeck, Rosenblom and Ring (1996).
[18] It is of course possible to construct examples where the beneficiary is the taxpayer

(2) *The single transactions principle raises the question of what constitutes a single transaction in connection with a DFI?* Put differently, should a single DFI transaction be disaggregated into its elements? Many countries follow the *no decomposition principle*, which means that single instruments are not disaggregated. As a consequence, transactions such as a forward contract where there is compounding of interest every year, do not entail taxation until termination (which may take several years). This raises the issue of when taxes should be collected. Furthermore, since DFIs can be used to create synthetic transactions, one type of transaction can be embedded in another one so that the actual cost or gain may be viewed for tax purposes as something different from the transaction. Plambeck, Rosenblom, and Ring (1996) give the example of a loan that is embedded or disguised in prepaid swaps and deep-in-the-money options in such a manner that the principal paid appears as a premium for an off-market transaction.[19]

The discussion so far has given just a few examples of the distortions created by present tax practices. These examples, however, suffice to show that in order to reduce tax incentives and tax motivated timing of transactions, the tax system must ensure that *all income derived from portfolio investments are taxed at the same tax rate, and that full loss offsets are given (at the same tax rate).*[20] A consequence of this conclusion is the uniform tax treatment of dividends, capital gains/ losses, as well as interest taxation. Alworth (1998) recommends that in addition to the above requirements, *taxes should be collected on an accrual basis (i.e., by marking-to-market).* This means that the holder of a DFI is taxable on its change in value over the tax period, plus any cash (or property) received, minus any cash (property) paid.

[19] The terminology 'deep in the money' refers to that the option has substantial economic value to the holder (as opposed to the term 'out of the money' where the exercise of the option is not economically valuable to the holder).
[20] For an exhaustive discussion see Bradford (1995).

A tax system that embeds full accrual and marking-to-market can be difficult to implement. In particular small businesses and households may not find it easy to mark to market their position unless financial intermediaries can provide information. Furthermore, unrealized gains may constitute severe cash flow problems for the taxpayer upon the time of tax payment, and this requires special provisions in the tax legislation that effectively defer taxation until the position is sold.[21] Perhaps the most severe problem under a system of marking-to-market is the taxation of transactions that occur infrequently and thus have no comparable prices.

An alternative system to accrual accounting is taxation *on the basis of realization, where the latter system requires correct handling of past accruals* (Auerbach (1991); Bradford (1995); Alworth (1998)). In order to eliminate the incentives to defer gains, a system must be implemented that mimics the effects achieved under accrual taxation. This can be done by using either 'retrospective averaging formulas' (Meade (1978)), or by imputing interest on tax payments on unrealized income in each time period. The interest rate to be used should be the imputed risk free interest rate.[22] The implementation of such a system could entail some administrative cost, but these may not be more severe than those occurring under a system of marking-to-market. [23]

[21] See Alworth (1988) for a more in depth description of these problems and the solutions.
[22] There are two alternative methods to achieve this by, one is outlined by Auerbach (1991) and is essentially the one described above. The alternative proposal is by Bradford (1995); It separates the intertemporal gains associated with deferral and the gain (loss) associated with the uncertain pattern of returns.
[23] The latter system differ from the former in that it to a large extent seems to pass the cost of implementation on to fiscal intermediaries.

4. The Taxation of Interest Income

Although most countries apply the residence principle when taxing income from any portfolio investment, there is no international agreement of cross border information exchange of information concerning portfolio investments. This means that taxpayers who hold international bank deposits and do not report their foreign source income can evade domestic taxation with relative ease. Given the high international mobility of bank deposits and the typically low taxation of interest at source, a question arises as to whether the taxes on interest income (and PI in general) are sustainable in the global economy. Following the logic of the tax competition model, if capital can only be taxed at source due to difficulties of enforcing residence taxation, each country will set a too low tax rate in equilibrium, since each country will neglect the externalities it inflicts on other countries (see e.g. Wilson 1986) and Wildasin (1988)). The result of such competition might very well be a race to the bottom (i.e., close to zero rates).

If a tax competition effect is in place, and if PI is the most mobile tax base, one would expect that those taxes that fall on PIs are declining over time.[24] One would therefore need to examine how these taxes have developed the last two decades. Table 1 shows that statutory tax rates on capital income have fallen substantially for a selection of western countries.

[24] Examining statutory tax rates may be indicative of competition, but is not sufficient in itself to determine that countries compete over capital. For a more in depth discussion on these matters see the paper by Devereux and Griffith in this volume.

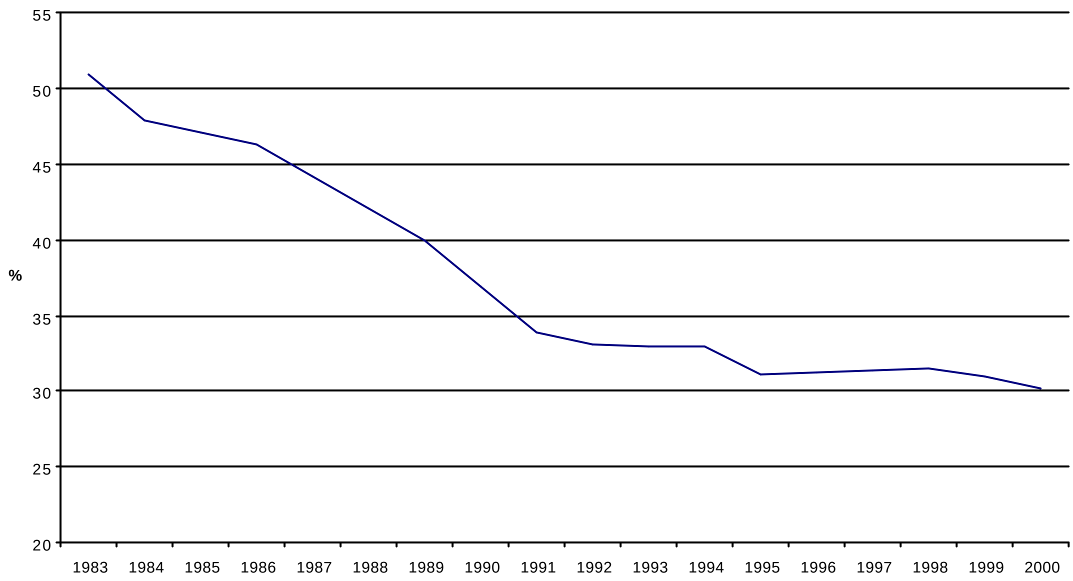
Table 1: Statutory tax rates on retained corporate income (%)

	1985	1999	Change 85-99
Average for small countries (< 20 mill.)	49.1	31.9	-17.2
Average for large countries (> 40 mill.)	48.2	40.0	-8.2

Source: Sørensen (2000). *Small countries in the sample are*: Denmark, Finland, Norway, Sweden, Belgium, Netherlands, Luxemburg, Ireland, Portugal, Austria, Switzerland, and Australia. *Large countries are*: Spain, Italy, France, Germany, U.K., USA, and Japan.

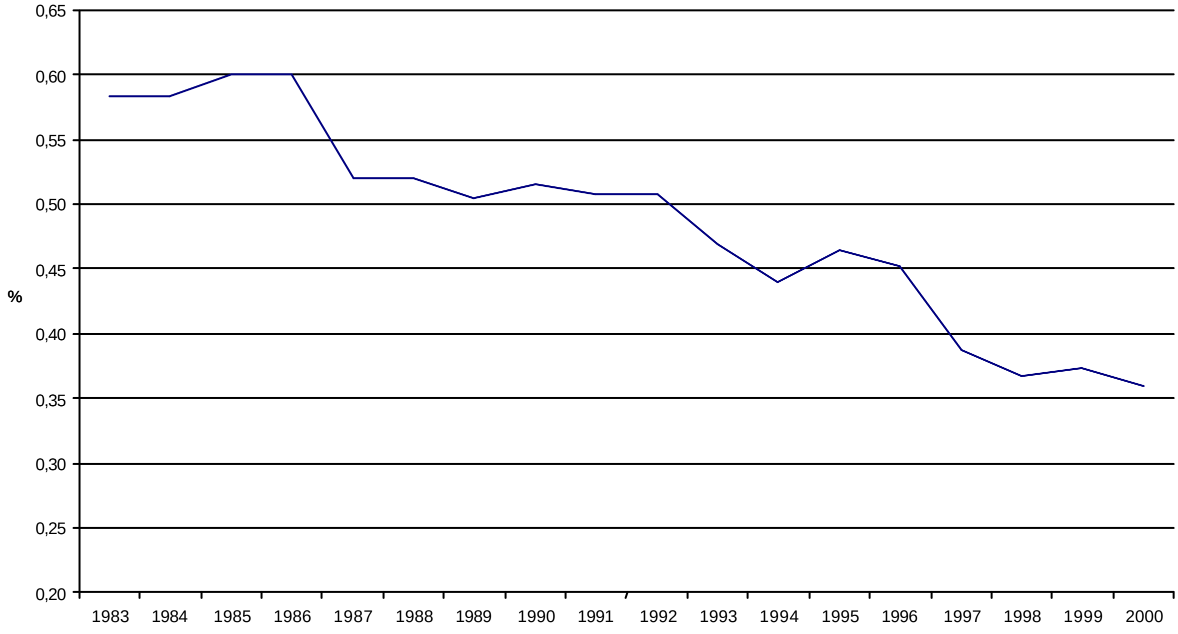
In addition to the decline in statutory corporate tax rates, it is interesting to note that taxes on interest income, wealth taxes, as well as withholding taxes have fallen across countries as shown in Fig.1-3.

Figure 1. Average interest income tax on residents.



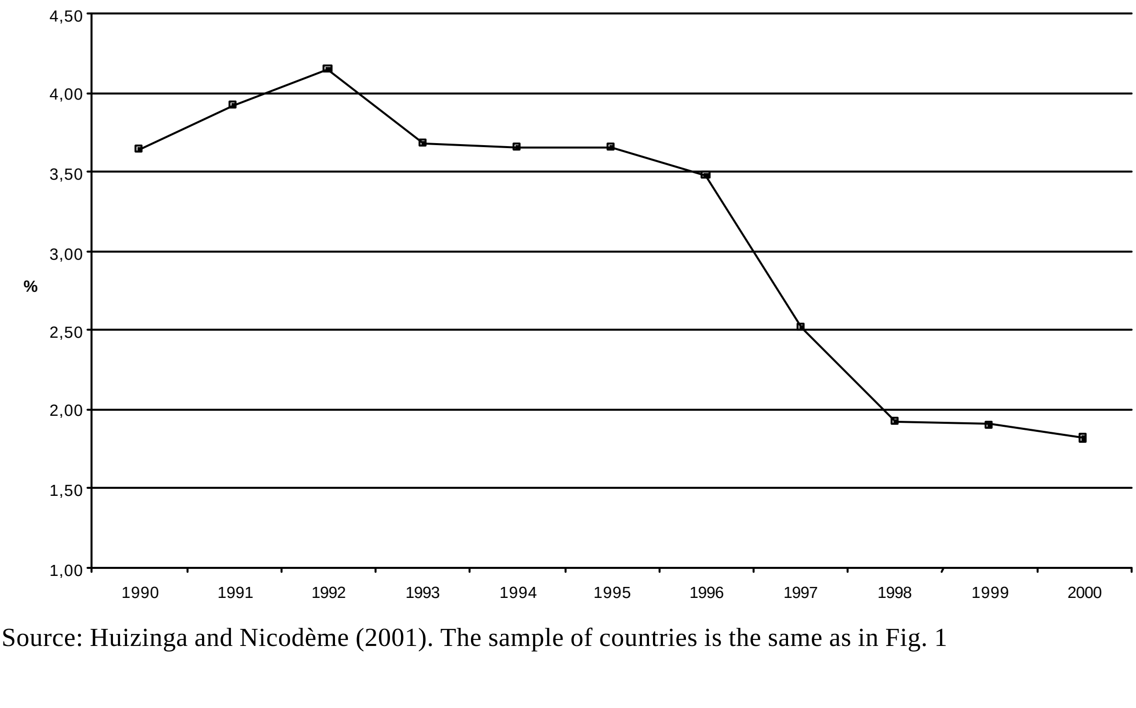
Source: Huizinga and Nicodème (2001). The countries in the sample are: Australia, Austria, Bahamas, Bahrain, Belgium, Canada, Cayman Isl., Denmark, Finland, Greece, Hong Kong, Ireland, Italy, Japan, Luxemburg, Netherlands, Netherl. Ant., Norway, Portugal, Spain, Sweden, Switzerland, U.K., and USA

Figure 2. Average wealth tax on financial wealth



Source: Huizinga and Nicodème (2001). The sample of countries is the same as in Fig. 1.

Figure 3. Average withholding tax on interest from bank deposits to non-residents



Source: Huizinga and Nicodème (2001). The sample of countries is the same as in Fig. 1

As a response to the problem of tax evasion and portfolio capital flows across countries the OECD (1977) has argued in favor of a minimum withholding tax on nonresident's interest income. The purpose is to reduce the attractiveness of channeling funds abroad and to shelter national tax bases from competition.

The problem with the OECD proposal is that it hinges on that all countries agree on the usefulness of a minimum withholding tax, and that they jointly can find a common statutory tax rate high enough to do the job. In the EU, where commodity tax rates have been partially harmonized, the political process lead to a rise in tax rates in low tax countries (although not by very much). It is an open question whether one can agree on a minimum withholding tax and if such a tax will be high enough to dampen the incentives for tax evasion.

European policy makers have approached the problem of tax evasion on interest income in a different way than the OECD. The European Union has agreed that active from 2010 international exchange of information should be the mechanism that prevents harmful competition between its member countries. For the EU, steps to prevent competition over deposits is of particular relevance, since the introduction of the Euro has eliminated the exchange rate risk associated with such transactions among member countries. Until information exchange is laid down in a binding directive (to be done by the end of 2002), countries can freely compete over bank deposits, but with the understanding that the low tax countries of Austria, Belgium and Luxemburg pass on 75 percent of the tax revenues derived from foreigner's deposits to their residence country.[25]

[25] The Directive is to be followed up by agreements directed towards third countries (notably Switzerland).

Some critiques have claimed that even if an agreement on information exchange is reached, such a system may not work in practice. Andersen (2000) points out that a system of information exchange seems to require the implementation of a 'European Taxpayer Identification Number'. His argument is backed by an example where a Swedish woman is employed in Belgium. In order for her to open a bank account in Belgium she is required to use her maiden name (for many transactions in Belgium the maiden name is required). If she is married and has taken her husbands last name, she will be registered in Sweden under his last name. An information request from either country will draw a blank in this situation.

Another problem related to information exchange is the incentive to provide information and the ability to control that all relevant information is submitted. Several theoretical contributions (e.g., Bucovetsky (1991) and Wilson (1991)) find that if countries compete to attract financial capital, small countries stand to gain, since they face a higher elasticity of capital supply from the world capital market. This result indicates that information exchange may be less easy to achieve than anticipated. The reason is that small countries - like tax havens - stand to gain the most from economic integration and competition over scarce capital. If compliance turns out to be a problem, an international tax agency may be needed in order to monitor the information efforts exerted by countries.[26]

The difference in approach chosen by the OECD and the EU suggests that there are serious trade offs between information exchange and a minimum withholding tax on interest income. From a national perspective, the choice of method matters since it has consequences for the collection of tax revenue. Nonresident withholding taxes will benefit the source country, while information exchange restores residence taxation. Countries that rely on attracting

[26] Tanzi (1995) has argued in favor of such an institution.

international deposits would favor a minimum withholding tax, while countries that are net exporters of deposits should be the advocates of information exchange.

Several authors have examined the question of information exchange versus withholding taxes when residents withhold information about their foreign earned income. Bachetta and Espinosa (1995) maximize the utility of a representative individual (subject to a public expenditure constraint), and show that in a static framework a country may gain from providing information about foreigner's deposits. This is the outcome if information exchange enables the country that experiences capital flight to increase its tax rate. Such an increase will benefit the information-sharing country by reducing the incentive for its residents to place deposits abroad.[27] In a follow-up study using the same type of welfare function, Bachetta and Espinoza (2000) show that in a repeated game framework, information exchange can be part of the solution if it enables countries to prevent too high taxation of income from foreign (direct) investment. In the same game theoretical setting Huizinga and Sørensen (2001) examine the choice between either a non-resident withholding tax or information exchange. They use a two country model where the government maximizes domestic social surplus consisting of private income, profits and tax revenue. They find that several equilibria may exists where; (i) both countries either choose withholding taxes or information exchange or/and (ii) a mixed regime arises where one country chooses information exchange and the other withholding taxes. Which equilibrium outcome is most likely is substantially affected by the government's discount rate. Both countries prefer information tax exchange if there is little discounting of the future. The reason is that if one country does not supply information it triggers subsequent withholding of information from the other country. With little discounting

[27] Note that the countries in the Bachetta and Espinoza (1985) framework are large in the sense that there exists strategic interdependence between the strategic policy instruments of countries, but small in the sense that each country cannot affect equilibrium factor prices.

the punishment scheme is very harsh and provides such a strong incentive for compliance that information exchange effectively reinstates residence taxation.

A small group of papers argue that in considering the effect of a minimum nonresident withholding tax, one must take into consideration the spillover effect on the less mobile parts of the tax base.[28] A restriction on tax preferences leading to higher taxes on portfolio investments, for example, could induce a fall in taxes on more immobile bases, as the restriction could cause competition to spread to other tax bases. It may then be that competition over immobile tax bases is less efficient. Janeba and Smart (2001) examine restrictions on preferential regimes when governments are of the 'Leviathan' type (i.e., maximize tax revenue). They show that restrictions are desirable if the difference in mobility across tax bases is sufficiently large. In contrast, Keen (2000) using the same welfare function as Janeba and Smart (2001), shows that any restriction on national tax preferences is harmful if the aggregate tax bases are not affected by a coordinated tax change.

A major issue relating to the minimum withholding tax is whether a group of countries (like the EU) as a whole can gain from reaching an agreement on harmonizing the withholding tax if the rest of the world does not follow suit. The gain from the harmonization effort will then depend on the strategic response from countries outside the agreement. Konrad and Schjelderup (1999) show that harmonization among a subset of countries increase welfare (denoted by utility from public goods provision, capital income net of taxes, and rent income accruing from capital employed domestically) for all countries (i.e., both within and outside the harmonizing coalition) if tax rates are strategic complements.[29] Strategic complementarity means that harmonizing tax rates by increasing the rate to a common level among the

[28] See e.g. Janeba and Peters (1999), Keen (2000), and Janeba and Smart (2001).
[29] I.e., the reaction function is upward sloping.

coalition partners triggers a tax increase by the countries not part of the harmonizing coalition.[30]

The role of inside and outside tax havens are discussed in Huizinga and Sørensen (2000). They analyze a setting with three countries: a "typical EU country, an "inside" tax haven, and an "outside" tax haven. They conclude that if the "inside tax haven" is forced to implement a minimum withholding tax above the noncoperative level, such a policy has an ambiguous effect on welfare (i.e., private income, profits, and tax revenue) in the other EU country. The reason is that a minimum withholding tax will reduce capital flight out of the "typical" EU country thereby increasing tax revenue and welfare. On the other hand, those households that previously placed funds in the "inside" tax haven must pay higher taxes and this lowers welfare. Numerical simulations using their model, however, show that it is very likely that the "winner" is able to compensate the loser suggesting that a minimum withholding tax could be beneficial.

5. The Taxation of Dividends

Dividends are potentially an important source of income in the portfolios of investors. The taxation of distributed profit in many countries poses a special problem in an open economy, since dividends often are taxed both at the firm level and at the shareholder level (this is often referred to as the 'classical system').[31] Many countries offer double taxation relief from such practices by allowing a full or partial tax credit for corporate taxes on distributed profits (one notable exemption is the US). In most countries the tax credit does not apply to investors who

[30] Sørensen (2000) has estimated the effect of a minimum binding tax on capital income levied at source chosen so as to maximize the population-weighted average of national welfare levels. His simulations indicate that strategic complementarity prevails for reasonable assumptions in a general equilibrium framework.

hold foreign shares thus introducing a bias in favor of domestic shares as well as impeding the efficiency of global stock markets. In addition, the discrimination of home and foreign investments has implications for ownership structure, since foreign shareholders of domestic firms do not in general receive a tax credit for corporate taxes paid on distributed profits by domestic firms. The investment bias arises due to a problem of tax exporting. If a country were to grant a full relief from foreign corporate taxes paid on distributed profits to its residents, it would present the foreign country with an incentive to increase its tax on dividends to foreign shareholders since this would not affect investment incentives of foreign investors.

A small literature has emerged that analyzes whether it is optimal for small countries to discriminate against international equity investments whilst still providing tax credits to domestic shareholders for domestic corporate taxes on distributed profits. Boadway and Bruce (1992) find that investments at the firm level are determined by the corporate tax and not by how distributed profits are taxed at the hand of the shareholder. Taxes on dividends and the tax credit only affect household savings and portfolio structure. Hence, dividend tax credits cannot alleviate the investment distortion, which can only be remedied by an imputation system or converting the corporate income tax into a residence based tax. Fuest and Huber (2000) analyze the optimal taxation of dividends and other income from portfolio investments in a model where the return from shareholding is risky. Maximizing expected utility from consumption of private and public goods, they show that it is not desirable to offer double taxation relief for dividends paid by domestic firms to domestic households. As in the Boadway and Bruce paper, they find that in an open economy the level of domestic investments is not affected by the taxation of dividends. A tax credit for taxes paid by the

[31] A common criticism of this system is that it distorts the allocation of resources between the non-incorporated and corporate sector.

corporation on distributed profits is effectively a subsidy on savings that introduces a distortion to the economy. Different from Boadway and Bruce (1992) are their conclusion that it is never desirable to alleviate the distortion from double taxation of dividends. The rationale is that it is optimal to raise a uniform tax on all classes of asset income.[32]

An alternative to the classical system of dividend taxation – but not necessarily a better system - is the adoption of a dual income tax (DIT) of the kind the Nordic countries have used for some time. Under a DIT, capital and labor income is divided into separate categories, which may be taxed at different rates. Double taxation of corporate profits at shareholder and company level is avoided by exempting dividend income at the shareholder level.[33] Cnossen (1996) discusses the requirements for using the DIT in the EU.[34] He argues that among the necessary requirements for successful implementation is the application of a single corporate tax rate to all capital income originating within a member country, elimination of double taxation by exemption of dividend income, and taxing capital gains only if and to the extent that such gains exceed the 'book' value (i.e., the written up basis of shares). The proposal also entails exemption of outward dividend income from withholding tax, and a source tax equal to the corporate tax levied on interest income and royalties (non refundable to non-residents). In sum his recommendation is a transition into DIT, but allowing (for the moment) the current legislation on international income taxation to be intact.[35]

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[32] This result hinges on that the utility function exhibits constant relative risk aversion. It turns out that with constant absolute relative risk aversion the tax on domestic dividends should be even higher than the tax on non-risky asset income.

[33] Or by use of a full imputation system under which dividends are grossed up by the corporate tax, and a full credit for that corporate tax is allowed against the personal tax on the grossed-up dividends

[34] Nielsen and Sørensen (1997) argue that a DIT combining a proportional tax on capital income with progressive taxation of labor income can be defended on pure efficiency grounds since progressivity can offset the tendency of the traditional proportional income tax in favoring investment in human capital. Since human capital is in reality taxed on a cash flow basis a proportional tax does not reduce such investments (as opposed to the effect of a proportional tax on other types of investments).

As acknowledged by Cnossen, there are several problems connected to the DIT and these are mainly related to the incentives of avoiding the personal tax rate. This problem is particularly relevant when calculating the labor income of self-employed and/or 'active' (majority) shareholders. In order to avoid being assigned labor income and thus taxed by the higher personal income tax, 'active' owners (majority owners) have used various schemes in order to reduce their shareholding so as to become 'passive' investors subject to the low corporate rate only. The Norwegian experience shows that many of these schemes are 'pro forma' where the owners effectively retain control of the company although they appear to be passive investors. Although illegal, it has proven costly and difficult to prevent these constructions, and it seems that a narrowing of the differential between the personal and the corporate tax is called for in order to reduce the incentive for tax evasion.

6. Discussion and concluding remarks

This paper has provided a survey of some of the issues pertaining to the taxation of portfolio investments in the open economy. It does not offer a complete survey or a solution to many of the challenges and problems that arise in connection with the taxation of asset income. Each of the topics discussed warrants a full-scale paper to pay justice to the theme. The taxation of financial derivative instruments in particular remains a topic where very little guidance is provided in the literature as to how countries should coordinate their efforts. A real fear is that 'synthetics' could be used to transfer one type of taxable income into another category of income that is untaxed. In order to prevent such transactions from arising a tax system that embeds full accrual and marking-to-market may be desirable. However, the lack of symmetry

[35] To do full justice to the proposal by Cnossen (1996) would require a substantially longer discussion about the other elements in the proposal.

in rules for international income may constitute serious problems for the taxation of 'synthetics', and may impede the use and efficiency of DFIs in general. Finally, it should be noted that the taxation of financial instruments poses distributional challenges, since those who can afford to pay for tax advice are those most likely to benefit for the international anomalies that arises from differences in tax treatment.

The problems related to the taxation of interest income and minimum withholding taxes versus information exchange remains largely unresolved even within the literature. My personal opinion is that the EU agreement on information exchange is not likely to work. The skepticism is based on the lack of an institution that can effectively enforce truthful information exchange, and the strong commercial incentives tax havens have in concealing either transactions or taxpayer identity. Even if an information exchange system were partly successful in the sense that it closed down some of the tax havens, the benefits to the remaining tax havens would rise substantially presenting very strong incentives of noncompliance. Only if one could effectively punish countries that do not abide would information exchange work well.

Are withholding taxes a better alternative than information exchange? As argued above withholding taxes do not work well in connection with DFI. Although there is still a case for withholding taxes, it requires a substantial reform of the tax system. Furthermore, tax havens have an incentive not to collect a withholding tax. For example, what is to prevent a country from levying a withholding tax and give the collected revenues from the tax back to the taxpayer by some clever scheme that may appear unrelated to the withholding tax? Unless one can make sure that all possible evasive actions can be written into a contract, which is very difficult can such schemes be avoided.

A withholding tax would probably work well if one could ensure that it was paid back to the residence country. Mayer (1989) has suggested to implement a tax credit system where the country of residence reimburses the taxpayer of any foreign taxes paid, but can claim back the tax credit from the taxing source country. Such a system reduces the incentive of the source country to overtax investors, but it suffers from the same type of weakness as the other proposals; it warrants cooperation from all countries even those that do not have a commercial interest in the scheme.[36] It therefore seems very unlikely that tax havens worldwide would cooperate by way of such a scheme unless compensated in some ways. A reasonable assumption is therefore that countries will still benefit from devoting resources to the detection of tax evasion.[37]

The lack of a scheme that ensures residence taxation of portfolio investments begs the question of what countries should do. One lesson from the tax competition literature is that small countries have incentives to underbid large countries thus creating a downward pressure on taxes that fall on PI. Indeed, Table 1 and Figs. 1-3 indicate that statutory taxes on PIs have been falling the last two decades, and it would come as no surprise if this trend continues. Another trend is that some countries allow a sizable amount of interest income to be tax free thereby reducing the effective tax on interest income (Germany being a high profile example). One reason for such practices is to stem the flood of capital to low tax countries. Another is redistribution. A high tax on interest income may have unfavorable redistributive consequences particularly if high-income earners are those who exploit international tax

[36] Cnossen (1996) has suggested the introduction of a comprehensive business income tax (CBIT). The CBIT scheme implies that instead of deduction of interest on debts, firms pay a tax on interest on debt so that interest would no longer be subject to tax at the personal level. If implemented, the problem of tax evasion on interest income would be eliminated, but the system again requires compliance among all countries for it to be effective. There are also other problems related to the implementation of the CBIT, see Huizinga and Sørensen (2000).

[37] See Schjelderup (1993) for an analysis.

differences by placing savings in tax havens, or use tax advice to convert interest income into hard-to-tax-income categories (such as mixed funds).

The taxation of dividends should be seen in connection with the wealth tax and the taxation of capital gains. The reason is that in an open economy the sum of taxes on capital may affect the ownership structure within a country. In most countries the wealth tax falls on residents only and may discriminate against domestic ownership if the foreign country does not levy a tax on wealth. This may be one of the reasons for why so many countries have abolished the wealth tax. The disadvantage of the wealth tax can be offset by withholding taxes on dividend payments to foreigners (depending on the size of each tax) provided that the foreign country does not allow a full credit. The investment bias either in favor of domestic or foreign ownership is hard to eliminate unless an international agreement can be reached on tax credits. It is not very likely that such an agreement will come about even in the distant future. A reasonable conclusion seems to be that policymakers must make up their mind as to who should be given preferential tax treatment. A conventional welfare analysis would suggest that domestic residents should be at the favored end.

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